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NATIONAL AIR TOXICS INFORMATION CLEARINGHOUSE



Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

STAPPA / ALAPCO

State and Territorial Air Pollution Program Administrators
Association of Local Air Pollution Control Officials

Bibliography of Selected Reports and Federal Register Notices Related to Air Toxics

Volume 2: Citations - 1988

July 1988

RECIPIENTS PLEASE NOTE:

The format for distributing the National Air Toxics Information Clearinghouse bibliography report has changed because of the large number of reports and Federal Register notices published related to air toxics. Currently, the complete hard copy version of the bibliography includes two volumes and an index. Volume 1 (EPA-450/5-88-005), distributed last year, contains cumulative citations for reports and Federal Register notices published from before 1974 through March 1987. Volume 2 (EPA-450/5-88-005), enclosed, has the more recent citations for reports and Federal Register notices published between April 1987 and March 1988. The Index - 1988 (EPA-450/5-88-006), also enclosed, enables users to identify reports of interest in either Volume 1 or 2. The index is a cumulative document that expands and replaces last year's edition. The index received last year should be discarded. However, Volume 1 which you received last year SHOULD BE KEPT TO MAINTAIN A COMPLETE LIST OF CITATIONS.

This bibliography is updated regularly by the Clearinghouse. In the next update, the Clearinghouse will publish abstracts only for the newly identified reports and Federal Register notices, but will publish a cumulative index to all citations. Thus, users should save previous volumes of the bibliography citations (Volumes 1 and 2) for use after July 1989.

For additional copies of the bibliography reports, Federal, State, and local agency personnel as well as members of nonprofit organizations should contact the Clearinghouse staff at (919) 541-0850, (FTS) 629-0850. Members of the private sector can obtain copies of these reports for a fee through the National Technical Information Services, (703) 487-4650 or Barbara Maxey, Radian Corporation, (512) 454-4797, extension 5224.

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NATIONAL AIR TOXICS INFORMATION CLEARINGHOUSE:
BIBLIOGRAPHY OF SELECTED REPORTS AND
FEDERAL REGISTER NOTICES RELATED TO AIR TOXICS
VOLUME 2: CITATIONS - 1988

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July 1988

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PREFACE

In response to State and local agency requests for air toxics information and to support these agencies in their air pollution control efforts, EPA has designed and is implementing an information dissemination center, known as the National Air Toxics Information Clearinghouse. The design and implementation of the Clearinghouse has been conducted in close coordination with the State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO).

The purpose of this bibliography is to provide State and local agencies with citations to reports and Federal Register notices useful to them in developing and operating air toxics control programs. The reports selected for this bibliography were published by the following agencies: U. S. Environmental Protection Agency, National Academy of Sciences, National Cancer Institute, National Institute of Environmental Health Sciences, National Toxicology Program, National Institute for Occupational Safety and Health, Consumer Products Safety Commission, and World Health Organization, including the International Agency for Research on Cancer. Relevant reports published by various State and local agencies are also included in this edition. This edition of the bibliography updates the cumulative bibliography previously published by the National Air Toxics Information Clearinghouse, Bibliography of Selected Reports and Federal Register Notices Related to Air Toxics (July 1987). The citations selected this year were compiled from sources available through March 31, 1988.

The Clearinghouse plans to continue to update this bibliography on a regular basis. Other publications of the Clearinghouse include:

- National Air Toxics Information Clearinghouse: Rationale for Air Toxics Control in Seven State and Local Agencies, EPA-450/5-86-005, PB86-181179/AS, August 1985;

National Environmental Information Clearinghouse: How The
 Clearinghouse Can Help You To Answer Your Air Toxics Questions,
 EPA-450/5-86-013, EPA 157313/AS, July 1986;
 National Environmental Information Clearinghouse: Methods for
 Data Management and Prioritization, EPA-450/5-86-010,
 EPA 157310/AS, July 1986;
 National Environmental Information Clearinghouse: Qualitative and
 Quantitative Risk Assessment, EPA-450/5-87-003,
 EPA 161337/AS, July 1987;
 National Environmental Information Clearinghouse: NATICH Data Base
 for Air Toxics and EPA Air Toxics Activities, EPA-450/5-87-001,
 EPA 161328/AS, July 1987;
 National Environmental Information Clearinghouse: NATICH Data Base
 for Air Toxics: Copying and Editing, EPA-450/5-88-001, NTIS
 PB88-197471, February 1988;
 National Environmental Information Clearinghouse: NATICH Data Base
 for Air Toxics: Data Editing, EPA-450/5-88-002, PB88-197470,
 February 1988;
 National Environmental Information Clearinghouse Newsletter, A
 Newsletter with 21 issues to date, December 1983 - May 1988;
 National Environmental Information Clearinghouse: Case Studies in
 Data Management, EPA-450/5-88-003, NTIS number not yet
 assigned, May 1988;
 National Environmental Information Clearinghouse: Ongoing Research
 and Development Projects, EPA-450/5-88-004, NTIS number
 not yet assigned, July 1988.

ABSTRACT

The National Air Toxics Information Clearinghouse has been established by the EPA Office of Air Quality Planning and Standards for the purpose of facilitating information transfer among Federal, State, and local air quality management agencies. This document has been published as part of that effort. The purpose is to provide State and local agencies and other Clearinghouse users with citations to reports and Federal Register notices useful in developing and operating air toxics control programs. The reports selected for this bibliography were published by the following agencies:

U. S. Environmental Protection Agency, National Academy of Sciences, National Cancer Institute, National Institute of Environmental Health Sciences, National Toxicology Program, National Institute for Occupational Safety and Health, Consumer Products Safety Commission, and World Health Organization, including the International Agency for Research on Cancer. Reports published by various State and local agencies are also included.

The bibliography is published in two volumes plus an index. Volume 1 contains cumulative citations from before 1974 through March 1987 (EPA-450/5-87-005, Volume 1, PB88-136601/XAB). Volume 2 (EPA-450/5-88-005) has the more recent citations from April 1987 through March 1988 (taken from sources available through March 31, 1988). This volume consists of two parts. Part 1 includes introductory material describing the bibliography scope and organization and contains information necessary for the proper use of the document. This part updates the corresponding part in Volume 1. Volume 2, Part 2 contains the report and Federal Register notice entries with bibliographic information and, in most cases, an abstract. The current index to the bibliography (Index - 1988, EPA-450/5-88-006) covers all the reports from 1974 to the present. Each listing indicates which of the two volumes contains the citation. The index is organized by document type; by pollutant class, name, or Chemical Abstract Services (CAS) number; by source category Standard Industrial Classification (SIC) Code; and by sponsoring agency.

This document was submitted in partial fulfillment of EPA Contract No. 68-02-4330, Work Assignment No. 44, by Radian Corporation under the sponsorship of the U. S. Environmental Protection Agency. This edition of the bibliography updates previous bibliographies published by the National Air Toxics Information Clearinghouse. The Clearinghouse will continue to publish regular updates in separate volumes, consecutively numbered. Periodically, these volumes will be combined into one document. Each year, a new cumulative index will be published that expands and replaces the previous year's edition. The 1988 index allows users to identify publications of interest in either Volume 1 or 2.

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Volume 1	
1.0 Introduction	1
1.1 Document Scope	1
1.2 Organization of Document	4
1.3 Ordering Information	12
2.0 Report and <u>Federal Register</u> Notice Entries	25
Volume 2	
1.0 Introduction	1
1.1 Document Scope	1
1.2 Organization of Document	5
1.3 Ordering Information	13
2.0 Report and <u>Federal Register</u> Notice Entries	25
Appendix A - Index to the Clearinghouse Newsletters	A-1
Index	
Table of Contents to Index	1
Index to Report and <u>Federal Register</u> Notice Entries	55
Alphabetic Index Terms	57
Numeric Index Terms	406

LIST OF TABLES

Table

- | | |
|---|---|
| 1 | List of EPA Offices Contacted |
| 2 | Clean Air House Identifiers for EPA Regions |
| 3 | Agency and Office Abbreviations |
| 4 | Key to Document Types |

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Sample Entries	6

1.0 INTRODUCTION

This bibliography has been developed by the National Air Toxics Information Clearinghouse, operated by the Pollutant Assessment Branch of the EPA Office of Air Quality Planning and Standards (OAQPS). Over 1700 bibliographic citations to reports and Federal Register notices related to toxic air pollutants are included. To facilitate the use of this bibliography, citations are indexed by document type, pollutant name or class and Chemical Abstract Service (CAS) number, source category Standard Industrial Classification (SIC) Code, and sponsoring agency.

Like other Clearinghouse publications, the bibliography is designed to help Clearinghouse users identify sources of information for specific air toxics questions or problems. This edition of the bibliography announces 285 new reports and Federal Register notices.

The information contained in this bibliography is also available through the National Air Toxics Information Clearinghouse on-line data base - NATICH. For more information about accessing NATICH, contact the Clearinghouse staff at (919) 541-0850, (FTS) 629-0850.

1.1 DOCUMENT SCOPE

This bibliography contains a selected list of reports and Federal Register notices which have been identified as being useful to State and local agencies developing and operating air toxics control programs. The reports were published by the following agencies: U. S. Environmental Protection Agency (EPA), National Academy of Sciences (NAS), National Cancer Institute (NCI), National Institute of Environmental Health Sciences, National Toxicology Program (NTP), National Institute for Occupational Safety and Health (NIOSH), Consumer Products Safety Commission (CPSC), and World Health Organization (WHO), including the International Agency for Research on Cancer (IARC). Reports published by State and local agencies are also included.

The citations include documents of the following types:

- Accident prevention/emergency response
- Ambient monitoring
- Case studies (used only by State and local agencies)
- Chemical Hazard Information Profile (used only by EPA)
- Control program support (used only by State and local agencies)
- Control technology
- Dispersion modeling
- Emission factors
- Epidemiological studies
- Exposure assessment
- Federal Register notices
- Health assessment
- Indoor air
- National emission standards for hazardous air pollutants (used only by EPA)
- New source performance standards (used only by EPA)
- Pre-regulatory assessment
- Regulatory development guidance
- Risk assessment
- Rules and regulations
- Source assessment
- Source sampling
- Toxicity testing

Citations were selected within each document type according to their relevance to air toxics work. The background information documents for new source performance standards were included in this bibliography because, while their focus is on control of criteria air pollutants, they also contain valuable information on the sources and control of noncriteria, potentially toxic air pollutants. The Federal Register notices include the Agency's announcements regarding Sections 111 and 112 of the Clean Air Act dealing with the new source performance standards and the national emission

standards for hazardous air pollutants programs, respectively. The notices also include proposed guidelines concerning health, exposure, and risk assessments issued by the Office of Health and Environmental Assessment.

Citations for each of these topic areas were compiled by contacting the EPA office currently conducting that particular type of work and by supplementing those contributions by searching published lists of EPA reports, such as the EPA Publication Bibliography and the ORD Publications Announcement. The EPA offices contacted are listed in Table 1.

Abstracts for the EPA reports were obtained from the EPA Publications Bibliography, the National Technical Information Service (NTIS) data base, or the technical data sheet included in the report. Abstracts for the Federal Register notices were prepared from the Summary and Supplementary Information sections of each notice.

Citations to reports from the seven other sponsoring agencies (NAS, NCI, NIEHS, NTP, NIOSH, CPSC, and WHO) included in this bibliography focus on health, risk, exposure assessments, toxicity testing, and epidemiology studies. Most documents discuss one or more potentially toxic chemicals, and a few emphasize exposure to toxic substances in a particular industry. While ambient air exposure was the primary area of interest, reports on occupational exposure and exposure via drinking water were also included.

The research of the National Institute of Environmental Health Sciences (NIEHS) is included in a single citation by reference to the National Institute of Environmental Health Sciences Bibliography 1966-1986. The NIEHS does not typically publish individual monographs or reports; rather research results are generally published in technical journal articles, conference papers, and books. These types of publications were outside the scope of the bibliography.

Citations to reports from each of the seven agencies on the topics of risk and exposure assessments and health effects were compiled from agency catalogs, from the NTIS data base, and from printouts generated from in-house agency data bases. Abstracts were obtained from each of these sources when available.

In addition to reports by EPA and the seven other agencies, this bibliography includes citations to relevant reports published by State and local agencies. These citations are submitted by the agencies directly to

TABLE 1. LIST OF EPA OFFICES CONTACTED

Office of Air and Radiation

Office of Air Quality Planning and Standards

- Emission Standards Division
- Air Quality Management Division
- Technical Support Division
- Stationary Source Compliance Division

Office of Mobile Sources

Office of Pesticides and Toxic Substances

Office of Policy, Planning and Evaluation

Office of Research and Development

Office of Health and Environmental Assessment Research

Office of Health Research

Office of Environmental Engineering and Technology Demonstration

- Air and Energy Engineering Research Laboratory

Office of Acid Deposition, Environmental Monitoring and Quality Assurance

- Atmospheric Sciences Research Laboratory
- Environmental Monitoring Systems Laboratory

Office of Solid Waste and Emergency Response

Office of Solid Waste

Office of Water

the Clearinghouse and are available for distribution to other Clearinghouse users.

This document also contains an index to the National Air Toxics Information Clearinghouse Newsletter. The Newsletter is published periodically by the Clearinghouse to inform readers of current issues relating to toxic air pollutants. Articles discuss activities at the Federal, State, and local levels.

1.2 ORGANIZATION OF DOCUMENT

This document has been published in two volumes and an index. Volume 1 contains cumulative citations from before 1974 through March 1987 (EPA-450/5-87-005, Volume 1, PB88-136601/XAB). Volume 2 (EPA-450/5-88-005) has the more recent citations from April 1987 through March 1988 (taken from sources available through March 31, 1988). This volume consists of two parts. Part 1 is the introductory material discussing scope and organization. It also contains explanatory information necessary for the proper use of the bibliography, such as keys to agency and office abbreviations and two sample bibliographic entries, as well as ordering information for reports by EPA and the other agencies. Part 2 of Volume 2 contains the report and Federal Register notice entries with bibliographic information and, in most cases, an abstract. The report entries are arranged by document order number. Figure 1 explains each line of two sample entries. Each entry has been assigned certain key words or descriptors pertaining to document type, pollutant, source whenever an SIC Code applies, and sponsoring agency. These descriptors are used to generate the index and to give users several ways to access reports of interest. The Newsletter index also appears in Part 2 of Volume 2 as an appendix.

The current index (Index - 1988, EPA-450/5-88-006) enables users to identify reports of interest in either Volume 1 or 2 (the volume number in parentheses will appear immediately preceding the publication number). Index categories include document type, pollutant class or name and Chemical Abstracts Service (CAS) number, source category Standard Industrial Classification (SIC) Code and the corresponding title, and sponsoring

FIGURE 1. SAMPLE ENTRIES

Report entries are arranged alphanumerically by document order number.

A sample entry follows:

PB84-156157

Demonstration of Remedial Techniques Against Radon in Houses on Florida Phosphate Lands

EPA, Montgomery, AL, ORP/EERF

July 1983, 195 p., EPA-520/5-83-009, PC A09/MF A01

Abstract: This report is to document the results of an activity which forms part of a program intended to demonstrate means of controlling indoor radon levels in structures built on Florida phosphate lands. The natural radon content of the soil is elevated in some parts of the Florida phosphate lands, resulting in elevated radon concentrations in the soil gas. If building construction is such as to provide pathways, or routes of entry, between the interior of the building and the soil below, then this radon-bearing soil gas may enter the building and result in elevated indoor levels. This report therefore documents a review of current building practices, with the intention of identifying routes of entry. Based upon this knowledge, certain modifications to building practices may be seen as a means of reducing indoor radon levels.

CL-PHOSPHA	PHOSPHATES
CT	CONTROL TECHNOLOGY DOCUMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON
14	NONMETALLIC MINERALS, EXCEPT FUELS
147	CHEMICAL AND FERTILIZER MINERALS
1475	PHOSPHATE ROCK
52	BUILDING MATERIALS AND GARDEN SUPPLIES
7440-61-1	URANIUM

FIGURE 1. SAMPLE ENTRIES (Continued)

A sample Federal Register notice entry follows:

45 FR 83952 12-19-80

Benzene Emissions from Benzene Storage Vessels; National Emission Standard for Hazardous Air Pollutants; Hearing
EPA, Research Triangle Park, NC, OAQPS

Abstract: Proposed rule and notice of public hearing. The proposed standard would limit benzene emissions from each new and existing storage vessel with a capacity greater than 4 cubic meters used to store pure benzene. The notice describes proposed requirements for fixed/floating roofs, primary and secondary seals, and inspection procedures.

EPA	ENVIRONMENTAL PROTECTION AGENCY
FR	FEDERAL REGISTER NOTICES
NESHAP	NAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
34	FABRICATED METAL PRODUCTS
344	FABRICATED STRUCTURAL METAL PRODUCTS
3443	FABRICATED PLATE WORK (BOILER SHOPS)
71-43-2	BENZENE

agency. Groups of chemicals or pollutants such as "organic compounds" that could not be identified more precisely by individual chemical names were assigned unique Clearinghouse identifiers in the place of CAS numbers. A list of these identifiers is found in Table 2. A key to the national sponsoring agency abbreviations appears in Table 3. Table 4 lists the document types and their abbreviations. A table of contents to the index is found at the beginning of the index. This table of contents consists of an alphabetic and numeric list of all descriptors, along with their corresponding page numbers in the index. These descriptors, or index terms, represent subject headings which describe the content of a document.

This bibliography is updated regularly by the National Air Toxics Information Clearinghouse. In the next update, the Clearinghouse will publish abstracts only for the newly identified reports and Federal Register notices, but will publish a cumulative index to all citations. Thus, users should save previous volumes of the bibliography citations (Volumes 1 and 2) for use after July 1988.

All bibliographic citations will continue to be accessible through the NATICH on-line data base. These can be sorted by a combination of factors: by product and/or source category and/or document type and/or sponsoring agency.

TABLE 2. CLEARINGHOUSE IDENTIFIERS FOR CHEMICAL GROUPS

Clearinghouse Identifier	Pollutant
CL-ABRAS	Abrasives
CL-ACID	Acidic compounds
CL-ADIP	Adipates
CL-ALDEHYD	Aldehydes
CL-ALLERG	Allergens
CL-AMINE	Amines
CL-BROM	Bromine compounds
CL-BTX	Benzene, toluene, xylene
CL-CARBON	Total carbon
CL-CFC	Chlorofluorocarbons
CL-CHC	Chlorinated hydrocarbons
CL-CARCIN	Carcinogens
CL-CHLOR	Chlorine compounds
CL-CHROME	Chromium compounds
CL-COE	Coke oven emissions
CL-COTDUST	Cotton dust
CL-CREOSOL	Creosols
CL-CUTFLU	Cutting fluids
CL-DGAEA	Diethylene glycol alkyl ethers and acetates
CL-DIESEL	Diesel fuel emissions
CL-DIISOCY	Diisocyanates
CL-DIOXIN	Dioxins
CL-DYE	Dyes
CL-ETS	Environmental tobacco smoke
CL-EXPLO	Explosives
CL-FUELOIL	Waste derived fuel oil emissions
CL-FURAN	Furans
CL-HALOME	Halomethanes
CL-HAZWAST	Hazardous wastes
CL-HCARB	Hydrocarbons
CL-HERB	Herbicides
CL-IAP	Indoor air pollutants
CL-INORGAN	Inorganic compounds
CL-METAL	Metallic compounds
CL-METOBZ	Methoxybenzene compounds
CL-MINDUST	Mineral dusts
CL-MINFIB	Mineral fibers
CL-MS	Mineral spirits
CL-NITRATE	Nitrates
CL-NITRITE	Nitrites
CL-NITROSO	Nitroso compounds
CL-NMHC	Non-methane hydrocarbons
CL-ODOR	Odors

TABLE 2. CLEARINGHOUSE IDENTIFIERS FOR CHEMICAL GROUPS (Continued)

Clearinghouse Identifier	Pollutant
CL-OH	Hydroxides
CL-ORGANIC	Organic compounds
CL-PAH	Polycyclic aromatic compounds
CL-PCO	Photochemical oxidants
CL-PEST	Pesticides
CL-PHENOL	Phenols
CL-PHOSPHA	Phosphates
CL-PHTH	Phthalates
CL-PLAS	Plasticizers
CL-PM	Particulate matter
CL-POM	Polycyclic organic matter
CL-RAD	Radiation
CL-RESIN	Resins
CL-SALTS	Salts
CL-SEWSLUD	Sewage sludge
CL-SOLVENT	Solvents
CL-SULFATE	Sulfates
CL-SULFIDE	Sulfides
CL-SULFITE	Sulfites
CL-SVOC	Semivolatile organic compounds
CL-TIN	Organic tin compounds
CL-TRS	Total reduced sulfur
CL-VARIOUS	Various pollutants
CL-VEG	Vegetable oil mist
CL-VOC	Volatile organic compounds
CL-WELD	Welding fumes
CL-WOOD	Wood smoke

TABLE 3. AGENCY AND OFFICE ABBREVIATIONS*

KEY TO AGENCY ABBREVIATIONS

EPA	U. S. Environmental Protection Agency
CPSC	Consumer Products Safety Commission
IARC	International Agency for Research On Cancer
NAS	National Academy of Sciences
NCI	National Cancer Institute
NIEHS	National Institute of Environmental Health Sciences
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
WHO	World Health Organization

KEY TO EPA ABBREVIATIONS

AEERL	Air and Energy Engineering Research Laboratory
ASRL	Atmospheric Sciences Research Laboratory
CAG	Carcinogen Assessment Group
ECAO	Environmental Criteria and Assessment Office
ECTD	Environmental Control Technology Division
EERF	Eastern Environmental Radiation Facility
EMSL	Environmental Monitoring Systems Laboratory
ESED	Emission Standards and Engineering Division
ESD	Emission Standards Division
ESRL	Environmental Sciences Research Laboratory
HWERL	Hazardous Waste Engineering Research Laboratory
OADEMQA	Office of Acid Deposition, Environmental Monitoring and Quality Assurance
OAQPS	Office of Air Quality Planning and Standards
OAR	Office of Air and Radiation
ODW	Office of Drinking Water
OHEA	Office of Health and Environmental Assessment
OMS	Office of Mobile Sources
OPPE	Office of Policy, Planning and Evaluation
OPTS	Office of Pesticides and Toxic Substances
ORD	Office of Research and Development
ORP	Office of Radiation Programs
OSWER	Office of Solid Waste and Emergency Response
OTS	Office of Toxic Substances
SASD	Strategies and Air Standards Division
WERL	Water Engineering Research Laboratory

* Reports by State and local agencies are indexed under the term "State or Local Agency." Report numbers begin with the two letter State abbreviation.

TABLE 4. KEY TO DOCUMENT TYPES

AM	Ambient Monitoring
CS	Case Study (State and Local Agencies Only)
CHIP	Chemical Hazard Information Profile (EPA Only)
CT	Control Technology
DM	Dispersion Modeling
EF	Emission Factor
EA	Exposure Assessment
ER	Accident Prevention/Emergency Response
ES	Epidemiological Study
FR	<u>Federal Register</u> Notices
HA	Health Assessment
IA	Indoor Air
NESHAP	National Emission Standards for Hazardous Air Pollutants (EPA Only)
NSPS	New Source Performance Standards (EPA Only)
OT	Other (State and Local Agencies Only)
PD	Air Toxics Program Support Document (State and Local Agencies Only)
PRA	Pre-regulatory Assessment
RDG	Regulatory Development Guidance
RA	Risk Assessment
RR	Rules and Regulations
SA	Source Assessment
SS	Source Sampling
TT	Toxicity Testing

1.3 ORDERING INFORMATION

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AD-A163 614/1/XAB

Possible Long-Term Health Effects of Short-Term Exposure to Chemical Agents. Volume 3. Current Health Status of Test Subjects
National Academy of Sciences
Dec 85, 106p, PC A06/MF A01

Abstract: This report is the third volume in a series prepared for a study that investigated possible delayed and long-term effects of experimental chemicals administered to soldiers at the U.S. Army Laboratories, Edgewood, MD. The Edgewood tests, conducted over a 20-year period ending in 1975, were intended to investigate the immediate and short-term human-performance effects of short-term exposure to various chemicals with warfare potential and the subjects' responses to therapy for such effects. Information in Volume 3 is based on the results of a questionnaire regarding current health status of test subjects. Edgewood test subjects who were alive and could be located received a mailed questionnaire; 82% of those who received the questionnaire responded to it. Subjects tested with anticholinesterase chemicals, anticholinergic chemicals, cholinesterase reactivators, or psychochemicals did not differ significantly from control subjects or from those tested with other classes of drugs. Almost 90% reported no health problems related to the exposures under scrutiny, and 70% reported good to excellent health. Subjects tested with irritants and vesicants, including those who developed skin burns from mustard gas, reported no increased prevalence of skin cancer or other adverse effects. The experimental methods uncovered only large effects.

CL-VARIOUS VARIOUS
HA HEALTH ASSESSMENT
NAS NATIONAL ACADEMY OF SCIENCES

CA011

REPORT TO THE SCIENTIFIC REVIEW PANEL ON BENZENE
CA AIR RESOURCES BOARD
AIR RESOURCES BOARD/DEPARTMENT OF HEALTH SERVICES
11/27/84

EA EXPOSURE ASSESSMENT
RA RISK ASSESSMENT
SA SOURCE ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
71-43-2 BENZENE

CA0110

THE NEED FOR CONTROLLING AIRBORNE ETHYLENE DIBROMIDE
CA AIR RESOURCES BOARD
TOXIC POLLUTANTS BRANCH/AIR RESOURCES BOARD
07/01/86

EA EXPOSURE ASSESSMENT
SA SOURCE ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
106-93-4 ETHYLENE DIBROMIDE

CA01102

TOXIC AIR POLLUTANT SOURCE ASSESSMENT MANUAL FOR CALIFORNIA AIR POLLUTION CONTROL DISTRICTS AND APPLICANTS FOR AIR POLLUTION CONTROL PERMITS
CA AIR RESOURCES BOARD
10/01/87, 230 pages

THIS ASSESSMENT MANUAL IS A REFERENCE DOCUMENT WHICH MAY BE USED BY INDIVIDUALS, AGENCIES, OR COMPANIES TO DETERMINE IMPACTS OF SOURCES OF TOXIC OR HAZARDOUS AIR CONTAMINANTS ON THE PUBLIC HEALTH. IT IS EXPECTED THAT THE MANUAL WILL BE UPDATED AS NEW INFORMATION BECOMES AVAILABLE. THIS PUBLICATION DOES NOT PRECLUDE FURTHER DEVELOPMENTS OR PROMULGATION OF GUIDELINES BY AN AIR POLLUTION CONTROL DISTRICT.

SA SOURCE ASSESSMENT
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CA0111

CONTROL PLAN FOR AIRBORNE ETHYLENE DICHLORIDE
CA AIR RESOURCES BOARD
TOXIC POLLUTANTS BRANCH/AIR RESOURCES BOARD
03/01/87

EA EXPOSURE ASSESSMENT
SA SOURCE ASSESSMENT
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107-06-2 ETHYLENE DICHLORIDE

CA012

REPORT ON ETHYLENE DIBROMIDE TO THE SCIENTIFIC REVIEW PANEL
CA AIR RESOURCES BOARD
AIR RESOURCES BOARD/DEPARTMENT OF HEALTH SERVICES
04/01/85

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RA RISK ASSESSMENT
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106-93-4 ETHYLENE DIBROMIDE

CA013

PUBLIC HEARING TO CONSIDER ADOPTION OF A REGULATORY AMENDMENT
IDENTIFYING ETHYLENE DICHLORIDE AS A TOXIC AIR CONTAMINANT.
CA AIR RESOURCES BOARD
AIR RESOURCES BOARD/DEPARTMENT OF HEALTH SERVICES
08/05/85

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107-06-2 ETHYLENE DICHLORIDE

CA014

PUBLIC HEARING TO CONSIDER THE ADOPTION OF A REGULATORY AMENDMENT
IDENTIFYING ASBESTOS AS A TOXIC AIR CONTAMINANT
CA AIR RESOURCES BOARD
AIR RESOURCES BOARD/DEPARTMENT OF HEALTH SERVICES
02/10/86

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1332-21-4 ASBESTOS

CA015

PUBLIC HEARING TO CONSIDER THE ADOPTION OF A REGULATORY AMENDMENT
IDENTIFYING CHLORINATED DIOXINS AND DIBENZOFURANS AS TOXIC AIR
CONTAMINANTS
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06/06/86

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CA016

PUBLIC HEARING TO CONSIDER THE ADOPTION OF A REGULATORY AMENDMENT
IDENTIFYING HEXAVALENT CHROMIUM AS A TOXIC AIR CONTAMINANT
CA AIR RESOURCES BOARD
AIR RESOURCES BOARD/DEPARTMENT OF HEALTH SERVICES
12/09/85

EA EXPOSURE ASSESSMENT
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7440-47-3 CHROMIUM

CA017

PUBLIC HEARING TO CONSIDER THE ADOPTION OF A REGULATORY AMENDMENT
IDENTIFYING CADMIUM AS A TOXIC AIR CONTAMINANT
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12/05/86

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7440-43-9 CADMIUM

CA018

PROPOSED BENZENE CONTROL PLAN
CA AIR RESOURCES BOARD
TOXIC POLLUTANTS BRANCH/AIR RESOURCES BOARD
05/01/86

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PD AIR TOXICS CONTROL PROGRAM SUPPORT DOCUMENT
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71-43-2 BENZENE

CA019

ADDENDUM TO PROPOSED BENZENE CONTROL PLAN
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TOXIC POLLUTANTS BRANCH/AIR RESOURCES BOARD
07/01/86

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71-43-2 BENZENE

CA028801

ETHYLENE OXIDE EMISSIONS FROM STERILIZATION AND FUMIGATION
OPERATIONS
BAY AREA AIR QUALITY MANAGEMENT DISTRICT
RADIAN CORPORATION
07/29/87, 125 pages

VOLUME 1 IN THE TWO-VOLUME SERIES: AIR TOXICS EMISSION FACTOR
DEVELOPMENT PROJECT. THE WORK WAS DONE FOR CALIFORNIA BAY AREA AIR
QUALITY MANAGEMENT DISTRICT. TECHNICAL QUESTIONS SHOULD BE DIRECTED
TO: DARIO LEVAGGI, BAY AREA AQMD, (415) 771-6000. COPIES OF THE
REPORT ARE AVAILABLE FOR A FEE FROM RICHARD CRUME, EPA, REGION IX,
(415) 974-7109.

EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
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75-21-8 ETHYLENE OXIDE

CA028802

AIR TOXICS EMISSIONS FROM CHROME PLATING OPERATIONS AND COMBUSTION
OF USED OIL - AND USED SOLVENT-DERIVED FUELS
BAY AREA AIR QUALITY MANAGEMENT DISTRICT
RADIAN CORPORATION
07/29/87, 25 pages

VOLUME 2 IN THE TWO-VOLUME SERIES: AIR TOXICS EMISSION FACTOR
DEVELOPMENT PROJECT. THE WORK WAS DONE FOR CALIFORNIA BAY AREA AIR
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CA0385005

Population Exposure to Benzene Emissions from Refineries and
Synthesis Plants in the South Coast Air Basin
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
C. Marlita, C. Liu, Y. Huang, D. Shikiya, J. Broedbent, S. Yan
12/01/85, 42p pages

This study was conducted to estimate the population exposure to ben-
zene in the South Coast Air Basin.
The ISCLT model of the EPA UNAMAP series was used in the coastal and
central basin area. Detailed population data obtained from the U.S.
Census Bureau were processed and used to determine the population ex-
posure from these predicted concentrations.
The model predicted annual average benzene concentrations resulting
from emissions from the studied sources range from 0.001 to 0.22 ppb.
The total benzene exposure estimate is 58,700 ppb-persons. The risks
involved range from one in thirty thousand near the facilities to one
in seven million in the inland areas.

RA RISK ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
29 PETROLEUM AND COAL PRODUCTS
291 PETROLEUM REFINING
2911 PETROLEUM REFINING
71-43-2 BENZENE

CHIP-continued

Chemical Hazard Information Profiles, additional listings
EPA, Washington, D.C., OPTS
Various Dates, Length Varies, Free

Abstract: Chemical Hazard Information Profiles (CHIP), prepared by EPA's Office of Pesticides and Toxic Substances (OPTS), are brief summaries of readily available information concerning the health and environmental effects and potential exposure to specific chemicals. OPTS chooses chemicals for CHIP preparation on the basis of information indicating a potential for adverse health or environmental effects and evidence of significant production or some type of exposure. Information gathering for a CHIP is generally limited to a search of secondary literature sources and unpublished information about the selected chemicals from individuals and companies. The search is not intended to be exhaustive, although in-depth searches on specific topics may be done on a case-by-case basis. In general, no attempt is made to evaluate or validate information at this stage of assessment. Preparation of a CHIP is part of the first stage in the OPTS chemical risk assessment process. A list of individual CHIPS by subject appears below. For more detailed information or to obtain a copy of any of the available CHIPS, contact: TSCA Industry Assistance Office (TAO) (TS-799); U.S. Environmental Protection Agency, Washington, D.C. 20460; (202) 544-1404.

CHIP CHEMICAL HAZARD INFORMATION PROFILE
EPA ENVIRONMENTAL PROTECTION AGENCY
WA HEALTH ASSESSMENT
12005-48-0 ALUMINUM SODIUM OXIDE
15142-96-6 ETHYLENEDIAMINE, HEXASODIUM SALT
29086-38-2 PENTACHLORO(1,2-DICHLOROETHENYL)-BENZENE

CT01-CTDEP-1

"DECISION-MAKING PROCESS USED IN THE DEVELOPMENT OF CT'S HAP
CONTROL PROGRAM:
CT DEPT. OF ENV. PROTECTION, AIR COMPLIANCE UNIT
BRUCKMAN, L., RUBINO, R., GOVE, J.
01/01/87, 10. pages

CT'S HAP PROGRAM WAS DEVELOPED THROUGH THE ACTIVITY AND INPUTS OF
VARIOUS GROUPS--BUSINESS INTERESTS, AGENCY STAFF, OTHER GOVERNMENTAL
AGENCIES, ENVIRONMENTAL ADVOCACY GROUPS, THE LEGISLATURE, AND THE
GENERAL PUBLIC. THE ROLES OF EACH OF THESE GROUPS IN THE DEVELOPMENT
OF THE PROGRAM IS DISCUSSED.

PD AIR TOXICS CONTROL PROGRAM SUPPORT DOCUMENT
STATE/LOC STATE OR LOCAL AGENCY

CT01-CTDEP-2

"CT'S APPROACH TO CONTROLLING TOXIC AIR POLLUTANTS"
CT DEPT. OF ENV. PROTECTION, AIR COMPLIANCE UNIT
BRUCKMAN, L., RUBINO, R., GOVE, J.
10/01/86, 30. pages

THE FOLLOWING ARE DISCUSSED: LIST OF POLLUTANTS, CONNECTICUT'S
UNIQUE 2-PHASE SYSTEM FOR SETTING AMBIENT STANDARDS, CT'S INNOVATION
PROCEDURE FOR DETERMINING MAXIMUM ALLOWABLE STACK CONCENTRATIONS FOR
POLLUTANTS, PROGRAM IMPLEMENTATION, AND THE DECISION-MAKING STRUCTURE
USED IN STRUCTURING THE PROGRAM.

PD AIR TOXICS CONTROL PROGRAM SUPPORT DOCUMENT
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CT01-CTDEP-4

HAZARDOUS AIR POLLUTANT CONTROL PROGRAM
CT DEPT. OF ENV. PROTECTION, AIR COMPLIANCE UNIT
GOVE, J.
250 pages

A COMPILATION OF DOCUMENTS, INCLUDING THE REGULATIONS; THE PROGRAM
NARRATIVE(DESCRIBING BACKGROUND AND FEATURES OF THE PROGRAM);
INSTRUCTIONS TO OWNERS AND OPERATORS OF SOURCES(A GUIDE TO THE PROGRAM
REQUIREMENTS, SO THEY CAN DETERMINE ITS APPLICABILITY TO THEIR
OPERATIONS); MEMORANDA OF UNDERSTANDING AMONG DEP, THE HAZARDOUS AIR
POLLUTANT ADVISORY PANEL, AND DEPARTMENT OF HEALTH SERVICES; RESPONSES
TO COMMENTS MADE AT PUBLIC HEARINGS HELD FOR THE PROGRAM; THE FY87
BUDGET; A LIST OF MEMBERS OF THE HAP ADVISORY PANEL; AND DRAFT CHANGES
TO BE MADE IN THE REGULATIONS THAT APPLY TO DRY CLEANERS.

PD AIR TOXICS CONTROL PROGRAM SUPPORT DOCUMENT
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CT01-CTDEP-5

"MULTIPLE-PATHWAY EXPOSURE ASSESSMENT(FOR DIOXIN AND FURANS)"
CT DEPT. OF ENV. PROTECTION, AIR COMPLIANCE UNIT
FRED C. HART AND ASSOCIATES
02/01/87, 500 pages

POLYCHLORINATED DIBENZO-P-DIOXINS AND POLYCHLORINATED DIBENZO FURANS ARE A GROUP OF CHLORINATED ORGANIC COMPOUNDS THAT ARE COLLECTIVELY REFERRED TO AS "DIOXINS". CERTAIN DIOXIN COMPOUNDS HAVE TOXIC AND CARCINOGENIC PROPERTIES AND ONE COMPOUND, 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (2,3,7,8-TCDD) IS VERY TOXIC AND IS SUSPECTED TO BE A HUMAN CARCINOGEN. SINCE THIS IS THE ISOMER OF MOST CONCERN, THE AVAILABLE LITERATURE FOCUSES PRIMARILY ON THIS ISOMER.

THIS REPORT PROVIDES A THOROUGH REVIEW OF THE LITERATURE AVAILABLE CONCERNING HEALTH EFFECTS OF DIOXINS. ONE OF THE LIMITATIONS OF THE HEALTH ASSESSMENT IS THE LACK OF HEALTH EFFECTS INFORMATION ON THE NUMEROUS DIOXIN COMPOUNDS OTHER THAN 2,3,7,8-TCDD. ALSO, THE LACK OF INFORMATION CONCERNING LOW-DOSE EXPOSURE OF HUMANS TO DIOXINS AND THE USE OF HIGH-DOSE EXPOSURES ON LABORATORY ANIMALS EXTRAPOLATED TO LOW-DOSE EXPOSURES ON HUMANS RESULTS IN THE USE OF ASSUMPTIONS TO ASSESS HUMAN HEALTH EFFECTS. THESE ASSUMPTIONS GENERALLY ERR ON THE CONSERVATIVE SIDE WHEN ASSESSING CHRONIC LONG-TERM HEALTH EFFECTS OF THE LOW-LEVEL DIOXIN EXPOSURE FROM A WELL-DESIGNED AND OPERATED COMBUSTION EMISSION SOURCE OVER A LONG PERIOD OF TIME.

CL-DIOXIN DIOXINS
CL-FURAN FURANS

RA RISK ASSESSMENT
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1746-01-6 TETRACHLORODIBENZODIOXIN,2,3,7,8-P-

CT01-CTDEP-6

"TETRACHLOROETHYLENE QUANTITATIVE RISK ASSESSMENT DOCUMENT"
CT DEPT. OF ENV. PROTECTION, AIR COMPLIANCE UNIT
HARI RAO, OF CT DEPARTMENT OF HEALTH SERVICES
03/01/87, 25. pages

TETRACHLOROETHYLENE (PCE) IS A CHLORINATED SOLVENT WIDELY USED IN DRY CLEANING AND DEGREASING OPERATIONS. INHALATION IS THE PRINCIPAL ROUTE OF CONCERN BY WHICH HUMANS ARE EXPOSED TO THIS HAZARDOUS AIR POLLUTANT. PCE IS CLASSIFIED AS A PROBABLE HUMAN CARCINOGEN(EPA GROUP B2). THE STATE OF CT SHOULD ASSIGN PCE TO ITS GROUP 2 CLASSIFICATION OF HAZARDOUS AIR POLLUTANTS. PCE HAS BEEN SHOWN TO AFFECT THE CENTRAL NERVOUS SYSTEM, LIVER, AND KIDNEY IN MICE, RATS, AND HUMANS. IT HAS RECENTLY BEEN SHOWN THAT INHALED PCE IS CARCINOGENIC IN MICE AND RATS; EPIDEMIOLOGICAL EVIDENCE FOR HUMAN CARCINOGENICITY IS INADEQUATE.BASED ON A SUBCHRONIC STUDY IN RATS, AN AMBIENT AIR QUALITY STANDARD OF 12PPB IS DEEMED TO PROTECTIVE AGAINST CHRONIC NON-CARCINOGENIC EFFECTS A SHORT TERM EXPOSURE GUIDELINE AT 200PPB (8 HR AVG) IS DEEMED TO PROTECT AGAINST CNS EFFECTS. ALSO, BASED ON ANIMAL DATA,A QUANTITATIVE ESTIMATE OF HUMAN CANCER HAZARD IS CALCULATED FOR INHALING AIR CONTAINING PCE. INHALATION OF AMBIENT AIR CONCENTRATIONS OF 0.16,1.6, AND 16.0 MICROGRAMS PCE PER CUBIC METER OF AIR IS ASSOCIATED WITH A LIFETIME EXCESS CANCER RISK OF 10⁻⁶, 10⁻⁵,AND 10⁻⁴ RESPECTIVELY. IT IS THEREFORE RECOMMENDED THAT AN AMBIENT AIR QUALITY STANDARD BE BASED ON A UNIT RISK ESTIMATE, I.E., THE UPPER-BOUND ESTIMATE OF THE INCREMENTAL CANCER RISK DUE TO LIFETIME EXPOSURE OF 1UG/M3 IS6.3X10⁻⁶

RA RISK ASSESSMENT

STATE/LOC STATE OR LOCAL AGENCY
127-18-4 TETRACHLOROETHYLENE

CT01-CTDEP-8

BASTS FOR STANDARDS AND PROCEDURES AND RESPONSE TO COMMENTS ON
PROPOSED RESOURCE RECOVERY REGULATIONS (AIR POLLUTION PROVISIONS)
CT DEPT. OF ENV. PROTECTION, AIR COMPLIANCE UNIT
CONN DEP
01/20/88, 78 pages

ABSTRACT: THE REPORT ADDRESSES THE FOLLOWING: AN AMBIENT AIR QUALITY
STANDARD FOR DIOXIN OF 1 PG/M3 (EPA EQUIVALENTS), ANNUAL AVERAGE; A
MAXIMUM ALLOWABLE STACK CONCENTRATION OF 1950 PG/M3; A COMBUSTION
EFFICIENCY REQUIREMENT OF 99.9%, WITH A SHUTDOWN REQUIREMENT IF IT
GOES BELOW 99%; MAXIMUM ALLOWABLE AMBIENT IMPACTS; AND STACK AND
AMBIENT TESTING REQUIREMENTS. A SUMMARY OF PUBLIC COMMENTS, AND DEP
RESPONSES, IS PRESENTED.

PD AIR TOXICS CONTROL PROGRAM SUPPORT DOCUMENT

STATE/LOC STATE OR LOCAL AGENCY
1746-01-6 TETRACHLOROIBENZODIOXIN,2,3,7,8-P-
49 ELECTRIC, GAS, AND SANITARY SERVICES
491 ELECTRIC SERVICES
4911 ELECTRIC SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

CT01-CTDEP-9

SULFURIC ACID: A QUANTITATIVE INHALATION RISK ASSESSMENT
CT DEPT. OF ENV. PROTECTION, AIR COMPLIANCE UNIT
HARI RAO
07/01/87, 24 pages

ABSTRACT: THE REPORT DISCUSSES H2SO4 AEROSOLS. IMPORTANT FINDINGS:
AMMONIA IS AN IMPORTANT "SINK" FOR H2SO4. HYGROSCOPICITY IS AN
IMPORTANT CONSIDERATION IN ASSESSING WHAT PORTION OF SMALL-PARTICLE
H2SO4 IS INHALED. AMBIENT LEVELS ARE 0-5 UG/M3, WITH PEAKS AS HIGH
AS 40 UG/M3. MUCOCILIARY EFFECTS HAVE BEEN OBSERVED AFTER A 2- TO
4-HOUR EXPOSURE TO 100 UG/M3. THERE ARE APPARENTLY NO DATA ON CHRONIC
HEALTH EFFECTS OF LOW-LEVEL EXPOSURES. A 25 UG/M3 CONCENTRATION IS
OFFERED AS A REASONABLE 8-HOUR AMBIENT LIMIT.

RA RISK ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
7664-93-9 SULFURIC ACID

GPO 052-011-00239-9

Asbestos in the Home
Consumer Product Safety Commission
Oct 82, 12p
\$2.75

Abstract: Designed to help consumers understand the possible hazards
of exposure to asbestos and materials containing asbestos in the
home.

CPSC CONSUMER PRODUCT SAFETY COMMISSION
EA EXPOSURE ASSESSMENT
1332-21-4 ASBESTOS

ISBN 0-309-03726-3

Air Pollution, The Automobile, and Public Health
National Academy of Sciences
1988, 650p
\$50.00

Abstract: "The combination of scientific and institutional integrity
represented by this book is unusual. It should be a model for future
endeavors to help quantify environmental risk as a basis for good
decisionmaking."--William D. Ruckelshaus, from the foreword. This
volume was prepared under the auspices of the Health Effects Insti-
tute, an independent research organization created and funded jointly
by the Environmental Protection Agency and the automobile industry.
"Air Pollution, The Automobile, and Public Health" brings together
experts on atmospheric exposure and on the biological effects of toxic
substances to examine what is known--and not known--about the human
health risks of automotive emissions. Although the volume's primary
focus is automotive emissions, much of the information will be
applicable to other air pollutants and even to other sources of
exposure to toxic substances.

CL-DIESEL DIESEL FUEL EMISSIONS
HA HEALTH ASSESSMENT
MAS NATIONAL ACADEMY OF SCIENCES

ISBN 0-309-03741-7

Drinking Water and Health, Volume 7: Disinfectants and Disinfectant By-Products
National Academy of Sciences
1987, 212p, \$19.95

Abstract: Since 1977, committees of the National Research Council have issued six volumes of "Drinking Water and Health," each of which includes a review of toxicological data and estimates of the risks associated with specific contaminants found in drinking water. In this seventh volume, current practices of water disinfection are examined, and the human health effects and animal toxicological data for several currently used disinfectants and disinfectant by-products are assessed. This volume updates material published in Volume 2 on the chemistry and efficacy of disinfectants and in Volume 3 on their toxicity and the toxicity of the by-products formed. In addition, the volume contains evaluations of several epidemiological studies relating to drinking water disinfection and provides new risk assessments for several by-products. Chlorination is a successful method of disinfection commonly used in the U.S. Nonetheless, the formation of trihalomethanes and other chlorination by-products has prompted the introduction of other disinfection techniques. Chlorination and other major methods of disinfection are examined individually. Their chemical characteristics and biocidal efficacy are assessed and compared. Economic considerations were not part of this study.

CL-CHLOR CHLORINE COMPOUNDS
CL-HALOME HALOMETHANES
HA HEALTH ASSESSMENT
NAS NATIONAL ACADEMY OF SCIENCES

ISBN 0-309-03775-1

Drinking Water and Health, Volume 8: Pharmacokinetics in Risk Assessment
National Academy of Sciences
1987, 600p
\$43.50

Abstract: Pharmacokinetics, the study of the movement of chemicals within the body, is a vital tool in assessing the risk of exposure to environmental chemicals. This book--a collection of papers authored by experts in academia, industry, and government--reviews the progress of the risk-assessment process and discusses the role of pharmacokinetic principles in evaluating risk. In addition, the authors discuss software packages used to analyze data and to build models simulating biological phenomena. A summary chapter provides a view of trends in pharmacokinetic modeling and notes some prospective fields of study.

NAS NATIONAL ACADEMY OF SCIENCES
RA RISK ASSESSMENT

ISBN 0-309-03789-1

Health Risks of Radon and Other Internally Deposited Alpha-Emitters: BEIR IV
National Academy of Sciences
1988, 600p, ISBN 0-309-03797-2, \$42.50
\$32.50

Abstract: Known as the BEIR IV report, this new book describes hazards from radon progeny and other alpha-emitters that humans may inhale or ingest from environment. The authors provide original risk estimates for lung cancer from inhalation of radon decay products using a new analysis of mining case studies--of interest because of radon gas pollution in homes. The book also provides risk estimates for radium, thorium, polonium, uranium, and man-made radio-nuclides such as plutonium and other transuranic elements. The authors' analysis summarizes clinical and epidemiological evidence, results of animal studies, alpha-particle damage at the cellular level, research, metabolic pathways for internal alpha-emitters, dosimetry and microdosimetry of radionuclides in specific tissues, and the chemical toxicity of some low specific activity alpha-emitters; and a review of the relationship of biological effects to age, sex, route of entry, dose, and dose rate, and physical and chemical properties of the radioactive materials. Techniques for estimating risks to humans posed by radon and other internally deposited alpha-emitters are offered, along with a discussion of formulas, models, methods, and the level of uncertainty inherent in the risk estimates.

CL-RAD RADIATION
ES EPIDEMIOLOGY STUDY
NAS NATIONAL ACADEMY OF SCIENCES
RA RISK ASSESSMENT
10 METAL MINING
10043-92-2 RADON
109 MISCELLANEOUS METAL ORES
1094 URANIUM-RADIUM-VANADIUM ORES
1099 METAL ORES, NEC
13981-52-7 POLONIUM-210
7440-07-5 PLUTONIUM
7440-14-4 RADIUM
7440-29-1 THORIUM
7440-61-1 URANIUM

ISBN 92-4-154214-4

Setting Environmental Standards: Guidelines for Decision-Making
World Health Organization
1987, 105p
\$10.20

Abstract: Provides a thorough analysis of the multiple factors that should be considered when establishing policies and regulations designed to control the effects of environmental pollutants. Emphasis is placed on the many technical and economic complexities surrounding any control measure, whether implemented voluntarily or through legislation. The objective is to give decision-makers a broad framework of analysis that can be used to establish control measures and determine how effectively they will achieve the desired result. The book features eight chapters organized according to the main steps involved in the development and enforcement of environmental standards. The first chapter provides an explanation of the criteria to be considered when identifying priority pollution issues. Sources of information on health effects are critically evaluated in the second chapter. Other chapters consider factors involved in the assessment of exposure and outline different strategies for prevention and control. Of particular value is a discussion of legal frameworks for control. The book concludes with chapters discussing the economic and social consequences of control measures and outlining the opportunities and constraints that surround the decision-making process.

RDG WHO REGULATORY DEVELOPMENT GUIDANCE
WHO WORLD HEALTH ORGANIZATION

ISBN 92-4-154262-4

WHO Environmental Health Criteria, No. 62, 1,2 Dichloroethane
World Health Organization
1987, 90p
\$6.00

Abstract: Evaluates available data on the risks to human health and the environment posed by 1,2-dichloroethane, a chemical produced in large quantities for use in the synthesis of vinyl chloride. Most human exposure occurs through skin contact and inhalation at, or near, production or waste-disposal sites. Exposure may also occur through use of 1,2-dichloroethane as a lead scavenger in gasoline or as a solvent or seed fumigant. Following a brief description of the identity and properties of the chemical, the book summarizes data on industrial sources, levels in the environment, and the main sources of human exposure, including evaporation of the chemical during production, from disposal sites, and from contaminated water into the atmosphere. The most extensive sections of the book concentrate on data useful in identifying specific health and environmental hazards and in understanding how 1,2-dichloroethane exerts its toxic, carcinogenic and mutagenic effects. In view of the lack of recent studies on occupational exposures, a section concerned with effects on man concentrates on reported case studies of accidental exposure. On the basis of available data, the report concludes that 1,2-dichloroethane should be regarded, for practical purposes, as if it presented a carcinogenic risk for man.

HA WHO HEALTH ASSESSMENT
WHO WORLD HEALTH ORGANIZATION
107-06-2 ETHYLENE DICHLORIDE
28 CHEMICALS AND ALLIED PRODUCTS
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

ISBN 92-4-154263-2

WHO Environmental Health Criteria, No. 63, Organophosphorus
Insecticides: A General Introduction
World Health Organization
1986, 181p
\$9.60

Abstract: Evaluates the risks to human health and the environment associated with the large-scale use of organophosphorus insecticides in crop protection. Because of the large number of these compounds and the range of their toxic effects, the book assesses organophosphorus insecticides as a group, using a review of the world literature to identify the types of evidence available and the main points that should be considered when investigating the toxicity of individual compounds. Information on chemical properties and sources of human and environmental exposure is followed by an especially thorough assessment of the mechanisms by which these compounds exert their lethal action in the nervous system. Numerous tables are used to summarize and compare the results of toxicity testing in animals. Methods for investigating toxic effects are also considered. Other sections cover the symptoms of organophosphorus intoxication and the agents most commonly causing different disorders in man. Additional comparative information appears in annexes tabulating information on the chemical structure and molecular formula for 77 of these insecticides, references to previous evaluations and recommendations for individual compounds, and data on LD50s and no-observed-adverse-effect levels in animals for 32 compounds.

CL-PEST PESTICIDES
HA HEALTH ASSESSMENT
WHO WORLD HEALTH ORGANIZATION

ISBN 92-4-154264-0

WHO Environmental Health Criteria, No. 64, Carbamate Pesticides:
A General Introduction
World Health Organization
1986, 136p
\$7.80

Abstract: A discussion of the hazards to health and the environment associated with the widespread agricultural use of carbamate pesticides as insecticides, fungicides, herbicides, nematocides, and sprout inhibitors. Because of the exceptionally large number of carbamates developed and marketed over the past 40 years, the book concentrates on the analysis of selected well-known carbamates that can be used to illustrate the kinds of data available and the range of known or suspected risks. The opening sections offer an overview of properties, analytical methods, sources of exposure, and presence in the environment. Tables are used to summarize analytical methods for the detection of carbamate pesticide residues and to illustrate consumption figures for 39 different countries. The main part of the book is devoted to a detailed assessment of toxicity. The final section, which covers effects on humans, concentrates on risks associated with occupational exposure in spray-men applying insecticides. Annexes refer the reader to previous evaluations of individual carbamates by the Joint FAO/WHO Meetings on Pesticide Residues and the International Agency for Research on Cancer, and list the availability of data sheets and legal files for individual substances.

CL-PEST PESTICIDES
HA HEALTH ASSESSMENT
WHO WORLD HEALTH ORGANIZATION
07 AGRICULTURAL SERVICES
072 CROP SERVICES
0721 CROP PLANTING AND PROTECTION

ISBN 92-4-154265-9

WHO Environmental Health Criteria, No. 65, Butanols: Four Isomers
1-Butanol -- 2-Butanol -- tert-Butanol -- Isobutanol
World Health Organization
1987, 141p
\$7.80

Abstract: Presents individual monographs on the risks to health and the environment associated with 1-butanol, 2-butanol, tert-butanol, and isobutanol. These butanol isomers, which occur naturally as products of fermentation, are also synthesized from petrochemicals and widely used as solvents and intermediates in chemical industries. Human exposure to high concentrations is primarily occupational, while exposure to low concentrations is mainly through foods in which the isomers occur either naturally or as flavoring agents. Although the butanol isomers can be classified as slightly or practically non-toxic, all isomers, in large amounts, have the ability to induce signs of alcoholic intoxication in both animals and man. The most extensive section of each monograph covers data on biological effects observed in experimental animals, in "in vitro" test systems, and in cases of accidental occupational exposure in man. Particular attention is given to studies useful in assessing effects on the skin, eyes, and respiratory tract of workers exposed to these chemicals.

HA	HEALTH ASSESSMENT
WHO	WORLD HEALTH ORGANIZATION
28	CHEMICALS AND ALLIED PRODUCTS
29	PETROLEUM AND COAL PRODUCTS
291	PETROLEUM REFINING
2911	PETROLEUM REFINING
71-36-3	BUTYL ALCOHOL
75-65-0	BUTYLALCOHOL, 1-
78-84-2	ISOBUTYRALDEHYDE
78-92-2	BUTANOL, 2-

ISBN 92-4-154268-3

WHO Environmental Health Criteria, No. 68, Hydrazine
World Health Organization
1987, 89p
\$6.00

Abstract: Evaluates more than 200 published studies in an effort to determine the risks to human health and the environment posed by hydrazine, a compound which is primarily used as a raw material in the manufacture of agricultural chemicals, blowing agents, polymerization catalysts, and pharmaceutical products. Hydrazine is also used as a corrosion inhibitor in boiler water and as a propellant fuel. Sections present information on world production of hydrazine, changing patterns of use, behavior in the environment, effects on the ecosystem, and kinetics and metabolism, including reactions with body components. Noting that hydrazine poses few hazards for the general population, the section concerned with environmental levels and human exposure concentrates on occupational risks at the work-place, including risks of exposure at production plants, at propulsion testing and rocket launching sites, and at locations where aircraft using hydrazine as an emergency fuel are assembled or refueled. Documented effects include damage to the central nervous system, liver, kidneys, skin and eye irritation, and skin sensitization. The results from animal studies further suggest that effects on man may include embryotoxicity and adverse effects on the respiratory system.

HA	HEALTH ASSESSMENT
WHO	WORLD HEALTH ORGANIZATION
28	CHEMICALS AND ALLIED PRODUCTS
282	PLASTICS MATERIALS AND SYNTHETICS
2821	PLASTICS MATERIALS AND RESINS
283	DRUGS
2834	PHARMACEUTICAL PREPARATIONS
287	AGRICULTURAL CHEMICALS
302-01-2	HYDRAZINE
37	TRANSPORTATION EQUIPMENT
372	AIRCRAFT AND PARTS
51	WHOLESALE TRADE-NONDURABLE GOODS
517	PETROLEUM AND PETROLEUM PRODUCTS
5172	PETROLEUM PRODUCTS, NEC

ISBN 92-4-154271-3

WHO Environmental Health Criteria, No. 71, Pentachlorophenol
World Health Organization

1987, 236p

\$10.80

Abstract: Cites over 600 studies in an effort to determine risks to man and environment posed by production and use of pentachlorophenol (PCP). Because of their broad pesticidal efficiency spectrum and low cost, PCP and its salts have been widely used as algicides, bactericides, fungicides, herbicides, and molluscicides with a variety of applications in the industrial, agricultural, and domestic fields. Though some of these uses have been banned or restricted in several developed countries, human exposure continues to be of concern because of possible health hazards associated with the indoor application of wood preservatives or paints containing PCP. Sections outline mechanisms of transport, distribution, and transformation of PCP in the environment and examine the relationship between environmental concentrations and human exposure. Non-occupational exposures, such as through the use of products containing technical PCP or through living in buildings treated with wood preservatives or paints containing PCP, are considered. A final section summarizes specific hazards to the environment and to human health, including several significant risks associated with both occupational and non-occupational exposures.

HA	HEALTH ASSESSMENT
WHO	WORLD HEALTH ORGANIZATION
17	SPECIAL TRADE CONTRACTORS
172	PAINTING, PAPER HANGING, DECORATING
1721	PAINTING, PAPER HANGING, DECORATING
87-86-5	PENTACHLOROPHENOL

ISBN 92-4-154274-8

WHO Environmental Health Criteria, No. 74, Diaminotoluenes
World Health Organization

1987, 67p

\$5.40

Abstract: Evaluates risks to human health and environment posed by diaminotoluenes. Classified as toxic, highly irritant chemicals, diaminotoluenes are large-volume intermediates used in the production of a wide variety of industrial and consumer products, ranging from dyes and corrosion inhibitors to photographic developers. The book opens with information on the physical and chemical properties of diaminotoluenes, different quantitative and qualitative procedures for their determination, and sources in the environment, including losses to the environment through industrial wastes deposited in landfills and contamination of surface and groundwater following leakage from landfills or storage sites. Effects on man are evaluated on the basis of epidemiological studies of long-term occupational exposure, including assessment of reproductive hazards for males. On the basis of these findings, the book concludes that diaminotoluenes should be handled as hazardous chemicals and that preventive measures should be taken to avoid exposure of workers and to protect the environment from pollution.

HA	HEALTH ASSESSMENT
WHO	WORLD HEALTH ORGANIZATION
25376-45-8	DIAMINOTOLUENE
28	CHEMICALS AND ALLIED PRODUCTS
286	INDUSTRIAL ORGANIC CHEMICALS
2865	CYCLIC CRUDES AND INTERMEDIATES
289	MISCELLANEOUS CHEMICAL PRODUCTS
2899	CHEMICAL PREPARATIONS, NEC
38	INSTRUMENTS AND RELATED PRODUCTS
386	PHOTOGRAPHIC EQUIPMENT AND SUPPLIES
3861	PHOTOGRAPHIC EQUIPMENT AND SUPPLIES
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

ISBN 92-4-154275-6

WHO Environmental Health Criteria, No. 75, Toluene Diisocyanates
World Health Organization
1987, 72p, \$5.40

Abstract: This document examines the methodology and findings of over 150 published studies in an effort to determine the risks to human health and the environment posed by the two isomers of toluene diisocyanate (TDI). These synthetic organic chemicals are important industrial intermediates used in conjunction with polyether and polyester polyols as co-reactants in the manufacture of polyurethane foams, paints, varnishes, elastomers, and coatings. The book opens with an outline of the physical and chemical properties of TDI and a description of analytical methods for their detection in work-place air and in flexible foam. A section discussing sources of human and environmental exposure concentrates on occupational exposures associated with the very wide use of polyurethane foams in automotive and furniture industries and in packing and insulation. Other sections summarize the environmental fate of TDI and their kinetics and metabolism in body fluids, including possible immunogenic actions. On the basis of available data, the book concludes that the isomers of TDI should be classified as very toxic compounds by inhalation, and that they should be treated as potential human carcinogens and as known animal carcinogens.

NA	HEALTH ASSESSMENT
WHO	WORLD HEALTH ORGANIZATION
1321-38-6	DIISOCYANATE-1,1-METHYLBENZENE,2,4-
17	SPECIAL TRADE CONTRACTORS
174	MASONRY, STONEWORK, AND PLASTERING
1742	PLASTERING, DRY WALL AND INSULATION
25	FURNITURE AND FIXTURES
26471-62-5	TOLUENE DIISOCYANATE
28	CHEMICALS AND ALLIED PRODUCTS
282	PLASTICS MATERIALS AND SYNTHETICS
2821	PLASTICS MATERIALS AND RESINS
2822	SYNTHETIC RUBBER
285	PAINTS AND ALLIED PRODUCTS
2851	PAINTS AND ALLIED PRODUCTS
37	TRANSPORTATION EQUIPMENT
371	MOTOR VEHICLES AND EQUIPMENT
3711	MOTOR VEHICLES AND CAR BODIES

ISBN 92-4-154328-0

Health and Safety Guide: Acrylonitrile
World Health Organization
1987, 38p
\$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire or explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packing, transport, and acceptable procedures for waste disposal.

ER	ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
HA	HEALTH ASSESSMENT
WHO	WORLD HEALTH ORGANIZATION
107-13-1	ACRYLONITRILE

ISBN 92-4-154329-9

Health and Safety Guide: 2,4-Dichlorophenoxyacetic Acid (2,4-D)
World Health Organization
1987, 39p
\$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire and explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packaging, transport, and acceptable procedures for waste disposal.

ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
HA HEALTH ASSESSMENT
WHO WORLD HEALTH ORGANIZATION
94-75-7 DICHLOROPHENOXYACETICACID,2,4-

ISBN 92-4-154331-0

Health and Safety Guide: Tetrachlorethylene
World Health Organization
1987, 35p
\$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire and explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packaging, transport, and acceptable procedures for waste disposal.

ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
HA HEALTH ASSESSMENT
WHO WORLD HEALTH ORGANIZATION
127-18-4 TETRACHLOROETHYLENE

ISBN 92-4-154332-9

Health and Safety Guide: Methylene Chloride
World Health Organization
1987, 37p, \$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire or explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packaging, transport, and acceptable procedures for waste disposal.

ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
HA HEALTH ASSESSMENT
WHO WORLD HEALTH ORGANIZATION
75-09-2 METHYLENE CHLORIDE

ISBN 92-4-154333-7

Health and Safety Guide: Epichlorohydrin
World Health Organization
1987, 42p
\$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire or explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packaging, transport, and acceptable procedures for waste disposal.

ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
HA HEALTH ASSESSMENT
WHO WORLD HEALTH ORGANIZATION
106-89-8 EPICHLOROHYDRIN

ISBN 92-4-154365-5

Health and Safety Guide: 1-Butanol

World Health Organization

1987, 33p

\$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire or explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packaging, transport, and acceptable procedures for waste disposal.

ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE

HA HEALTH ASSESSMENT

WHO WORLD HEALTH ORGANIZATION

71-36-3

BUTYL ALCOHOL

ISBN 92-4-154366-3

Health and Safety Guide: Kelevan

World Health Organization

1987, 16p

\$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire and explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packaging, transport, and acceptable procedures for waste disposal.

ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE

HA HEALTH ASSESSMENT

WHO WORLD HEALTH ORGANIZATION

4234-79-1

KELEVAN

ISBN 92-4-154367-1

Health and Safety Guide: Tetradifon
World Health Organization
1987, 31p
\$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire or explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packing, transport, and acceptable procedures for waste disposal.

ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
HA HEALTH ASSESSMENT
WHO WORLD HEALTH ORGANIZATION
116-29-0 TETRADIFON

ISBN 92-4-154465-1

Health and Safety Guide: 2-Butanol
World Health Organization
1987, 30p
\$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire or explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packing, transport, and acceptable procedures for waste disposal.

ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
HA HEALTH ASSESSMENT
WHO WORLD HEALTH ORGANIZATION
103-05-9 BUTANOL, 2-, 2-METHYL-4-PHENYL-

ISBN 92-4-154565-8
 Health and Safety Guide: tert-Butanol
 World Health Organization
 1987, 36p
 \$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire or explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packaging, transport, and acceptable procedures for waste disposal.

ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
 HA HEALTH ASSESSMENT
 WHO WORLD HEALTH ORGANIZATION
 75-65-0 BUTYLALCOHOL, T-

ISBN 92-4-154665-4
 Health and Safety Guide: Isobutanol
 World Health Organization
 1987, 40p
 \$3.00

Abstract: This new series meets the need for concise, authoritative advice on the best ways to prevent accidents and protect the health of workers exposed to potentially toxic chemicals. Information is addressed to administrators and managers responsible for chemical safety as well as to workers directly involved in the handling of chemicals. Each guide concentrates on a single chemical, translating what is known about its properties and the hazards of exposure into clear instructions for safe handling, storage, transport, and disposal. Information ranges from the protective clothing that workers should wear, through the exact medications to be kept in first-aid kits, to the properties of the chemical that can create hazards of fire or explosion. Much of the information in each "Health and Safety Guide" is concerned with minimizing risks to human health and the environment. Tables and charts, suitable for reproduction as posters or safety cards, serve to alert workers to the different forms and symptoms of exposure, short- and long-term risks to health, appropriate protective measures, and emergency actions to be followed when accidents occur. A concluding section provides a summary of current regulations, guidelines, and standards governing exposure limit values, labelling, packaging, transport, and acceptable procedures for waste disposal.

ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
 HA HEALTH ASSESSMENT
 WHO WORLD HEALTH ORGANIZATION
 78-83-1 ISOBUTYL ALCOHOL

ISBN 92-832-1239-8

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Volume 39: Some Chemicals Used in Plastics and Elastomers
International Agency for Research on Cancer
1986, 403p
\$36.00

Abstract: A critical evaluation of the carcinogenic risk associated with selected industrial chemicals used in the production of plastics and elastomers or in paints and adhesives. The book features separate monographs for 18 compounds classified as vinyl compounds, vinylidene compounds, nylon monomers, and other monomers. A monograph on dichloroacetylene is also included. Each compound is evaluated in terms of its chemical and physical properties, its production, use, occurrence and analysis, data from carcinogenicity studies in animals and test systems, and evidence of toxic effects in humans. Where possible, effects on reproduction and prenatal toxicity are also considered. Each monograph concludes with a statement concerning the association of the compound with carcinogenicity in experimental animals and in man. As with previous works in this series, the volume will be valued as an expert synthesis and assessment of all currently available data on the carcinogenic risks associated with the production and use of these chemicals.

IARC INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
RA RISK ASSESSMENT
17 SPECIAL TRADE CONTRACTORS
172 PAINTING, PAPER HANGING, DECORATING
1721 PAINTING, PAPER HANGING, DECORATING
28 CHEMICALS AND ALLIED PRODUCTS
282 PLASTICS MATERIALS AND SYNTHETICS
2821 PLASTICS MATERIALS AND RESINS
2822 SYNTHETIC RUBBER
7572-29-4 DICHLOROACETYLENE

ISBN 92-832-1241-X

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Volume 41: Some Halogenated Hydrocarbons and Pesticide Exposures
International Agency for Research on Cancer
1986, 434p
\$39.00

Abstract: Presents separate monographs assessing the carcinogenic risk associated with 11 halogenated aliphatic hydrocarbons, bis(2-chloro-1-methylethyl)ether, polybrominated biphenyls, and amitrole. Though three of these compounds (methyl chloride, methyl bromide, and methyl iodide) are formed by algae and other marine organisms, the others are commercial compounds or byproducts of compounds widely used in products to which humans are exposed, including solvents, paints, glues, degreasing agents, dry-cleaning fluids, aerosol propellants, blowing agents, refrigerants, textiles, and gasoline additives. Assessments of evidence for carcinogenic activity are supported by numerous tables summarizing information on production quantities in different countries, occupational exposure limits, methods for analysis, and the results of overall evaluation of data from short-term tests. The book also presents two extensive monographs which attempt to resolve the considerable controversy surrounding the possible carcinogenic hazards of chlorophenoxy herbicides and chlorophenols.

CL-BROM BROMINE COMPOUNDS
CL-CHC CHLORINATED HYDROCARBONS
CL-HERB HERBICIDES
CL-PEST PESTICIDES
IARC INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
RA RISK ASSESSMENT
106-48-9 CHLOROPHENOL, P-
108-43-0 CHLOROPHENOL, M-
108-60-1 CHLOROMETHYLETHYLETHETHER, BIS, 2,2',1-
61-82-5 AMITROLE
74-83-9 METHYL BROMIDE
74-87-3 METHYL CHLORIDE
74-88-4 METHANE, IODO-
95-57-8 CHLOROPHENOL, O-

ISBN 92-832-1242-8

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Volume 42: Silica and Some Silicates

International Agency for Research on Cancer

1987, 289p

\$39.00

Abstract: Evaluates the carcinogenic risk to humans posed by exposure to silica, wollastonite, attapulgite, sepiolite, talc, and erionite. Each of these minerals is considered in a separate monograph containing sections on chemical and physical properties, the extent of past and present human exposure to the mineral, results of carcinogenicity studies in animals, other relevant biological data in experimental systems and in humans, and case reports and epidemiological studies of carcinogenicity in humans. On the basis of these data, each monograph then concludes with an evaluation of the degrees of evidence for carcinogenicity to experimental animals and to humans. Information, which includes critiques of methodologies used in data collection and analysis, reflects the views and conclusions of a 22-member working group composed of experts in carcinogenicity, toxicology, and occupational health. More than 800 published studies are cited. The first and most extensive monograph is devoted to silica, with data on amorphous and crystalline forms, including quartz, tridymite, and cristobalite, relevant to human health. The remaining monographs review the available data on wollastonite, attapulgite, sepiolite, talc and erionite.

IARC INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

RA RISK ASSESSMENT

10 METAL MINING

12 BITUMINOUS COAL AND LIGNITE MINING

12510-42-8 ENOMITE

1337-76-4 ATTAPULGITE

13983-17-0 WOLLASTONITE

14464-46-1 NONMETALLIC MINERALS, EXCEPT FUELS

14807-96-6 TALC

14808-60-7 QUARTZ (SILICA DUST)

15468-32-3 TRIDYMIT

32 STONE, CLAY, AND GLASS PRODUCTS

33 PRIMARY METAL INDUSTRIES

34 FABRICATED METAL PRODUCTS

61180-58-3 SEPIOLITE

7631-86-9 SILICA

ISBN 92-832-1312-2

Information Bulletin on the Survey of Chemicals Being Tested for Carcinogenicity, Number 12

International Agency for Research on Cancer

1986, 385p

\$25.20

Abstract: A worldwide directory of on-going research projects involving the long-term carcinogenicity testing of chemicals. The current bulletin gives data received from 95 institutes in 20 countries on 998 chemicals. Information on these research projects is arranged alphabetically by country, within each country by city, and within each city by institute. For each institute reporting on long-term carcinogenicity testing, the chemicals or complex mixtures being tested are listed in alphabetical order. Reported data are given in a six-column format, including name of substance; use category; species; strain and number of animals; purity, exposure route and dose levels; starting data and stage of experiment; and principal investigators. Seven indexes are included to facilitate retrieval of data. As with previous bulletins in this series, the present survey should do much to avoid unnecessary duplication of research, to increase communication among scientists, and to provide a census of available research facilities as well as of chemicals being tested.

CL-CARCIN CARCINOGENS

ES EPIDEMIOLOGY STUDY

IARC INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

TT TOXICITY TESTING

ISBN 92-890-1269-2

Indoor Air Quality Research: Report on a WHO Meeting
World Health Organization
1986, 64p
\$4.80

Abstract: Outlines main conclusions and recommendations made during a meeting where experts in environmental hygiene and occupational health assessed research methodologies for the study of indoor air pollution. Emphasis is placed on conditions known to create health problems in office buildings, especially those with energy-efficient designs characterized by airtight envelopes. The opening section reviews some of the sophisticated new laboratory methods used to assess indoor air pollutants, determine related health risks, and develop a rationale for effective remedial measures. Six main groups of pollutants are considered: inorganic gases produced by combustion, organic pollutants (volatile and suspended), particulate matter and mineral fibres, allergens, radon, and radon daughters, and odours. The most extensive section of the report is devoted to the "sick" building syndrome, defined by excessive health complaints associated with conditions in up to 30% of new and remodelled buildings. Because of the extent of the problem and the difficulty of distinguishing between real failures of design and subjective reactions of employees, it concentrated on practical information to aid recognition of symptoms and in the most effective strategy for investigating their causes. It concludes with strategies for reducing exposure to sources of indoor air pollution.

CL-ALLERG ALLERGENS
CL-TAP INDOOR AIR POLLUTANTS
CL-INORGAN INORGANIC COMPOUNDS
CL-MINFIB MINERAL FIBERS
CL-ODOR ODORS
CL-ORGANIC ORGANIC COMPOUNDS
CL-PH PARTICULATE MATTER
CL-SVOC SEMIVOLATILE ORGANIC COMPOUNDS
CL-VOC VOLATILE ORGANIC COMPOUNDS
HA HEALTH ASSESSMENT
IA INDOOR AIR
WHO WORLD HEALTH ORGANIZATION
10043-92-2 RADON

MA0185001

DIOXIN: AN ASSESSMENT OF SOURCES AND HEALTH EFFECTS IN THE COMMONWEALTH OF MASSACHUSETTS
MA DEPT OF ENV. QUALITY ENG., DIV. OF AIR QUALITY CONTROL
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL ENGINEERING
12/01/85, 114 pages

Dioxin in its various forms is recognized as one of the most toxic and mechanisms which determine its effect on human health and the environment. The Governor's plan for solid waste disposal would rely heavily on the use of resource recovery facilities to dispose of refuse in Massachusetts. This increased reliance on resource recovery together with public interest in several proposed resource recovery facilities has highlighted the need for the most recent data on dioxin emissions and health effects.

In response to the need for the most recent information as well as public health concerns related to dioxin emissions, the Department of Environmental Quality Engineering (DEQE) has initiated a study of the characteristics, sources and health effects associated with dioxin and related compounds. The objective of this study is to summarize the current state of knowledge concerning dioxin in the environment. The study identifies those areas where significant technical uncertainty exists as well as those areas in which adequate information may be found.

CL-DIOXIN DIOXINS
CL-FURAN FURANS
HA HEALTH ASSESSMENT
SA SOURCE ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
110-00-9 FURAN
1746-01-6 TETRACHLORODIBENZODIOXIN, 2,3,7,8-P-

MA0185002

The Chemical Health Effects Assessment Methodology and the Method to Derive Acceptable Ambient Levels (CHEM and AAL)
The Department of Environmental Quality Engineering
MA DEPT OF ENV. QUALITY ENG., DIV. OF AIR QUALITY CONTROL
06/01/85, 600 pages

The Chemical Health Effects Assessment Methodology (CHEM) and the process which composes the health basis of the Massachusetts Department of Environmental Quality Engineering air toxics program are described. Using valid epidemiological, clinical, and experimental data from primary sources and peer-reviewed secondary sources, CHEM systematically identifies and evaluates the following potential adverse health effects of chemical substances: acute/chronic toxicity, carcinogenicity, mutagenicity, and developmental/reproductive toxicity. The method to derive AALs establishes ambient air levels for specific chemical substances based on the health data provided by CHEM; the health data are incorporated through a series of adjustment and safety factors applied to selected occupational limits to provide protection for the general public against continuous exposure and to account for gaps and inadequacies in the data. The Department believes that CHEM and AAL offers a viable tool for protecting public health and decreasing risk from effects of exposure to toxic air pollutants.

MA0185002 (continued)

110-82-7	CYCLOHEXANE
117-81-7	ETHYLHEXYLPHthalate, BIS, 2-
121-44-8	TRIETHYLAMINE
122-39-4	PHENYLBENZENAMINE, N-
123-91-1	DIOXANE, 1,4-
123-92-2	ISOAMYL ACETATE
126-99-8	CHLOROBUTADIENE, 2-, 1,3-
127-18-4	TETRACHLOROETHYLENE
1313-99-1	NICKEL OXIDE
1314-62-1	VANADIUM PENTOXIDE
1335-32-6	LEAD ACETATE
1336-36-3	POLYCHLORINATED BIPHENYLS
13765-19-0	CALCIUM CHROMATE, ANHYDROUS
140-88-5	ETHYL ACRYLATE (INHIBITED)
141-78-6	ETHYL ACETATE
16984-48-8	FLUORIDES
1746-01-6	TETRACHLOROIBENZODIOXIN, 2,3,7,8-, p-
2365-85-5	MIREX
302-01-2	HYDRAZINE
50-00-0	FORMALDEHYDE
540-59-0	DICHLOROETHYLENE, 1,2-, CIS-TRANS-
56-23-5	CARBON TETRACHLORIDE
57-74-9	CHLORDANE
58-89-9	LINDANE
591-78-6	HEXANONE, 2-
60-29-7	ETHYL ETHER
62-53-3	ANILINE
67-64-1	ACETONE
67-66-3	CHLOROFORM
67-68-5	DIMETHYL SULFOXIDE
67-72-1	HEXACHLOROETHANE
68-12-2	DIMETHYLFORMAMIDE, N,N-
70-30-4	HEXACHLOROPHENE
71-23-8	PROPYL ALCOHOL
71-36-3	BUTYL ALCOHOL
71-43-2	BENZENE
71-55-6	TRICHLOROETHANE, 1,1,1-
74-83-9	METHYL BROMIDE
74-85-1	ETHYLENE
7439-92-1	LEAD POWDER
7440-02-2	NICKEL
7440-41-7	BERYLLIUM
7440-43-9	CADMIUM
7440-47-3	CHROMIUM
7446-34-6	SELENIUM SULFIDE
75-00-3	CHLOROETHANE
75-01-4	VINYL CHLORIDE
75-05-4	VINYLDENE CHLORIDE
75-07-0	ACETALDEHYDE
75-09-2	METHYLENE CHLORIDE

MA0185002 (continued)

75-56-9 PROPYLENE OXIDE
 76-12-0 TETRACHLOROFLUOROETHANE, 1,1,2,2-, 1,2-
 76-44-8 HEPTACHLOR
 7664-39-3 HYDROGEN FLUORIDE
 7664-41-7 AMMONIA
 7782-49-2 SELENIUM COMPOUNDS, AS SE
 7782-50-5 CHLORINE
 7783-06-4 HYDROGEN SULFIDE
 78-83-1 ISOBUTYL ALCOHOL
 78-87-5 DICHLOROPROPANE, 1,2-
 79-00-5 TRICHLOROETHANE, 1,1,2-
 79-01-6 TRICHLOROETHYLENE
 79-34-5 TETRACHLOROETHANE, 1,1,2,2-
 80-62-6 METHYL METHACRYLATE
 85-44-9 PHTHALIC ANHYDRIDE
 87-86-5 PENTACHLOROPHENOL
 91-20-3 NAPHTHALENE
 92-52-4 BIPHENYL
 95-50-1 DICHLOROBENZENE, 1,2-
 95-95-4 TRICHLOROPHENOL, 2,4,5-
 96-33-3 METHYL ACRYLATE
 98-95-3 NITROBENZENE

MD018601

MARYLAND'S AIR TOXIC CONTROL PROGRAM: WORKING GROUP DELIBERATIONS.
 MD DEPARTMENT OF THE ENVIRONMENT, AIR MANAGEMENT ADMIN.
 SUSAN S.G. WIERMAN, GEORGE S. ABURN, DOROTHY M. GUY, JOEL H. COOPER.
 05/01/86, 170 pages

THIS DOCUMENT CONTAINS THE MINUTES OF 10 MEETINGS OF A WORKING GROUP FORMED TO ASSIST MARYLAND IN DEVELOPING DRAFT AIR TOXIC REGULATIONS. THE GROUP, FORMED TO ENSURE THAT ALL INTERESTS WERE CONSIDERED, REPRESENTED THE BUSINESS COMMUNITY, ENVIRONMENTAL GROUPS, THE STATE LEGISLATURE, EPA, AND ACADEMIA. THE WORKING GROUP PROVIDED A FORUM FOR IDENTIFYING AND RESOLVING ISSUES OF CONCERN ASSOCIATED WITH THE DRAFT REGULATIONS. THE DOCUMENT ALSO EXPLAINS MARYLAND'S PRELIMINARY PROPOSED PROGRAM DESIGN. (PRICE: \$5.)

PD AIR TOXICS CONTROL PROGRAM SUPPORT DOCUMENT
 STATE/LOC STATE OR LOCAL AGENCY

ME0186001

RISK ASSESSMENT DOCUMENT FOR TOLUENE - FINAL REPORT
 ME DEPT. OF ENV. PROT., BUR. OF AIR QUALITY CONTROL
 NORMAN T. ANDERSON, ENVIRONMENTAL TOXICOLOGY PROGRAM, BUREAU OF HEALTH
 MAINE DEPT. OF HUMAN SERVICES
 03/01/87, 59 pages

TOLUENE IS THE FIRST COMPOUND TO HAVE UNDERGONE EVALUATION IN MAINE'S HAZARDOUS AIR POLLUTANT PROGRAM. GASOLINE PRODUCTION AND BACKBLENDING REPRESENT THE MAJOR SOURCES OF TOLUENE USE. TOLUENE IS ALSO USED IN THE SYNTHESIS OF OTHER CHEMICALS AND AS A SOLVENT. NATIONALLY, MARKETING AND COMBUSTION OF GASOLINE REPRESENT THE MAJOR SOURCE OF TOLUENE AIR EMISSIONS. IN MAINE, IT HAS BEEN ESTIMATED THAT 1,118 METRIC TONS OF TOLUENE ARE EMITTED FROM SOLVENT USAGE AND APPROXIMATELY 855 TONS OF TOLUENE ARE EMITTED FROM GASOLINE MARKETING AND COMBUSTION. NO PRODUCTION OR CHEMICAL CONVERSION OF TOLUENE IS DONE IN MAINE. THIS DOCUMENT REVIEWS THE AVAILABLE LITERATURE ON TOLUENE SPECIFICALLY THE HEALTH EFFECTS LITERATURE. SUGGESTED LOWEST EFFECT LEVELS FOR THE GENERAL POPULATION WERE DERIVED.

RA RISK ASSESSMENT
 STATE/LOC STATE OR LOCAL AGENCY
 108-88-3 TOLUENE

MM01MDCA1130871

EVALUATION OF MUNICIPAL SOLID WASTE INCINERATION
 MN POLLUTION CONTROL AGENCY, DIV. OF AIR QUALITY
 CAL RECOVERY SYSTEMS INC.
 01/01/87, 140 pages

THE PURPOSE OF THE STUDY WAS TO DEVELOP BACKGROUND INFORMATION ON WASTE INCINERATION THAT WOULD SERVE AS A RESOURCE TO THE MPCA IN ITS DEVELOPMENT AND PROMULGATION OF INCINERATOR REGULATION FOR THE STATE OF MINNESOTA.

THE STUDY WAS DIVIDED INTO THE FOLLOWING KEY AREAS:

1. A LITERATURE REVIEW TO COMPILE EXISTING INFORMATION ON WASTE COMBUSTION TECHNOLOGY, ON AIR POLLUTION CONTROL TECHNOLOGY, AND ON CHARACTERISTICS OF MUNICIPAL SOLID WASTE FEEDSTOCKS AND COMBUSTION EFFLUENT STREAMS.
2. A LITERATURE REVIEW TO COMPILE EXISTING INFORMATION ON THE PUBLIC HEALTH ASPECTS OF SOLID WASTE COMBUSTION.
3. A FIELD TESTING PROGRAM TO MEASURE THE CHARACTERISTICS OF SOLID WASTE AND OF ITS COMBUSTED PRODUCTS AT A LOCATION WITHIN THE STATE OF MINNESOTA.

SA SOURCE ASSESSMENT
 STATE/LOC STATE OR LOCAL AGENCY

NY02-L-VEGAS-1

ASSESSMENT OF AIR TOXICS IN LAS VEGAS, NEVADA
AIR POLLUTION CONTROL DIV., DIST. HEALTH DEPT. OF CLARK CO.
MICHAEL MAYLOR
04/01/87, 6 pages

AN ESTIMATE IS MADE OF THE ANNUAL INCIDENCE OF CANCERS IN THE LAS VEGAS VALLEY DUE TO THE FOLLOWING AIR CONTAMINANTS: ASBESTOS; BENZENE; CADMIUM; CARBON TETRACHLORIDE; CHLOROFORM; CHROMIUM; PRODUCTS OF INCOMPLETE COMBUSTION; ETHYLENE; FORMALDEHYDE; NICKEL; PERCHLOROETHYLENE; & VINYL CHLORIDE.

RA RISK ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
127-18-4 TETRACHLOROETHYLENE
1332-21-4 ASBESTOS
50-00-0 FORMALDEHYDE
56-23-5 CARBON TETRACHLORIDE
67-66-3 CHLOROFORM
71-43-2 BENZENE
74-85-1 ETHYLENE
7440-02-2 NICKEL
7440-38-2 ARSENIC AND COMPOUNDS AS AS
7440-43-9 CADMIUM
7440-47-3 CHROMIUM

NY01 DOCUMENT 1
AN EVALUATION OF SOME DISPERSION MODELS FOR HAZARDOUS AIR

POLLUTANTS
NY DEPT OF ENV. CONSERVATION, DIV. OF AIR QUALITY
M. KU, S.T. RAO, AND W.B. PETERSEN
02/01/88, 25 pages

ABSTRACT: SOME HEAVY GAS AND PASSIVE GAS DISPERSION MODELS HAVE BEEN EVALUATED WITH THE WIND TUNNEL CO2 EXPERIMENTAL DATA. THE DISPERSION CHARACTERISTICS OF A DENSE GAS PLUME ARE ASSESSED.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY
STATE/LOC STATE OR LOCAL AGENCY

NY0186001

EMISSION SOURCE TEST REPORT - PRELIMINARY REPORT ON ONEIDA COUNTY ERF
NY DEPT OF ENV. CONSERVATION, DIV. OF AIR QUALITY
SOURCE TESTING SECTION, BUREAU OF TOXIC AIR SAMPLING, NEW YORK DEC 09/26/86, 49 pages

AS PART OF THE RESOURCE RECOVERY FACILITY EMISSION CHARACTERIZATION STUDY, THE SOURCE TESTING SECTION, DIV. OF AIR RESOURCES, NY DEC COM-DUCTED EMISSION SAMPLING AT THE ONEIDA COUNTY ENERGY RECOVERY FACILITY IN ROME, NY (EP #301300 0517 00001). THE PLANT CONSISTS OF 4 CLEAR AIR MODEL #CA 4000A INCINERATORS SERVING THE REFUSE DISPOSAL NEEDS OF EASTERN ONEIDA COUNTY. EACH RAM-FED UNIT IS RATED AT 50 TONS OF REFUSE CHARGED PER DAY. THE NORMAL OPERATIONAL CHARGING RATE IS ABOUT 4000 LB PER HR (48 TPD). THE PLANT OPERATES 7 DAYS PER WEEK USING REFUSE WHICH RECEIVES LIMITED SEPARATION OF NON-BURNABLE MATERIAL ON THE TIPPING FLOOR. EACH INCINERATOR IS CHARGED APPROXIMATELY EVERY 8 MIN. SAMPLING AT THE PLANT WAS CONDUCTED FROM 8/6-8/85 AND 8/26-29/85. THROUGHOUT TESTING, THE UNIT OPERATED AT 70% TO 115% OF DESIGN CAPACITY. SAMPLING WAS CARRIED OUT USING EPA APPROVED OR ADAPTIONS OF EPA APPROVED METHODS.

CL-PM	PARTICULATE MATTER
SS	SOURCE SAMPLING
STATE/LOC	STATE OR LOCAL AGENCY
124-38-9	CARBON DIOXIDE
1746-01-6	TETRACHLORO-DIBENZODIOXIN, 2,3,7,8-P-
218-01-9	CHRYSENE
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
50-00-0	FORMALDEHYDE
50-32-8	BENZO(A)PYRENE
51207-31-9	TETRACHLORO-DIBENZOFURAN, 2,3,7,8-
630-08-0	CARBON MONOXIDE
7439-96-5	MANGANESE
7439-97-6	MERCURY
7440-02-2	NICKEL
7440-38-2	ARSENIC AND COMPOUNDS AS AS
7440-41-7	BERYLLIUM
7440-43-9	CADMIUM
7440-47-3	CHROMIUM
7440-62-2	VANADIUM
7440-66-6	ZINC
7446-09-5	SULFUR DIOXIDE
7647-01-0	HYDROGEN CHLORIDE

NY0186002

EMISSION SOURCE TEST REPORT - PRELIMINARY REPORT ON CATTARAUGUS COUNTY ERF
NY DEPT OF ENV. CONSERVATION, DIV. OF AIR QUALITY
JAMES MCGARRY ET AL., NY DEC, REGION 9, DIV. OF AIR RESOURCES
08/05/86, 43 pages

THE REGION 9 SOURCE TESTING TEAM OF THE NY DEC CONDUCTED EMISSION SAMPLING AT THE CATTARAUGUS COUNTY ENERGY FACILITY. THE PLANT IS LOCATED NEAR THE VILLAGE OF CUBA, NY. IT RECEIVES AND BURNS MUNICIPAL REFUSE GENERATED BY VARIOUS CITIES AND TOWNS IN THE AREA. THE ENERGY RECOVERED IS USED TO MAKE STEAM WHICH IS SOLD TO THE CUBA CHEESE PLANT NEARBY. THE PLANT CONSISTS OF A TIPPING FLOOR AND THREE IDENTICAL REFACTORY LINED INCINERATORS FOLLOWED BY FIRE-TUBE WASTE HEAT BOILERS. THE MAX. CAPACITY OF EACH INCINERATOR IS 40 TONS PER DAY. THE 3 UNITS OPERATE 24 HRS. PER DAY, 6 DAYS PER WEEK. THERE ARE NO AIR POLLUTION CONTROL DEVICES. THE REFUSE IS MOVED FROM THE TIPPING FLOOR TO THE INCINERATOR FEED HOPPER BY SKID LOADER. THE REFUSE IS FED FROM THE FEED HOPPER INTO THE INCINERATOR BY A HYDRAULIC RAM. THE INCINERATOR EXHAUST GASES DISCHARGE THROUGH FIRE-TUBE STEAM BOILERS TO INDIVIDUAL 63 FOOT HIGH STACKS. SAMPLING AT THE PLANT WAS CONDUCTED FROM 9/24-10/26/84. DURING SAMPLING, THE INCINERATOR OPERATED AT AN AVE. OF 94% OF MAX CAPACITY.

CL-PM	PARTICULATE MATTER
SS	SOURCE SAMPLING
STATE/LOC	STATE OR LOCAL AGENCY
124-38-9	CARBON DIOXIDE
1746-01-6	TETRACHLORO-DIBENZODIOXIN, 2,3,7,8-P-
218-01-9	CHRYSENE
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
50-00-0	FORMALDEHYDE
50-32-8	BENZO(A)PYRENE
51207-31-9	TETRACHLORO-DIBENZOFURAN, 2,3,7,8-
630-08-0	CARBON MONOXIDE
7439-96-5	MANGANESE
7439-97-6	MERCURY
7440-02-2	NICKEL
7440-38-2	ARSENIC AND COMPOUNDS AS AS
7440-41-7	BERYLLIUM
7440-43-9	CADMIUM
7440-47-3	CHROMIUM
7440-62-2	VANADIUM
7440-66-6	ZINC
7446-09-5	SULFUR DIOXIDE
7647-01-0	HYDROGEN CHLORIDE

NY0187001

QUANTITATIVE RISK ASSESSMENT FOR TRICHLOROETHYLENE (TCE)
NY DEPT OF ENV. CONSERVATION, DIV. OF AIR QUALITY
MOISES RIANO, PH.D., CARLOS MONTES, VIRGINIA REST
09/01/86, 6 pages

CARCINOGENIC RISK ASSESSMENT OF TRICHLOROETHYLENE (TCE) HAS BEEN UNDERTAKEN. THIS ANALYSIS IS BASED ON A BIOASSAY STUDY CONDUCTED AT THE NATIONAL CANCER INSTITUTE (NCI) IN 1976. UNDER THE CONDITIONS OF THE EXPERIMENT, ADMINISTRATION OF TCE HAS BEEN ASSOCIATED WITH A SIGNIFICANT INCREASED INCIDENCE OF HEPATOCELLULAR (LIVER) CARCINOMAS OVER CONTROL ANIMALS IN B6C3F1 MICE OF BOTH SEXES.

BASED ON THE RESULTS OF APPLYING THE GLOBAL '82 COMPUTER PROGRAM TO THE TUMOR INCIDENCE DATA ON MICE OF BOTH SEXES, WE ARE RECOMMENDING A HUMAN EXPOSURE LEVEL FOR TRICHLOROETHYLENE (TCE) OF 449 NG/M3 FOR A 1 X 10⁻⁶ LIFETIME RISK.

RA	RISK ASSESSMENT
STATE/LOC	STATE OR LOCAL AGENCY
79-01-6	TRICHLOROETHYLENE

NY0187002

QUANTITATIVE RISK ASSESSMENT FOR TETRACHLOROETHYLENE (PERCHLOROETHYLENE)

NY DEPT OF ENV. CONSERVATION, DIV. OF AIR QUALITY
MOISES M. RIANO, PHD; CARLOS L. MONTES; S. T. RAO
11 pages

THIS STUDY WAS UNDERTAKEN USING STATISTICAL ANALYSIS TO ASSESS THE CARCINOGENIC RISK OF HUMAN EXPOSURE TO THIS AIR CONTAMINANT. THIS EVALUATION IS BASED IN ON INHALATION STUDY CONDUCTED BY NTP UNDER A CONTRACT WITH NTH. UNDER THE CONDITIONS OF THE BIOASSAY, TETRACHLOROETHYLENE WAS CARCINOGENIC IN MICE. BASED ON THIS STUDY, CARCINOGENIC RISK ASSESSMENT FOR MALE MICE, FEMALE MICE, AND BOTH SEXES COMBINED WAS CONDUCTED. THE GLOBAL '82 PROGRAM WAS USED. WE SUGGEST THAT THE RISK VALUE OBTAINED BY EXTRAPOLATION OF THE FEMALE MICE DOSE/RESPONSE TO HUMAN LEVEL MAY BE THE MOST INDICATIVE OF THE TRUE HUMAN CANCER RISK UPON EXPOSURE TO TETRACHLOROETHYLENE.

RA	RISK ASSESSMENT
STATE/LOC	STATE OR LOCAL AGENCY
127-18-4	TETRACHLOROETHYLENE

NY0187003

METHYLENE CHLORIDE (DICHLOROMETHANE) - SUMMARY OF TOXICOLOGIC DATA
AND CANCER RISK ASSESSMENT
NY DEPT OF ENV. CONSERVATION, DIV. OF AIR QUALITY
MOISES RIANO, PHD AND VIRGINIA M. REST, M.S.
09/01/86, 21 pages

CARCINOGENIC RISK ASSESSMENT OF METHYLENE CHLORIDE WAS UNDERTAKEN.
THIS ANALYSIS WAS BASED ON A BIOASSAY CONDUCTED BY NTP. UNDER THE CON-
DITIONS OF THE BIOASSAY, ADMINISTRATION OF METHYLENE CHLORIDE HAS BEEN
ASSOCIATED WITH AN INCREASED INCIDENCE OF BOTH HEPATOCELLULAR AND
BRONCHIOLAR/ALVEOLAR CARCINOMAS OVER CONTROL ANIMALS IN B6C3F1 MICE OF
BOTH SEXES. BASED UPON THE RESULTS OF APPLYING THE GLOBAL-82 MULTI-
STAGE COMPUTER PROGRAM TO THE TUMOR INCIDENCE DATA ON MICE OF BOTH
SEXES, WE ARE RECOMMENDING THE FOLLOWING HUMAN LIFETIME EXPOSURE LEVEL
S TO METHYLENE CHLORIDE FOR THREE RISK VALUES: $1 \times 10^{-4} = 0.037$ TO 0.151
MG/M³; $1 \times 10^{-5} = 0.0037$ TO 0.0151 MG/M³; AND $1 \times 10^{-6} = 370$ TO 1510 NG/M³
THESE CONCENTRATIONS ARE BASED ON HUMAN EXPOSURE TO METHYLENE CHLORIDE
FOR 24 HRS PER DAY FOR 70 YEARS AND FOR A 70 KG ADULT WHO RESPIRES
20M³ OF AIR PER DAY. APPLICATION OF THE GLOBAL-82 LINEARIZED MULTI-
STAGE MODEL TO THE COMBINED BENIGN AND MALIGNANT LUNG TUMOR INCIDENCE
DATA FOR FEMALE MICE RESULTS IN A HUMAN EXPOSURE LEVEL OF 370 NG/M³
FOR A 1×10^{-6} LIFETIME RISK. A SIMILAR RESPONSE IS OBTAINED FROM EXTRA-
POLATING COMBINED BENIGN AND MALIGNANT LUNG TUMORS FOR MALE MICE. THIS
SUGGESTS THAT A PRIMARY PUBLIC HEALTH CONCERN FOLLOWING CHRONIC EXPO-
SURE TO METHYLENE CHLORIDE COULD INVOLVE THE RESPIRATORY TRACT. THE
TUMORS OBSERVED IN THE LIVER AT SUPPORTIVE EVIDENCE.

RA RISK ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
75-09-2 METHYLENE CHLORIDE

NY0187004

ETHYLENE OXIDE - CARCINOGENIC RISK ASSESSMENT
NY DEPT OF ENV. CONSERVATION, DIV. OF AIR QUALITY
MOISES M. RIANO AND CARLOS L. MONTES
03/01/87, 29 pages

QUANTITATIVE RISK ASSESSMENT OF ETHYLENE OXIDE HAS BEEN CONDUCTED.
BASED ON THREE ANIMAL BIOASSAYS IT IS ESTIMATED THAT THE LIFETIME
EXPOSURE LEVELS ASSOCIATED WITH A RISK OF 1×10^{-6} RANGE FROM 12 NG/M³
TO 129 NG/M³. EPIDEMIOLOGICAL STUDIES SHOWED A SIGNIFICANT ASSOCIATION
BETWEEN ETHYLENE OXIDE EXPOSURE AND AN EXCESS RISK OF LEUKEMIA IN
WORKERS.

RA RISK ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
75-21-8 ETHYLENE OXIDE

OH01ARSEMICA001

EVALUATION OF ARSENIC EMISSIONS AND AMBIENT CONCENTRATIONS FROM A
GLASS MANUFACTURING FACILITY IN OHIO.
OHIO EPA, DIV. OF AIR POLLUTION CONTROL
CONTRACTOR FOR THE OHIO AIR QUALITY DEVELOPMENT AUTHORITY (OAQDQ)
AND THE OHIO EPA -- DIVISION OF AIR POLLUTION CONTROL
04/01/87, 300 pages

A RISK ASSESSMENT WAS PERFORMED ON A GLASS MANUFACTURING FACILITY
LOCATED IN THE STATE OF OHIO IN REGARDS TO THE EMISSION OF INORGANIC
ARSENIC INTO THE AMBIENT AIR. BACKGROUND INFORMATION, EMISSION
ESTIMATES, AMBIENT AIR QUALITY ANALYSIS, AND A RISK AND EXPOSURE
ASSESSMENT ARE INCLUDED IN THE DOCUMENT. THE INDUSTRIAL SOURCE
COMPLEX -- LONG TERM MODEL (LISCLT) IN COMBINATION WITH THE HUMAN
EXPOSURE MODEL (HEM) WAS USED FOR THE RISK ASSESSMENT. THE STUDY
ALSO EXAMINED THE CONSEQUENCES OF THE POTENTIAL APPLICATION OF
DIFFERENT CONTROL TECHNOLOGIES ON THE RESULTANT RISK FROM THE AMBIENT
ARSENIC CONCENTRATIONS. THE STUDY WAS USED TO EVALUATE THE NEED FOR
FURTHER REGULATION OF GLASS FACILITIES BEYOND THE NATIONAL EMISSION
STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS).

CS CASE STUDY
DM DISPERSION MODELING
EA EXPOSURE ASSESSMENT
NESHAP NAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
PRA PRE-REGULATORY ASSESSMENT
RA RISK ASSESSMENT
SA SOURCE ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
32 STONE, CLAY, AND GLASS PRODUCTS
322 GLASS AND GLASSWARE, PRESSED OR BLOWN
3229 PRESSED AND BLOWN GLASS, NEC
7440-38-2 ARSENIC AND COMPOUNDS AS AS

OH01LISTL001

THE IDENTIFICATION AND PRIORITIZATION OF TOXIC AIR POLLUTANTS
IN OHIO

OHIO EPA, DIV. OF AIR POLLUTION CONTROL
CONTRACTOR FOR THE OHIO AIR QUALITY DEVELOPMENT AUTHORITY (OAQDA)
AND THE OHIO EPA -- DIVISION OF AIR POLLUTION CONTROL
06/26/88, 30 pages

A PRIORITIZED LIST OF THE TOP 29 TOXIC AIR POLLUTANTS WAS COMPILED FOR
THE STATE OF OHIO. THE INITIAL LIST OF 400 SUBSTANCES WAS FORMED BY
DETERMINING THE LARGEST INDUSTRIES IN OHIO BY NUMBER OF EMPLOYEES,
CROSS-REFERENCED BY -SIC- CODE EMISSION FACTORS. EACH POLLUTANT WAS
GIVEN A WEIGHTING FACTOR BASED UPON THE SIZE OF THE INDUSTRY AND THE
PREDICTED EMISSIONS. THE FINAL PRIORITIZATION WAS DETERMINED BY
ASSIGNING EACH POLLUTANT A RANKING (R) BASED UPON THE EQUATION
R = POTENTIAL EXPOSURE / ACCEPTABLE EXPOSURE. ACCEPTABLE EXPOSURES
WERE BASED UPON DOCUMENTED HEALTH EFFECTS. THE FINAL LIST WILL BE
USED TO DIRECT THE TOXIC AIR POLLUTANT PROGRAM'S EXAMINATION OF
EXISTING SOURCES POTENTIALLY REQUIRING FURTHER REGULATION.

CL-COE	COKE OVEN EMISSIONS
EA	EXPOSURE ASSESSMENT
EF	EMISSION FACTOR
PRA	PRE-REGULATORY ASSESSMENT
RDG	REGULATORY DEVELOPMENT GUIDANCE
STATE/LOC	STATE OR LOCAL AGENCY
100-42-5	STYRENE
106-89-8	EPICHLOROHYDRIN
106-99-0	BUTADIENE, 1,3-
107-06-2	ETHYLENE DICHLORIDE
107-13-1	ACRYLONITRILE
1336-36-3	POLYCHLORINATED BIPHENYLS
1746-01-6	TETRACHLORO-DIBENZODIOXIN, 2,3,7,8-P-
26471-62-5	TOLUENE DIISOCYANATE
50-00-0	FORMALDEHYDE
50-32-8	BENZO(A)PYRENE
56-23-5	CARBON TETRACHLORIDE
62-53-3	ANILINE
67-66-3	CHLOROFORM
71-43-2	BENZENE
7439-92-1	LEAD POWDER
7439-97-6	MERCURY
7440-02-2	NICKEL
7440-38-2	ARSENIC AND COMPOUNDS AS AS
7440-41-7	BERYLLIUM
7440-43-9	CADMIUM
7440-47-3	CHROMIUM
75-01-4	VINYL CHLORIDE
75-09-2	METHYLENE CHLORIDE
75-21-8	ETHYLENE OXIDE
75-44-5	PHOSGENE

OH01LISTL001 (continued)
79-06-1 ACRYLAMIDE

OH01REPORTL001

THE IDENTIFICATION AND PRIORITIZATION OF TOXIC AIR POLLUTANTS
IN OHIO

OHIO EPA, DIV. OF AIR POLLUTION CONTROL
CONTRACTORS FOR THE OHIO AIR QUALITY DEVELOPMENT AUTHORITY (OAQDA) FOR
OHIO EPA, DIVISION OF AIR POLLUTION CONTROL
06/26/87, 30 pages

CHIP	CHEMICAL HAZARD INFORMATION PROFILE
EF	EMISSION FACTOR
PRA	PRE-REGULATORY ASSESSMENT
RDG	REGULATORY DEVELOPMENT GUIDANCE
STATE/LOC	STATE OR LOCAL AGENCY

OH0386001

THE RADON SAMPLING PROJECT FINAL REPORT
MONTGOMERY CO. REGIONAL AIR POLLUTION CONTROL AGENCY
ANDREW B. LINDSTROM
12/11/86, 35 pages

THE REGIONAL AIR POLLUTION CONTROL AGENCY (DAYTON, OH) SAMPLED RADON
IN ABOUT 160 HOMES IN 6 COUNTIES DURING THE SUMMER OF 1986. PASSIVE
ENVIRONMENTAL RADON MONITORS (PERNS) WITH THERMOLUMINESCENT DOSIMETER
CHIPS WERE USED, AND WERE LOCATED, IN MOST CASES, ACCORDING TO EPA
GUIDELINES. HIGH RADON AREAS WERE SOUGHT FOR MONITORS, AND THE
AVERAGE CONCENTRATION WAS 7.0 PCI/L. 47% OF THE HOUSES HAD LEVELS
ABOVE 4.0 PCI/L. THE MAXIMUM READING WAS 64 PCI/L. A POSITIVE
CORRELATION WAS FOUND BETWEEN RADON LEVELS AND INSULATION LEVEL
AND THE PRESENCE OF SUMP PUMPS AND BASEMENTS.

ES	EPIDEMIOLOGY STUDY
STATE/LOC	STATE OR LOCAL AGENCY
10043-92-2	RADON

P8-PENDING

Radon Reduction Techniques for Detached Houses: Technical Guidance, 2nd ed.

EPA, Research Triangle Park, NC, AEERL

D.B. Henschel

Jan 88, 192p, EPA-625/5-87-019

Abstract: This document is designed to aid in the selection, design, and operation of measures for reducing the levels of naturally occurring radon gas in existing houses. Some of these measures can be considered for reducing indoor radon levels. For radon from natural sources, these methods fall into two generic categories: methods aimed at preventing the radon from entering the house, and those aimed at removing radon or its decay products after entry. The selection and design of a cost-effective radon reduction system for a specific house will depend upon a number of factors specific to that house, including, for example, the pre-reduction radon concentration and a variety of house design and construction details. This document is intended for use as a handbook by State officials, radon mitigation contractors, building contractors, concerned homeowners, and other persons to aid in the selection and design process, and to aid in evaluating the operation of the installed system.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
1A INDOOR AIR
10043-92-2 RADON
15 GENERAL BUILDING CONTRACTORS
152 RESIDENTIAL BUILDING CONSTRUCTION
1521 SINGLE-FAMILY HOUSING CONSTRUCTION
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

P8-216 167/7

Criteria for a Recommended Standard - Occupational Exposure to Coke Oven Emissions

National Institute for Occupational Safety and Health

1973, 62p, NIOSH-TR-003-73, PC A04/MF A01

Abstract: The report presents operating procedures prepared to meet the need for preventing occupational diseases arising from exposure to coke oven emissions. These recommendations are designed as an aid to reducing worker's exposure to coke oven emissions through the application of operating procedures and engineering controls that are both feasible and attainable with existing technology. While it is recognized that the mandatory use of respirators is not the most desirable solution to the health hazards faced by coke oven workers, respiratory protection is recommended as a measure pending the development and implementation of new or improved coking methods and/or emission controls. These recommendations are not intended to supplant the existing standard for occupational exposure to tar pitch volatiles as set forth in part 1910.93 of the Federal Register, Vol. 37, Oct. 18, 1972.

CL-COE COKE OVEN EMISSIONS
CL-VOC VOLATILE ORGANIC COMPOUNDS
CT CONTROL TECHNOLOGY DOCUMENT
HA HEALTH ASSESSMENT
NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
49 ELECTRIC, GAS, AND SANITARY SERVICES
492 GAS PRODUCTION AND DISTRIBUTION
4925 GAS PRODUCTION AND/OR DISTRIBUTION

PB-222 219/8

Criteria for a Recommended Standard. Occupational Exposure to Toluene
National Institute for Occupational Safety and Health
1973, 108p, NIOSH-TR-040-73, PC A06/MF A01

Abstract: The report presents the criteria and the recommended standard based thereon which were prepared to meet the need for preventing occupational diseases arising from exposure to toluene. The proposed standard applies only to the processing, manufacture, and use of toluene in products as applicable under the Occupational Safety and Health Act of 1970. These criteria were developed to ensure that the standard based thereon would protect against development of acute and chronic toluene poisoning; be measurable by techniques that are valid, reproducible, and available to industry and governmental agencies; and be attainable with existing technology. The major problem of toluene toxicity concerns its narcotic effects on workers by causing symptoms and signs such as muscular weakness, incoordination, and mental confusion which may pose a risk to both the worker and others.

CT CONTROL TECHNOLOGY DOCUMENT
HA HEALTH ASSESSMENT
NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
108-88-3 TOLUENE
28 CHEMICALS AND ALLIED PRODUCTS
286 INDUSTRIAL ORGANIC CHEMICALS
2865 CYCLIC CRUDES AND INTERMEDIATES

PB-222 220/6

Criteria for a Recommended Standard. Occupational Exposure to Toluene Diisocyanate.
National Institute for Occupational Safety and Health
1973, 106p, NIOSH-TR-041-73, PC A06/MF A01

Abstract: The report presents the criteria and the recommended standard based thereon which were prepared to meet the need for preventing occupational diseases arising from exposure to toluene diisocyanate (TDI). The proposed standard applies only to the processing, manufacture, and use of TDI products as applicable under the Occupational Safety and Health Act of 1970. TDI is an irritating material, both in its liquid and airborne forms. It can produce skin and respiratory tract irritation, and can cause sensitization, so that sensitized workers are subject to asthmatic attacks on reexposure to extremely low concentrations of TDI in air. Environmental limits are recommended to prevent acute and chronic irritation and sensitization of workers, because available knowledge does not indicate any safe concentration for such persons. There are conflicts in available epidemiological data. In addition, methods for sampling and analysis of airborne TDI are inadequately sensitive. Thus, further research in these areas is needed in order to demonstrate means by which these recommended standards can be refined.

CT CONTROL TECHNOLOGY DOCUMENT
HA HEALTH ASSESSMENT
NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
1321-38-6 DIISOCYANATE-1,1-METHYLBENZENE,2,4-
28 CHEMICALS AND ALLIED PRODUCTS
282 PLASTICS MATERIALS AND SYNTHETICS
2821 PLASTICS MATERIALS AND RESINS

PB-222 223/0

Criteria for a Recommended Standard. Occupational Exposure to Inorganic Mercury.
National Institute for Occupational Safety and Health
1973, 136p, NIOSH-TR-044-73, PC A07/NF A01

Abstract: The report presents the criteria and the recommended standard based thereon which were prepared to meet the need for preventing occupational disease arising from exposure to inorganic mercury. The proposed standard applies only to the processing, manufacture, and use of mercury as applicable under the Occupational Safety and Health Act of 1970. The recommended standard is based on currently available information relating exposure to effect. The environmental limit is based on the prevention of effects on the central nervous system such as tremor, behavioral, and personality changes, and nervousness, attributable to occupational exposure to mercury. These criteria were developed to assure that the standard based thereon would protect workers against the acute or chronic toxic effect of mercury; is measurable by techniques that are valid, reproducible, and available to industry and governmental agencies; and is attainable by existing technology. "Inorganic mercury" in this document includes elemental mercury, and all inorganic mercury compounds and organic mercury compounds other than ethyl and methyl mercury compounds.

CT CONTROL TECHNOLOGY DOCUMENT
HA HEALTH ASSESSMENT
28 CHEMICALS AND ALLIED PRODUCTS
281 INDUSTRIAL INORGANIC CHEMICALS
2819 INDUSTRIAL INORGANIC CHEMICALS, NEC
283 DRUGS
2833 MEDICINALS AND BOTANICALS
7439-97-6 MERCURY

PB-222 223/0

Criteria for A Recommended Standard. Occupational Exposure to Inorganic Mercury
National Institute for Occupational Safety and Health
1973, 136p, NIOSH-TR-044-73, PC A07/NF A01

Abstract: The report presents the criteria and the recommended standard based thereon which were prepared to meet the need for preventing occupational disease arising from exposure to inorganic mercury. The proposed standard applies only to the processing, manufacture, and use of mercury as applicable under the Occupational Safety and Health Act of 1970. The recommended standard is based on currently available information relating exposure to effect. The environmental limit is based on the prevention of effects on the central nervous system such as tremor, behavioral, and personality changes, and nervousness, attributable to occupational exposure to mercury. These criteria were developed to assure that the standard based thereon would protect workers against the acute or chronic toxic effect of mercury; is measurable by techniques that are valid, reproducible, and available to industry and governmental agencies; and is attainable by existing technology. "Inorganic mercury" in this document includes elemental mercury, and all inorganic mercury compounds and organic mercury compounds other than ethyl and methyl mercury compounds.

CT CONTROL TECHNOLOGY DOCUMENT
HA HEALTH ASSESSMENT
NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
28 CHEMICALS AND ALLIED PRODUCTS
281 INDUSTRIAL INORGANIC CHEMICALS
2819 INDUSTRIAL INORGANIC CHEMICALS, NEC
283 DRUGS
2833 MEDICINALS AND BOTANICALS
7439-97-6 MERCURY

P8-274_054/68E

Valley Model User's Guide

EPA, Research Triangle Park, NC, OAQPS

E.W. Burt

Sep 77, 111p, EPA-450/2-77-018, PC A06/MF A01

Abstract: The Valley Model is a steady-state, univariate Gaussian plume dispersion model designed for multiple point- and area-source applications. It calculates pollutant concentrations for each frequency designated in an array defined by six stabilities, 16 wind directions, and six wind speeds for 112 program-designated receptor sites on a radial grid of variable scale. The output concentrations are appropriate for either a 24-hour or annual period, as designated by the user. The model contains the concentration equations, the Pasquill-Gifford vertical dispersion coefficients and the Pasquill stability classes, as given by Turner. Plume rise is calculated according to Briggs. Plume height is adjusted according to terrain elevation for stable cases. Technical details of the program are presented, with descriptions of data requirements. Flow diagrams and input data forms are presented. Four appendices include a complete test-case analysis, a complete program listing and a paper in which estimated and observed data are compared at several sites for 24-hour periods during which the upper limits of concentrations were observed.

DM
EPA

DISPERSION MODELING
ENVIRONMENTAL PROTECTION AGENCY

P8-274_770/7

Behavioral and Neurological Effects of Methyl Chloride

National Institute for Occupational Safety and Health

Dec 76, 218p, NIOSH PUBL NO. 77-125, PC A10/MF A01

Abstract: Behavioral and neurological effects on workers exposed to methyl chloride were evaluated in 122 workers occupationally exposed to methyl chloride at 6 manufacturing plants using the solvent in fabricating processes. The duration of exposure correlated with airborne methyl chloride, with methyl chloride on the breath, and with blood hematocrit. Methyl chloride in the breath also related to airborne methyl chloride levels, while airborne methyl chloride and urine acidity correlated with hematocrit. Methyl chloride levels in ambient air and urine acidity were the two best indicators of workers' performance on behavioral tasks. No significant differences in the presence of abnormal neurological symptoms were noted between experimental and control groups. No significant differences were noted between exposed and non-exposed groups with respect to the presence of dysrhythmia. Methyl chloride adversely affected performance on cognitive time-sharing tasks and increased finger tremor. No relation was noted between exposure and psychological or personality tests.

ES

EPIDEMIOLOGY STUDY

HA

HEALTH ASSESSMENT

NIOSH

NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

74-87-3

METHYL CHLORIDE

PB-274 794/7

Behavioral and Neurological Evaluation of Dry Cleaners Exposed to Perchloroethylene
National Institute for Occupational Safety and Health
Jun 66, 88p, NIOSH PUB. NO. 77-214, PC A05/MF A01

Abstract: The adverse effects of perchloroethylene (PCE) on workers' neurologic and behavioral performance were examined in 27 volunteers who worked in various dry cleaning jobs, including 18 who were exposed daily to a mean 8-hour time-weighted average (TWA) exposure of 18 ppm; 8 of the 18 had a mean TWA exposure of 32 ppm. Neurological examination showed a significant difference between neurological ratings for exposed workers versus controls, but multiple regression analyses suggest the neurological deficits to be related to prior exposure to Stoddard's solvent, not PCE. The effects of acute PCE exposure were examined by giving workers behavioral performance tests both prior to work and following work. Although significant differences were recorded in performance of some perception and psychomotor tests, multiple regression analysis showed the post-shift performance decrements to be correlated with fatigue, not with PCE exposure. In summary, no evidence was found of deleterious effects of PCE on workers' neurologic health or behavioral performance. However, findings strongly suggest the involvement of Stoddard's solvent as a factor accounting for an increased incidence of abnormally large neurologic scores.

ES EPIDEMIOLOGY STUDY
HA HEALTH ASSESSMENT
NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
127-18-4 TETRACHLOROETHYLENE
72 PERSONAL SERVICES
721 LAUNDRY, CLEANING, & GARMENT SERVICES
7216 DRY CLEANING PLANTS, EXCEPT RUG
8052-41-3 STODDARD SOLVENT

PB-278 055/9

Current Intelligence Bulletin 20: Tetrachloroethylene (perchloroethylene)
National Institute for Occupational Health and Safety
Jan 78, 14p, NIOSH PUB NO. 78-112, PC A02/MF A01

Abstract: Based on a recent study indicating that tetrachloroethylene causes liver cancer in mice, NIOSH recommends that it is prudent to handle the compound in the workplace as if it is a human carcinogen, while its carcinogenic potential at work is being further evaluated. The recommended NIOSH tetrachloroethylene exposure limit of 50 ppm and the OSHA standard for occupational exposure of 100 ppm, may not provide adequate protection from potential carcinogenic effects because they were selected to prevent toxic effects other than cancer. It is estimated that about 500,000 workers employed in dry cleaning establishments and other industries are currently at risk of exposure to the compound in the U.S. Suggested procedures for control of over-exposure to tetrachloroethylene, and guidelines for personal protective equipment and personal hygiene are outlined.

HA HEALTH ASSESSMENT
NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
127-18-4 TETRACHLOROETHYLENE
72 PERSONAL SERVICES
721 LAUNDRY, CLEANING, & GARMENT SERVICES
7216 DRY CLEANING PLANTS, EXCEPT RUG

P880-199912

Control Technology for Worker Exposure to Coke Oven Emissions
National Institute for Occupational Safety and Health
Mar 80, 37p, NIOSH PUB. NO. 80-114, PC A03/MF A01

Abstract: Numerous studies have shown "coal tar" products increase the risk of skin and lung cancer. One study showed top side coke oven workers had a lung mortality rate of 10 times that of all steel workers. Another study showed that men employed at coke ovens for more than five years showed a mortality rate 3.5 times the expected rate. In view of this significant health hazard to thousands of coke oven workers, a NIOSH in-house study to assess coke oven control technology was performed. Control technology for coke ovens was assessed through visits to seven United States coke oven plants with state-of-the-art control technology and by a review of current coke oven control technology literature. Each control method is briefly described and presented. The report discusses, separately, controls for charging emissions, pushing emissions, door emissions, and top side leaks.

CL-COE COKE OVEN EMISSIONS
CT CONTROL TECHNOLOGY DOCUMENT
ES EPIDEMIOLOGY STUDY
HA HEALTH ASSESSMENT
NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
49 ELECTRIC, GAS, AND SANITARY SERVICES
492 GAS PRODUCTION AND DISTRIBUTION
4925 GAS PRODUCTION AND/OR DISTRIBUTION

P882-103763

The APRAC-3/MOBILE 1 Emissions and Diffusion Modeling Package:
User's Manual
EPA, San Francisco, CA, Region IX
SRI International
P.B. Simmon, et al.
Jul 81, 333p, EPA-909/9-81-002, PC A15/MF A01

Abstract: Instructions on the use and applicability of the APRAC-3/MOBILE 1 emissions and diffusion model are presented in this manual. The previous version of the model, APRAC-2, completely revised the methodology of the original model, APRAC-1A. The latest version of the model remains basically the same as APRAC-2 with the exception of two important modifications. First, the emission factor computation methodology has been revised to reflect the EPA's latest update, and the portion of the code that performs those computations has been separated from the model's emission rate and diffusion modules to facilitate incorporation of future emission factor methodology updates. The second modification to the model will increase computation efficiency by automatically treating traffic links in the primary network with low vehicle miles of travel (VMT) as area sources. This will allow the remaining primary link file to fit into core storage rather than incurring the numerous and expensive input/output operations necessary when the primary traffic file is large.

DM DISPERSION MODELING
EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY

PB83-107342

CHAVG - A Program for Computing Averages of Hourly Air Pollutant Concentrations, User's Guide
EPA, Research Triangle Park, NC, ESRL
Aerocomp, Inc.
J.A. Catalano, and F.V. Hale, III
Sep 82, 67p, EPA-600/8-82-015

Abstract: CHAVG is a postprocessor program for computing running averages (averages that begin each hour and overlap) and end-to-end averages (averages that do not overlap) from hourly concentration files. Since running averages are greater than or equal to the end-to-end averages, there frequently may be a need to analyze concentration data (from measurement or from air quality simulation models, such as, the UNAHAP series) using both methods of averaging. Calculations are made for selected receptors, and these values are ranked for each of four averaging periods plus a fifth period selected by the user. Output tables are generated for each averaging period for each type of average selected by the user. This document describes the input, processing, and output of the program.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB83-114207

MPITER-DS: The MPITER Model Including Deposition and Sedimentation. User's Guide
EPA, Research Triangle Park, NC, ESRL
National Oceanic and Atmospheric Administration
K. Rao, and L. Satterfield
Oct 82, 84p, EPA-600/8-82-024, PC A05/MF A01

Abstract: MPITER is the designation for a multiple point source air quality model with terrain adjustments. The diffusion algorithm is based upon Gaussian plume modeling assumptions. The MPITER model is available from the U.S. Environmental Protection Agency and can be used for estimating air pollutant concentrations from multiple sources in rural environments. The model has technical input options for terrain adjustment, stack downwash, gradual plume rise, and buoyancy-induced dispersion, and a great variety of output options. This report is a supplementary User's Guide to a modified version of MPITER, MPITER-DS, which can explicitly account for dry deposition of gaseous and suspended particulate pollutants in the plume. The MPITER-DS model utilizes the Gaussian plume-type diffusion-deposition algorithms based on analytical solutions of a gradient-transfer model.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB83-146092

User's Instructions for the SHORTZ and LONGZ Computer Programs, Volume II
EPA, Philadelphia, PA, Region III
Cramer (H.E.) Co., Inc.
J.R. Bjorklund, and J.F. Bowers
Mar 82, 366p, EPA-903/9-82-0048

Abstract: The SHORTZ and LONGZ computer programs are designed to calculate the short-term and long-term ground-level pollutant concentrations produced at a large number of receptors by emissions from multiple stack, building and area sources. SHORTZ and LONGZ are applicable in either rural or urban areas of both flat and complex terrain. SHORTZ and LONGZ are written in FORTRAN and are specifically designed for use on a UNIVAC 1110 (or other UNIVAC 1100 series) computer. Both programs require a random access mass storage device. SHORTZ requires approximately 55K words of core and LONGZ requires approximately 50K words of core. Volume II contains appendices which include: (1) complete listings of the SHORTZ and LONGZ programs, (2) example SHORTZ and LONGZ problems, (3) coding forms for card input to SHORTZ and LONGZ, (4) discussions of the development and testing of the stack-tip downwash and complex terrain algorithms used by SHORTZ and LONGZ, and (5) a SHORTZ meteorological preprocessor program for use with National Weather Service (NWS) surface and upper-air meteorological data.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB83-146100

User's Instructions for the SHORTZ and LONGZ Computer Programs,
Volume I

EPA, Philadelphia, PA, Region III

Cramer (H.E.) Co., Inc.

J.R. Bjorklund, and J.F. Bowers

Mar 82, 339p, EPA-903/9-82-004A, PC A15/MF A01

Abstract: The SHORTZ and LONGZ computer programs are designed to calculate the short-term and long-term ground-level pollutant concentrations produced at a large number of receptors by emissions from multiple stack, building and area sources. SHORTZ and LONGZ are applicable in either rural or urban areas of both flat and complex terrain. SHORTZ and LONGZ are written in FORTRAN and are specifically designed for use on a UNIVAC 1110 (or other UNIVAC 1100 series) computer. Both programs require a random-access mass storage device. SHORTZ requires approximately 55K words of core and LONGZ requires approximately 50K words of core. Volume I of the User's Instructions contains a detailed technical discussion of the dispersion-model equations implemented by SHORTZ and LONGZ and detailed user's instructions for the two programs.

DM DISPERSION MODELING

EPA ENVIRONMENTAL PROTECTION AGENCY

PB83-211235

PTPLU - A Single Source Gaussian Dispersion Algorithm. User's Guide
EPA

Aerocomp, Inc.

T.E. Pierce, et al.

Aug 82, 113p, EPA-600/8-82-014, PC A06/MF A01

Abstract: PTPLU (from Point PLume) is an improved model for estimating the location of the maximum short term concentration from a single point source as a function of stability and wind speed. The algorithm is similar to PTMAX which was first released in May 1973. Among the improvements of this version are options for the estimation of gradual plume rise, stack downwash, and buoyancy-induced dispersion. This document describes the input, processing, and output of both the batch and interactive versions of the program.

DM DISPERSION MODELING

EPA ENVIRONMENTAL PROTECTION AGENCY

PB83-245845

Current Intelligence Bulletin 31, Adverse Health Effects of Smoking
and the Occupational Environment

National Institute for Occupational Safety and Health

Feb 79, 16p, NIOSH-79-122, PC A02/MF A01

Abstract: There is increasing evidence of adverse health effects due to the combined actions of tobacco use and exposure to chemical and physical agents in the workplace. NIOSH recommends that the use of and/or carrying of tobacco products into the workplace be curtailed in situations where employees may be exposed to physical or chemical substances which can interact with tobacco products. Additionally, curtailment of the use of tobacco products in the workplace should be accompanied by simultaneous control of worker exposure to physical and chemical agents. These recommendations are based on evidence which indicates that smoking can act in combination with hazardous agents to produce or increase the severity of a wide range of adverse health effects. Six ways have been identified by which smoking can interact with workplace exposures, and this Bulletin has been prepared to advise you of the hazards involved. NIOSH requests that chemical producers and distributors transmit the information in the Bulletin to their customers and employees, and that professional associations and unions inform their members.

CL-ETS

ENVIRONMENTAL TOBACCO SMOKE

HA

HEALTH ASSESSMENT

NIOSH

NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

PB84-158302

User's Manual for the Plume Visibility Model (PLUVUE II)

EPA, Research Triangle Park, NC, ESRL

Systems Applications, Inc.

C. Seigneur, et al.

Feb 84, 293p, EPA-600/8-84-005, PC A13/MF A01

Abstract: This publication contains information about the computer programs for the Plume Visibility Model PLUVUE II. A technical overview of PLUVUE II and the results of model evaluation studies are presented. The source code of PLUVUE II, as well as two sets of input and output data, is provided. This model is based on Gaussian dispersion assumptions, chemical reactions of plumes in nonurban atmospheres, light scattering and absorption characteristics of aerosols and gases, and radiative transfer along different lines of sight. PLUVUE II differs from the original Plume Visibility Model (PLUVUE) by an improved treatment of multiple scattering of light by aerosols and the incorporation of light absorption by carbonaceous aerosols. PLUVUE II is applicable to assessing visibility impairment due to pollutants emitted from well-defined point sources.

DM DISPERSION MODELING

EPA ENVIRONMENTAL PROTECTION AGENCY

PB84-181775

User's Guide to the MESOPUFF II Model and Related Processor Programs

EPA, Research Triangle Park, NC, ESRL
Environmental Research and Technology, Inc.
J.S. Scire, et al.

Apr 84, 226p, EPA-600/8-84-013, PC A11/MF A01

Abstract: A complete set of user instructions are provided for the MESOPUFF II regional-scale air quality modeling package. The MESOPUFF II model is a Lagrangian variable-trajectory puff superposition model suitable for modeling the transport, diffusion, and removal of air pollutants from multiple point and area sources at transport distances beyond the range of conventional straight-line Gaussian plume models (i.e., beyond about 10-50 km). It is an extensively modified version of the MESOSCALE PUFF (MESOPUFF) model with refined and enhanced treatment of advection, vertical dispersion, removal, and transformation processes. The MESOPUFF II model is one element of an integrated modeling package that also includes components for preprocessing of meteorological data (READ56, MESOPAC II) and postprocessing of concentration data (MESOFIL II). Complete user instructions and test case input/output are provided for each of these programs.

DM DISPERSTION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB84-229467/REB

Calms Processor (CALMPRO) User's Guide

EPA, Boston, MA, Region I
M.Y. Perkins, and S.S. Perkins

Jun 84, 45p, EPA-901/9-84-001, PC A03/MF A01

Abstract: The calms processor (CALMPRO) is a computer program that eliminates the influence of calms on pollutant concentrations calculated by air quality dispersion models. The procedure disregards concentrations for hours when the winds are calm. The hour is treated as missing and a convention for handling missing hours is employed. CALMPRO produces statistics on the occurrence of calms in the meteorological data set and recalculates average concentrations for 1-hour, 3-hour, 8-hour, 24-hour, and annual time intervals. Technical details on the processor are presented with complete descriptions of data requirements and output. An example application of CALMPRO and the source program listing are included as appendices.

DM DISPERSTION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB85-137164/REB

User's Guide for the Photochemical Box Model (PBM)

EPA, Research Triangle Park, NC, ESRL
K.L. Schere, and K.L. Demerjian
Nov 84, 48p, EPA-600/8-84-022A, PC A03/MF A01

Abstract: The User's Guide for the Photochemical Box Model (PBM) attempts to describe the structure and operation of the model and its preprocessors as well as provide the user with guidance in setting up input data. The PBM is a simple stationary single-cell model with a variable height lid designed to provide volume-integrated hour averages of O₃ and other photochemical smog pollutants of interest for an urban area for a single day of simulation. The PBM is appropriate for application in air stagnation conditions with light, variable winds. Horizontal dimensions of the box are typically on the order of 10-50 km; the vertical dimension may vary between 0.1 and 2 km. Chemical reactions are simulated using a 63-step kinetic mechanism that includes diurnal variation of photolytic rate constants. The depth of the mixed layer also follows a diurnal pattern. The PBM assumes that emission sources are homogeneously distributed across the surface face of the box volume and that the volume is well mixed at all times. Atmospheric diffusion and wind shear are neglected. The user must provide the PBM with initial species concentrations, hourly inputs of wind speed, source emission fluxes of CO, NO_x, THC, and hydrocarbon reactivity classes, and boundary species concentrations.

CL-HCAB8 HYDROCARBONS
CL-PCO PHOTO CHEMICAL OXIDANTS
DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY
10028-15-6 OZONE
10102-43-9 NITRIC OXIDE
10102-44-0 NITROGEN DIOXIDE
1972-08-3 TETRAHYDROCANNABINOL, 1-TRANS-DELTA-9
630-08-0 CARBON MONOXIDE

PB86-103660/REB

Atmospheric Diffusion Modeling Based on Boundary Layer
Parameterization
EPA, Research Triangle Park, NC, ASRL
J.S. Irwin, et al.
Sep 85, 55p, EPA-600/3-85-056, PC A04/MF A01

Abstract: The conclusions of a workgroup are presented outlining methods for processing meteorological data for use in air quality diffusion modeling. To incorporate the proper scaling parameters, the discussion is structured in accordance with the current concepts for the idealized states of the planetary boundary layer. The authors recommend a number of models, the choice of which depends on the actual idealized state of the atmosphere. Several of the models characterize directly the crosswind integrated concentration at the surface, thus avoiding whenever justified the assumption of a Gaussian distribution of material in the vertical. The goal was to characterize the meteorological conditions affecting the diffusion of transport distances on the order of 10 km or less. Procedures are suggested for estimating the fundamental scaling parameters. For obtaining the meteorological data needed for estimating the scaling parameters, a minimum measurement program to be carried out at a mast is recommended. If only synoptic data are available, methods are presented for the determination of the scaling parameters. Also, methods are suggested for estimating the vertical profiles of wind velocity, temperature, and the variances of the vertical and lateral wind velocity fluctuations.

DH DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB86-118932/XAB

Gas Chromatographic/Fourier Transform Infrared Analysis of Trace Organics: Feasibility of Analysis after Collection of Organics on TENAX-GC Sorbent Cartridges
EPA, Research Triangle Park, NC, EMSL
Duke Univ.

R.A. Palmer, J.W. Childers, and M.J. Smith
Oct 85, 61p, EPA-600/4-85-066, PC A04/MF A01

Abstract: The combination of sorbent cartridge thermal desorption with capillary column GC/on-the-fly FTIR has been shown effective for the detection and identification of volatile organics in laboratory-generated mixtures, including the distinction between isomeric species, at the level of a few hundred nanograms per compound per cartridge. Traces of water desorbed from the cartridges must be reduced by the insertion of a dryer unit between the desorption chamber and the GC column. Methods of lowering the detection and identification limits to less than 100 micrograms per compound per cartridge are proposed.

CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING

PB86-121092/XAB

Criteria for a Recommended Standard: Occupational Exposure to Cresol
National Institute for Occupational Safety and Health
Feb 78, 129p, NIOSH PUB NO. 78-133, PC A07/MF A01

Abstract: The National Institute for Occupational Safety and Health (NIOSH) recommends that employee exposure to cresol in the workplace be controlled by adherence to the following sections. The standard is designed to protect the health and provide for the safety of employees for up to a 10-hour workshift, 40-hour workweek, over a working lifetime. Compliance with all sections of the standard should prevent adverse effects of cresol on the health and safety of employees. The standard is measurable by techniques that are valid, reproducible, and available to industry and government agencies. Sufficient technology exists to permit compliance with the recommended standard. Although the workplace environmental limit is considered a safe level based on current information, it should be regarded as the upper boundary of exposure and every effort should be made to maintain the exposure at levels as low as is technically feasible. The criteria and standard will be subject to review and revision as necessary.

CT CONTROL TECHNOLOGY DOCUMENT
HA HEALTH ASSESSMENT
NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
1319-77-3 CRESOL (ALL ISOMERS)
28 CHEMICALS AND ALLIED PRODUCTS
286 INDUSTRIAL ORGANIC CHEMICALS
2865 CYCLIC CRUDES AND INTERMEDIATES

PB86-122546/REB

Health Assessment Document for Polychlorinated Dibenzo-p-dioxins
EPA, Cincinnati, OH, ECAO
D.K. Basu et al.
Sep 85, 612p, EPA-600/8-84-014F, PC A99/MF A01

Abstract: The health assessment document on polychlorinated dibenzo-p-dioxins discusses multimedia environmental issues pertaining to the most toxic chlorinated dioxins, namely, 2,3,7,8-tetrachloro-; 1,2,3,7,8-pentachloro-; 1,2,3,6,7,8-hexachloro-; and 1,2,3,7,8,9-hexachlorodibenzo-p-dioxins. Scientifically valid data essential for human health risk assessment purposes from an extensive literature search have been compiled and discussed critically. Discussions are based on physicochemical properties and analytical methodologies; stability and degradation; production, use, synthesis; environmental resources and environmental levels; environmental fate and transport; degradation; bioaccumulation and bioconcentration factors; ecological effects; various aspects of toxic effects from acute, subchronic and chronic exposures in experimental animals and humans; pharmacokinetics and mechanism of toxic effects; teratogenicity and reproductive effects; mutagenicity and carcinogenicity. Based on this review, critical studies have been identified and utilized for estimating the unit risk.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
1746-01-6 TETRACHLORODIBENZODIOXIN, 2,3,7,8-P-
19408-74-3 HEXACHLORODIBENZODIOXIN, 1,2,3,7,8,9-
34465-46-8 HEXACHLORODIBENZODIOXIN, 1,2,3,6,7,8-

PB86-160868/XAB

Possible Long-Term Health Effects of Short-Term Exposure to Chemical Agents. Volume 3. Final Report. Current Health Status of Test Subjects.
National Academy of Sciences
1985, 106p, PC A06/MF A01

Abstract: This is the third and final in a series of reports intended to evaluate delayed or long-term health effects of experimental chemicals that were administered to soldier volunteers at Edgewood, MD, during the period 1955-1975. It contains an evaluation of results of a questionnaire sent to all soldiers whose addresses were available and who responded regarding their current health status. Diagnostic records were obtained from VA and Army hospitals.

HA HEALTH ASSESSMENT
NAS NATIONAL ACADEMY OF SCIENCES
6106-81-6 SCOPOLAMINE, N-OXIDE, HYDROBROMIDE

PB86-166287/REB

Description of the Savannah River Laboratory Meteorological Data Base for 1975 to 1979

EPA, Research Triangle Park, NC, ASRL
J.S. Irwin, T.M. Asbury, and W.B. Petersen
Mar 86, 116p, EPA-600/3-86-017, PC A06/MF A01

Abstract: A summary is presented of a meteorological data set collected during the period 1975 to 1979 by the Meteorology Group of the Savannah River Laboratory at the WJBF tower located 11 km southeast of Augusta, Georgia and 23 km southwest of Aiken, South Carolina. These data contain 15 minute averages and standard deviations of temperature, horizontal wind speed and wind direction, and vertical wind direction. The data were collected at seven elevations above ground, 10, 25, 91, 137, 182, 243 and 304 meters. The format of the data base is presented and a summary is given of the analyses conducted in the course of processing these data.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB86-167921

Evaluation of the PEM-2 (Pollution Episodic Model Version 2) Using the 1982 Philadelphia Aerosol Field Study Data Base

EPA, Research Triangle Park, NC, ASRL
National Oceanic and Atmospheric Administration
J.Y. Ku, and K.S. Rao
Mar 86, 101p, EPA-600/3-86-016, PC A06/MF A01

Abstract: The report describes an evaluation of the Pollution Episodic Model Version 2 (PEM-2) using measurements obtained from 29 days of the Philadelphia Aerosol Field Study. The model performance was determined by comparing predicted 12-h and 24-h average concentrations against corresponding observed values at six monitoring sites for four pollutant species; particulate total mass, fine sulfate and SO₂. A first-order chemical transformation of SO₂ to sulfate was considered, in addition to the direct emission, dry deposition, and settling of the pollutant species. The model domain covered 80km X 80km with 32 X 32 grid cells which included 300 major point sources and 289 area sources for the Philadelphia urban area. Hourly meteorological observations and hourly emissions were input to the model. Statistical measures of difference and correlation paired in time and space revealed that the particulate species were simulated closely. These results, however, must be interpreted with caution since the background concentrations exceeded the local urban source contributions. Tables of statistical and regression analyses results as well as graphical displays of predicted and observed concentrations are presented and discussed.

CL-PM PARTICULATE MATTER
CL-SULFATE SULFATES
DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY
7446-09-5 SULFUR DIOXIDE

P886-171402/REB

MPDA-1: Meteorological Processor for Diffusion Analysis - User's Guide

EPA, Research Triangle Park, NC, ASRL
J. Paumier, et al.

Mar 86, 184p, EPA-600/8-86-011, PC A09/MF A01

Abstract: Version 1 of the Meteorological Processor for Diffusion Analysis (MPDA-1) is a first attempt to provide a processor that can organize available meteorological data into a format accessible to diffusion analysis. MPDA-1 provides methods for preparing three types of data: National Weather Service (NWS) twice-daily radiosonde reports, NWS hourly surface observations, and user-supplied on-site data. To incorporate the surface scaling parameters, the meteorological processor is structured in accordance with current concepts of the idealized states of the planetary boundary layer. Profiles of wind velocity, temperature, and the standard deviations of vertical and lateral wind velocity fluctuations at user-specified heights are estimated. The output from MPDA-1 was formatted to accommodate the TUPUS Gaussian-plume model, which uses wind fluctuation data to characterize the diffusion parameters. Future versions will provide additional output formats to accommodate other popular diffusion estimation models.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

P886-181310/REB

TUPOS: A Multiple Source Gaussian Dispersion Algorithm Using On-Site Turbulence Data

EPA, Research Triangle Park, NC, ASRL
Aerocomp, Inc.

D.B. Turner, T. Chico, and J.A. Catalano
Apr 86, 170p, EPA-600/8-86-010, PC A08/MF A01

Abstract: TUPUS and its postprocessor, TUPUS-P, form a Gaussian model which resembles MPTER but offers several technical improvements. TUPUS estimates dispersion directly from fluctuation statistics at plume level and calculates plume rise and partial penetration of the plume into stable layers using vertical profiles of wind and temperature. The model user is thus required to furnish meteorological information for several heights above-ground in a separate input file. TUPUS can be used for short-term (hours to days) impact assessment of inert pollutants from single or multiple sources and can be expected to have greatest accuracy for locations within 10 km of the source. Although TUPUS will make computations for receptors having any ground-level elevation, it is not intended as a complex terrain model, but rather as a model for calculations over flat or gently rolling terrain. TUPUS will optionally treat buoyancy-induced dispersion but does not include building downwash, deposition, or fumigation.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

P886-181328/REB

TUPOS-P: A Program for Analyzing Hourly and Partial Concentration Files Produced by TUPUS

EPA, Research Triangle Park, NC, ASRL
Aerocomp, Inc.

D.B. Turner, T. Chico, and J.A. Catalano
Apr 86, 107p, EPA-600/8-86-012, PC A06/MV A01

Abstract: TUPUS-P is a postprocessor program for analyzing concentration files produced by the air quality dispersion model TUPUS (Turner et al., 1985). The program reads either hourly concentration or hourly partial concentration files and provides the following output: Hourly concentration summaries, Averaging period concentration summaries, and High-five concentration tables for five averaging times (1-hr, 3-hrs, 8-hrs, 24-hrs, and an averaging time selected by the user). If the concentration file being read consists of partial contributions, the user may request hourly contribution summaries and averaging period contribution summaries for up to 25 significant sources. Much of the printed output is optionally available so that unneeded output volume is avoided.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB86-217163/REB

Addendum to the User's Guide for MPTER
EPA, Research Triangle Park, NC, ASRL
Aerocomp, Inc.
T. Chico, and J. Catalano
Jul 86, 85p, EPA-600/8-86-021, PC A05/MF A01

Abstract: The addendum applies to the "User's Guide for MPTER -- A Multiple Point Gaussian Dispersion Algorithm with Optional Terrain Adjustment" of Pierce and Turner, 1980. While the cited document describes the features of the MPTER model, its technical basis, and applications, this addendum deals exclusively with algorithm modifications to accommodate new knowledge and technique as well as address recommendations of the "Guideline on Air Quality Models." The Guideline lists MPTER as a preferred model for calculating concentrations due to point sources at averaging times from one hour to one year in rural or urban area where the terrain is flat or gently rolling and pollutant transport distances are less than 50 kilometers. The original version of the model offered options for stack-tip downwash, gradual plume rise, and buoyancy-induced dispersion. Added to this release (UNAMAP Version 6) are options that allow selection of either rural or urban dispersion parameters and wind-profile exponents. To address model over-prediction when wind speeds are low, an algorithm for treatment of calms has been added. New in this release is a default option to set parameters for regulatory applications as suggested by the Guideline: final plume rise, rather than gradual rise; buoyancy-induced dispersion, momentum plume rise, and calm conditions.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB86-222361/REB

UNAMAP: User's Network for Applied Modeling of Air Pollution, Version 6
EPA, Research Triangle Park, NC, ASRL
D.B. Turner, and A.D. Busse
Aug 86, mag tape, EPA-SW/MT-86-026, CP T99

Abstract: UNAMAP (VERSION 6) represents the 1986 update to the users network for applied modeling of air pollution. UNAMAP consists of an ASCII magnetic tape containing FORTRAN codes and test data for 25 air quality simulation models (AQSM) as well as associated documentation. AQSM's and supporting programs and data are arranged in six sections: (1) Guideline (appendix A) models...(files 2 through 9); (2) Other models or processors (new models)...(files 10 through 19 and 33); (3) Other models and processors (revised)...(files 20 through 27 and 32); (4) Additional models for regulatory use (files 28 through 31); (5) Data files...(files 34 through 39); (6) Output print files...(files 40 through 68). There are 68 files on this tape. Software Description: The system is written in the FORTRAN programming language for implementation on a UNIVAC 1100/82 using the 3902 operating system.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB86-241031/REB

Addendum to TUPOS - Incorporation of a Hesitant Plume Algorithm
EPA, Research Triangle Park, NC, ASRL
D.B. Turner
Aug 86, 39p, EPA-600/8-86-027, PC A03/MF A01

Abstract: The existence of non-Gaussian plume behavior within the convective boundary layer has been pointed out and recently discussed at a national conference. Briggs has suggested convective scaling parameterizations for surface crosswind integrated concentrations. Combined with parameterization of the crosswind spreading and assuming that the horizontal diffusion is Gaussian, allows estimation of concentrations on the horizontal plane. These techniques have been incorporated into an existing dispersion computer code to result in TUPOS-2.0.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB86-242450/REB

INPUFF 2.0 - A Multiple Source Gaussian Puff Dispersion Algorithm.
User's Guide

EPA, Research Triangle Park, NC, ASRL

W.B. Petersen, and L.G. Lavdas

Aug 86, 118p, EPA-600/8-86-024, PC A06/MF A01

Abstract: INPUFF is a Gaussian Integrated PUFF model. The Gaussian puff diffusion equation is used to compute the contribution to the concentrations at each receptor from each puff every time step. Computations in INPUFF can be made for a single or multiple point sources at up to 100 receptor locations. In practice, however, the number of receptors should be kept to a minimum. In the default mode, the model assumes a homogeneous wind field. However, the user has the option of specifying the wind field for each meteorological period at up to 100 user-defined grid locations. Three dispersion algorithms are utilized within INPUFF for dispersion downwind of the source. Optionally the user can incorporate his own subroutines for dispersion and plume rise. Removal is incorporated through deposition and gravitational settling algorithms. A software plotting package is provided to display concentration versus time for a given receptor and the puff trajectories after each simulation time.

DM DISPERION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB86-242856/REB

U.S. EPA Workshop to Develop a Simple Model for Acid Deposition
EPA, Research Triangle Park, NC, ASRL
North Carolina Univ. at Chapel Hill. Dept. of Environmental Sciences
and Engineering
H.E. Jeffries

Jul 86, 57p, EPA-600/9-86-017, PC A04/MF A01

Abstract: The Acid Deposition Planning Staff in the Office of Acid Deposition/EPA requested that the Atmospheric Sciences Research Laboratory undertake the development of a low-computational-demanding model suitable for educational use in understanding the linear or non-linear nature of the acid deposition process and that could assist in constructing a "what if" analysis for a particular situation. In response, ASRL held a workshop, attended by EPA and non-EPA scientists, to discuss the design of such a model. In addition, a five-person working committee of non-EPA scientists was established to write a statement of work for the construction of such a model. The report summarizes the planning activities that occurred before the workshop, the two days of discussion held at the workshop, the three days of working committee meetings after the workshop, and includes the resulting Statement of Work for the creation of a Comprehensive Chemistry Acid Deposition Model (CCADM).

CL-ACID ACIDIC COMPOUNDS
DM DISPERION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB87-100525/REB

Development of an Adjustable Buoyancy Balloon Tracer of Atmospheric Motion. Phase 2. Development of an Operational Prototype
EPA, Research Triangle Park, NC, ASRL
Sandia National Labs
D.B. Zak, et al.
Aug 85, 138p, EPA-600/3-86-050, PC A07/MF A01

Abstract: The prototype is a research tool which allows one to follow horizontal and vertical atmospheric flows, including the weak sustained vertical motion of meso- and synoptic-scale atmospheric disturbances. The design goals for the Tracer Balloon being developed here specify a lifetime greater than or equal to 3 days, a tracking range greater than or equal to 1000 km, a ceiling altitude greater than or equal to 5.5 km (500 mb), and the capability to respond to mean vertical flows as low as 1 cm/s. The Tracer Balloon is also sufficiently inexpensive to permit use in significant numbers, and to be serviced by a ground system capable of handling several Tracers at a time. The immediate need for the effort is to evaluate the accuracies of air pollution transport models, to establish source-receptor relationships out to 1000 km, and to assess the limits on the predictability of source impacts at long distances.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB87-100533/REB

Air Pollution Impacts When Quenching Blast Furnace Slag with Contaminated Water
EPA, Research Triangle Park, NC, AEERL
PEI Associates, Inc.
G. Annamraju, and P.J. Schworer
Sep 86, 58p, EPA-600/2-86-078, PC A 04/MF A01

Abstract: The report gives results of an effort to determine if a potential alternative to treatment prior to discharge of coke plant wastewater will result in a significant increase in emissions to the atmosphere. The alternative is using the wastewater, untreated, to quench blast furnace slag. To develop a preliminary determination, six emission measurements were made on a laboratory-scale facility simulating typical slag quenching practice. Test parameters encompassed two slag temperatures (594 and 816 C) and two waters, ASTM Type 1 water and coke plant effluent diluted to 2500 mg/liter TDS. The results indicate that particulate emissions increase with slag temperature and TDS in the water. Minor quantities of organic compounds were emitted, but showed no correlation with test variables. The data also showed no correlation between emissions of sulfur dioxide or fluoride and test variables.

CL-ORGANIC ORGANIC COMPOUNDS
CL-PM PARTICULATE MATTER
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
16984-48-8 FLUORIDES
29 PETROLEUM AND COAL PRODUCTS
291 PETROLEUM REFINING
2911 PETROLEUM REFINING
32 STONE, CLAY, AND GLASS PRODUCTS
329 MISC. NONMETALLIC MINERAL PRODUCTS
3295 MINERALS, GROUND OR TREATED
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS
7446-09-5 SULFUR DIOXIDE

PB87-101838/XAB

NIOSH (National Institute for Occupational Safety and Health)
Pocket Guide to Chemical Hazards
National Institute for Occupational Safety and Health
Sep 85, 257p, DHHS/PUB/NIOSH-85-114, PC A12/MF A01

Abstract: The NIOSH Pocket Guide to chemical hazards is presented. The guide contains information taken in part from NIOSH or OSHA occupational health guidelines for chemical hazards. Data was also obtained from recognized text books in the fields of industrial hygiene, medicine, toxicology, and analytical chemistry, and articles from a variety of technical journals. The guide was developed as a means for making information contained in the NIOSH or OSHA guidelines more conveniently available to workers, employers, and occupational health professionals. It presents key information and data in an abbreviated tabular format for 397 individual chemicals or chemical types found in the work environment and for which there are specific federal regulations. Information includes chemical names and synonyms, exposure limits and recommendations, chemical and physical properties, analytical methods, respirator and personal protective equipment recommendations, signs and symptoms of exposure, and procedures for emergency treatment.

CL-VARIOUS VARIOUS
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
NA HEALTH ASSESSMENT
NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

PB87-102331/REB

Instrumental monitoring of Non-methane Hydrocarbons at a Hazardous Waste Incinerator
EPA, Research Triangle Park, NC, AEERL
Little (Arthur D.), Inc.
K.T. Menzies, and J.W. Adams
Sep 86, 92p, EPA-600/2-86-077, PC A05/MF A01

Abstract: The objective of the field program was to evaluate the reliability of non-methane hydrocarbon analyzers as a continuous indicator of DRE of a hazardous waste incinerator. The tasks undertaken include: (1) fabrication of a sample extraction/conditioning system for transfer of combustion gas to the hydrocarbon analyzers; (2) evaluation of the reliability of two non-methane hydrocarbon analyzers under conditions of continuous operation at a hazardous waste incinerator; and (3) determination of the correlation of non-methane hydrocarbon concentrations with combustion efficiency. During a 5-day test, two non-methane hydrocarbon analyzers (Columbia Scientific Industries Corporation Model 500-2E and HNU Systems, Inc. Model 201-250) were evaluated. During the tests, the sample conditioning/analysis system operated reasonably well.

CL-HAZWAST HAZARDOUS WASTES
CL-MHHC NON-METHANE HYDROCARBONS
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

P887-110904/REB

Assessment of the Carcinogenicity of Dicofof (Keithane (Trade Name)),
DDT, DDE, and DDD (TDE)
EPA, Washington, DC, OHEA
J.W. Holder
Feb 86, 85p, EPA-600/6-86-001, PC A05/MF A01

Abstract: The carcinogenic activity of the pesticides dicofof and associated pesticide compounds DDT, DDE, and DDD are reviewed. All of these compounds exhibit carcinogenic activity in surrogate test animals. DDT is judged on the bases of these biotests, positive mutagenicity in vivo, two-stage chemical carcinogenesis tests, and the lack of relevant epidemiological tests to be probably carcinogenic to man. Dicofof, DDT, DDE, DDD animal test data, when analyzed by the linearized multistage model for low-dose extrapolation, show similar cancer potencies: $q^*1 = 0.44, 0.34, 0.25$, respectively, (mg/kg/day). Such similarity in cancer potency values suggests that either a common carcinogenic metabolite is generated from these compounds, or each compound has intrinsic carcinogenic activity and need not be metabolized to any other compound in order to cause cancer.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
TT TOXICITY TESTING
115-32-2 DICOFOF
50-29-3 DDT
53-19-0 DDD, O, P, -
72-54-8 RHOTANE
72-55-9 DDE, P, P, -

P887-110961/REB

Assessment of Assay Methods for Evaluating Asbestos Abatement
Technology at the Corvallis Environmental Research Laboratory
EPA, Cincinnati, OH, WERL
PEI Associates, Inc.
M. Karaffa, et al.
Oct 86, 78p, EPA-600/2-86-070, PC A05/MF A01

Abstract: Air sampling was conducted at an EPA office building which had undergone an asbestos abatement program. The aggressive sampling technique revealed that air-entrainable asbestos remained in work areas after completion of abatement actions. The ratio of aggressive to nonaggressive PCM fiber concentrations was 7.0, whereas this ratio was 3.7 for TEM analyses. Study results also confirm that under similar sampling conditions, TEM analysis detects more fibers than PCM because of TEM's better resolving capability. The ratio of TEM/PCM concentrations for nonaggressive sampling was 3.0 for ambient samples and 3.3 for indoor samples; the ratio for aggressive sampling was about 2. Because the PCM method does not discriminate between asbestos and other fibers and cannot resolve fibers thinner than about 0.2 micrometer, PCM results may not accurately reflect the true hazard potential.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING
1332-21-4 ASBESTOS

P887-111720/REB

Precision and Accuracy Assessments for State and Local Air Monitoring
Networks, 1984
EPA, Research Triangle Park, NC, EMSL
R.C. Rhodes, and E.G. Evans
Aug 86, 188p, EPA-600/4-86-031, PC A09/MF A01

Abstract: Precision and accuracy data obtained from state and local agencies during 1984 are summarized and compared to data reported earlier for the period 1981-1983. A continual improvement in the completeness of the data is evident. Improvement is also evident in the size of the precision and accuracy results reported. Annual results from each reporting organization are also given so that these organizations can compare their results for 1984 with their earlier results and with other organizations. A set of upper and lower limits for precision and accuracy is also proposed -- above these limits corrective action should be taken. A comparison of the precision and accuracy data from the Precision and Accuracy Reporting System and that from the independent performance audit program conducted by the Environmental Monitoring Systems Laboratory is given.

AM AMBIENT MONITORING
EPA ENVIRONMENTAL PROTECTION AGENCY

P887-112066/XAB

Regulations, Recommendations and Assessments Extracted from RTECS.
A Subfile of the Registry of Toxic Effects of Chemical Substances
National Institute for Occupational Safety and Health
Sep 86, 440p, DHHS/PUB/NIOSH-86-120, PC A19/MF A01

Abstract: The volume is a subfile to the Registry of Toxic Effects of Chemical Substances (RTECS) for the use of those who have need of a convenient reference to specialized information. No toxicity data are included. The following criteria were used to select entries for the subfile: OSHA Standards; MSHA Standards; DOT Shipping and/or Labeling Regulations; NIOSH Recommendations; ACGIH Threshold Limit Values; IARC assessments indicating positive or suspected carcinogenic activity in animals and/or man; and NTP positive carcinogenesis test results. Substances are listed in alphabetical order of the prime entry name with cross reference included in the appendices rather than embedded in the text. Included in the subfile are the RTECS Accession Number, Chemical Abstract Service (CAS) Registry Number, prime chemical name, synonyms, and data lines which meet selection criteria listed above. A total of 4,284 chemical substances are listed.

CL-CARCIN CARCINOGENS
HA HEALTH ASSESSMENT
NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
RDG REGULATORY DEVELOPMENT GUIDANCE

P887-113783/REB

Preliminary Assessment of Air Emissions from Aerated Waste Treatment Systems at Hazardous Waste Treatment Storage and Disposal Facilities
EPA, Cincinnati, OH, HWERL
Research Triangle Inst.
C.C. Allen, et al.
Oct 86, 150p, EPA-600/2-86-098, PC A07/MF A01

Abstract: Methods for estimating emissions resulting from mass transfer of volatile organic compounds from dilute wastewaters into air are reviewed and applied to full-scale and pilot-scale treatment systems.

AM AMBIENT MONITORING
CL-HAZWAST HAZARDOUS WASTES
CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

P887-115036/REB

Asbestos-in-Buildings Technical Bulletin: Abatement of Asbestos-Containing Pipe Insulation
EPA, Washington, DC, OTS
Battelle Columbus Labs
D.L. Keyes
1986, 18p, PC A02/MF A01

Abstract: The technical bulletin supplements information in the 1985 guidance document: Guidance for Controlling Asbestos-Containing materials in Buildings (EPA-560/5-85-024). It addresses one type of ACM: asbestos-containing insulation on steam, hot water, or cold water pipes. Detailed procedures are presented for repairing or removing pipe insulation or removing the insulation and pipe together.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
IA INDOOR AIR
1332-21-4 ASBESTOS

PB87-117412/REB

STAR (Studies on Toxicity Applicable to Risk Assessment) Toxicity Data Base

EPA, Cincinnati, OH, ECAO

C.B. Farren, and R.C. Hertzberg

Sep 86, 9p, EPA-600/M-86-016, PC A02/MF A01

Abstract: The Environmental Criteria and Assessment Office of the U.S. Environmental Protection Agency (EPA) has developed a toxicity data base to aid in the development of risk assessment methodologies and the assessment of health hazards from hazardous waste sites and chemical spills. The data base currently contains detailed animal toxicity data on nearly 200 chemicals and epidemiologic data on 30 chemicals. All relevant publications and original research articles describing the toxicity of a specific chemical were examined. Useful dose-effect data were extracted and encoded, and entered into EPA's IBM computer. Graphic summaries are generated by plotting exposure level vs. exposure duration. Statistical models to calculate human equivalent dose and duration have been programmed into the data base so that data on several species can be displayed on a single graph.

EPA ENVIRONMENTAL PROTECTION AGENCY
ES EPIDEMIOLOGY STUDY
HA HEALTH ASSESSMENT
RA RISK ASSESSMENT
TT TOXICITY TESTING

PB87-117420/REB

Health Assessment Document for Hydrogen Sulfide, Review Draft
EPA, Washington, DC, OHEA

H.M. Ammann, F. Bradow, D. Fennell, R. Griffin, and B. Kearney

Aug 86, 96p, EPA-600/8-86-026A, PC A05/MF A01

Abstract: Hydrogen sulfide is a highly toxic gas which is immediately lethal in concentrations greater than 2000 ppm. The toxic end-point is due to anoxia to brain and heart tissues which results from its interaction with the cellular enzyme cytochrome oxidase. Inhibition of the enzyme halts oxidative metabolism which is the primary energy source for cells. A second toxic end-point is the irritative effect of hydrogen sulfide on mucous membranes, particularly edema at sub-lethal doses (250 to 500 ppm) in which sufficient exposure occurs before consciousness is lost. Recovered victims of exposure report neurologic symptoms such as headache, fatigue, irritability, vertigo, and loss of libido. Long-term effects are similar to those caused by anoxia due to other toxic agents like CO, and probably are not due to specific H₂S effects. H₂S is not a cumulative poison. No mutagenic, carcinogenic, reproductive or teratogenic effects have been reported in the literature.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
7783-06-4 HYDROGEN SULFIDE

PB87-119053/REB

Evaluation of Asbestos Abatement Techniques. Phase 2. Encapsulation with Latex Paint
EPA, Washington, DC, OTS
Battelle Columbus Div.
J. Chesson, et al.
Jul 86, 110p, EPA-560/5-86-016, PC A06/MF A01

Abstract: Airborne asbestos levels were measured by transmission electron microscopy (TEM) before, during and after encapsulation of asbestos-containing material with latex paint in a suburban junior high school. The ceilings of the school were covered with a sprayed-on material containing chrysotile asbestos. Air samples were collected at four types of sites: indoor sites with unpainted asbestos material scheduled for painting, indoor sites with asbestos material which had been painted 16 months prior to the study, indoor sites with no asbestos material, and outdoor sites on the roof of the building. Bulk samples were collected prior to painting and analyzed by polarized light microscopy (PLM) to characterize the asbestos-containing material.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING
1332-21-4 ASBESTOS
82 EDUCATIONAL SERVICES
821 ELEMENTARY AND SECONDARY SCHOOLS
8211 ELEMENTARY AND SECONDARY SCHOOLS

PB87-119897/REB

Test Method Evaluations and Emissions Testing for Rating Wood Stoves
EPA, Research Triangle Park, NC, AEERL
Engineering Science
L.E. Cottone, and E. Messer
Oct 86, 147p, EPA-600/2-86-100, PC A07/MF A01

Abstract: The report gives results of a comparison of three sampling methods for wood burning stoves: the EPA Modified Method 5 (MMS), the Oregon Method 7 (OM7), and the ASTM proposed method P180. It also addresses the effect that emission format (grams per hour, grams per kilogram wood burned, micrograms per joule heat output) has on the intermethod correlations. Five stoves (two catalytic, one noncatalytic generic, one noncatalytic high efficiency, and one catalytic fire-place insert) were tested. Test results showed good correlation between the total train emissions obtained with each method. The strength of the correlations varied with the emission format: the grams per hour format showed the strongest correlation. POM emissions showed a general (but weak) correlation with total emissions when the grams per hour format was used; there were no correlations when the emissions were expressed in either of the other two formats.

CL-POM POLYCYCLIC ORGANIC MATTER
CL-WOOD WOOD SMOKE
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING

PB87-120978/REB

Asbestos in Buildings: Guidance for Service and Maintenance Personnel
EPA, Washington, DC, OTS
Battelle Columbus Labs
D.L. Keyes
Jul 85, 21p, EPA-560/5-85-018, PC A02/MF A01

Abstract: The illustrated booklet has been prepared by the United States Environmental Protection Agency to assist service and maintenance personnel in implementing special operating and maintenance procedures in buildings containing asbestos. The information is extracted from "Guidance for Controlling Asbestos-Containing Materials in Buildings" (EPA-560/5-85-024).

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
1332-21-4 ASBESTOS
73 BUSINESS SERVICES
734 SERVICES TO BUILDINGS
7349 BUILDING MAINTENANCE SERVICES, NEC

PB87-129524/REB

Pilot Study of Sampling and Analysis for Polynuclear Aromatic Compounds in Indoor Air
EPA, Research Triangle Park, NC, EMSL
Battelle Columbus Div.
J.C. Chuang, et al.
Dec 86, 223p, EPA-600/4-86-036, PC A10/MF A01

Abstract: The report presents the results of a nine-home indoor air study that the authors performed in Columbus, Ohio in the winter of 1984. The main objective of the study was the field evaluation of sampling and analysis methodology. However, several additional results of the study are interesting and useful, including the finding of polynuclear aromatic hydrocarbons (PAH) at levels from 0.000 to 143 ng/cu m in residences, strong correlations of these levels with smoking by occupants, little influence of fireplace use on the PAH levels, the identification of quinoline as a potential marker for cigarette smoking, and measurement of 2- and 3-nitrofluoranthene, which are potent mutagens, at significant levels from 0.000 to 0.185 ng/cu m, also correlated with smoking.

CL-IAP INDOOR AIR POLLUTANTS
CL-PAH POLYCYCLIC AROMATIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

PB87-131629/REB

Primary Aluminum: Statistical Analysis of Potline Fluoride Emissions and Alternate Sampling Frequency
EPA, Research Triangle Park, NC, OAQPS
Oct 86, 166p, EPA-450/3-86-012, PC A08/MF A01

Abstract: Statistical analyses were performed on 4 years of fluoride emissions data from a primary aluminum reduction plant. These analyses were used to develop formulae and procedures for use by regulatory agencies in determining alternate sampling frequencies for secondary (roof monitor) emissions testing on a case-by-case basis. Monitoring procedures for ensuring compliance even with a reduced test frequency are also addressed.

EPA ENVIRONMENTAL PROTECTION AGENCY
NSPS NEW SOURCE PERFORMANCE STANDARD
RDG REGULATORY DEVELOPMENT GUIDANCE
SS SOURCE SAMPLING
16984-48-8 FLUORIDES
33 PRIMARY METAL INDUSTRIES
333 PRIMARY NONFERROUS METALS
3334 PRIMARY ALUMINUM

PB87-131637/REB

Review of New Source Performance Standards for Primary Aluminum Reduction Plants
EPA, Research Triangle Park, NC, OAQPS
Sep 86, 121p, EPA-450/3-86-010, PC A06/MF A01

Abstract: As required by Section 111(b) of the Clean Air Act, as amended, a four year review of the new source performance standards for primary aluminum reduction plants (40 CFR Subpart S) was conducted. The report presents a summary of the current standards, the status of current applicable control technology, and the ability of plants to meet the standards. No revision to the standards is recommended, but EPA should make available a procedure upon which a decision to reduce the frequency of secondary monitoring can be made.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
NSPS NEW SOURCE PERFORMANCE STANDARD
33 PRIMARY METAL INDUSTRIES
7429-90-5 ALUMINUM

P887-132098/REB

User's Guide for PEM-2: Pollution Episodic Model (Version 2)
EPA, Research Triangle Park, NC, ASRL
National Oceanic and Atmospheric Administration
K.S. Rao
Dec 86, 235p, EPA-600/8-86-040, PC A11/MF A01

Abstract: The Pollution Episodic Model Version 2 (PEM-2) is an urban-scale model designed to predict short term average ground-level concentrations and deposition fluxes of one or two gaseous or particulate pollutants at multiple receptors. The two pollutants may be non-reactive, or chemically-coupled through a first-order chemical transformation. Up to 300 isolated point sources and 50 distributed area sources may be considered in the calculations. Concentration and deposition flux estimates are made using hourly mean meteorological data. Up to a maximum of 24 hourly scenarios of meteorology may be included in an averaging period. The concentration algorithms used in PEM-2 are specially developed to account for the effects of dry deposition, sedimentation, and first-order chemical transformation. The Gaussian plume-type algorithms for point sources are derived from analytical solutions of a gradient-transfer model. The User's Guide lists the concentration algorithms and computational techniques used in the PEM-2 program, and describes the input/output parameters, optional features, capabilities, and limitations of the model. Modifications to the previous version of the model are outlined. The information in the report is directed to the model user and the programmer.

DM DISPERION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

P887-136966/REB

Review of New Source Performance Standards for Petroleum Refinery Fuel Gas
EPA, Research Triangle Park, NC, ESED
Oct 86, 92p, EPA-450/3-86-011, PC A05/MF A01

Abstract: As required by Section 111(b) of the Clean Air Act, as amended, a four year review of the new source performance standards for petroleum refineries (40 CFR Subpart J) was conducted. The review was limited to the sulfur dioxide standard as applied to refinery fuel gas. The report presents a summary of the current standard, the status of current applicable control technology, and the ability of plants to meet the standard. No revision to the standard is recommended; however, EPA should investigate an alternative method of continuously measuring the sulfur concentration of refinery fuel gas.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
MSPS NEW SOURCE PERFORMANCE STANDARD
29 PETROLEUM AND COAL PRODUCTS
291 PETROLEUM REFINING
2911 PETROLEUM REFINING
7446-09-5 SULFUR DIOXIDE

PBB7-137733/REB

Summary Review of the Health Effects Associated with Copper:

Health Issue Assessment

EPA, Cincinnati, OH, ECAO

D.J. Reisman

Feb 87, 87p, EPA-600/8-87-001, PC A05/MF A01

Abstract: The Health Assessment Summary Document is a brief review of the scientific knowledge on copper. The emphasis of the document is on inhalation exposure from atmospheric copper and the environmental, ecological and health effects from the species of copper expected to be present in the atmosphere. The document is the scientific supporting basis for EPA decision-making concerning regulation of copper under the Clean Air Act. Specific scientific documentation on copper under the following headings is found in the document: Physiological and Chemical Properties, Analytical Methods, Fate and Transport, Environmental and Exposure Levels, Pharmacokinetics, Toxicology and Human Health Effects. Ambient air exposure to copper adds little to the copper body burden for normal individuals. Human homeostatic mechanisms act to control copper balance in the body. Deficiencies or excesses of copper intake in humans rarely result in copper toxicosis. Special groups of risk include Wilson's disease individuals, children and some populations residing near production and processing facilities.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
33 PRIMARY METAL INDUSTRIES
333 PRIMARY NONFERROUS METALS
3331 PRIMARY COPPER
334 SECONDARY NONFERROUS METALS
3341 SECONDARY NONFERROUS METALS
335 NONFERROUS ROLLING AND DRAWING
3351 COPPER ROLLING AND DRAWING
336 NONFERROUS FOUNDRIES
3362 BRASS, BRONZE, AND COPPER FOUNDRIES
7440-50-8 COPPER

PBB7-142956/REB

Air Quality Criteria for Ozone and Other Photochemical Oxidants.

Volume 1

EPA, Research Triangle Park, NC, ECAO

Aug 86, 260p, EPA-600/8-84-020AF, PC A12/MF A01

Abstract: Selected scientific information through early 1986 is presented and evaluated relative to the health and welfare effects associated with exposure to ozone and other photochemical oxidants. Data on health and welfare effects are emphasized; additional information is provided for understanding the oxidant pollution problem, for evaluating the reliability of effects data, and for assessing effects data relative to concentration occurring in ambient air. Information is also presented on exposure-related topics: sources, measurement, and concentrations of oxidant precursors; formation and transport of ozone and other photochemical oxidants; properties, chemistry, and measurement of ozone and other photochemical oxidants; and the concentrations of ozone and other photochemical oxidants typically found in ambient air. The specific areas addressed by chapters on health and welfare effects are the toxicological appraisal of effects of ozone and other oxidants; effects observed in controlled human exposures; effects observed in field and epidemiological studies; and effects on vegetation, natural and agro-ecosystems, and nonbiological materials.

CL-PCO PHOTO CHEMICAL OXIDANTS
EA EXPOSURE ASSESSMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
10028-15-6 OZONE

PB87-142964/REB

Air Quality Criteria for Ozone and Other Photochemical Oxidants.
Volume 2

EPA, Research Triangle Park, NC, ECAO
Aug 86, 446p, EPA-600/8-84-0208F, PC A19/MF A01

Abstract: Selected scientific information through early 1986 is presented and evaluated relative to the health and welfare effects associated with exposure to ozone and other photochemical oxidants. Data on health and welfare effects are emphasized; additional information is provided for understanding the oxidant pollution problem, for evaluating the reliability of effects data, and for assessing effects data relative to concentration occurring in ambient air. Information is also presented on exposure-related topics: sources, measurement, and concentrations of oxidant precursors; formation and transport of ozone and other photochemical oxidants; properties, chemistry, and measurement of ozone and other photochemical oxidants; and the concentrations of ozone and other photochemical oxidants typically found in ambient air. The specific areas addressed by chapters on health and welfare effects are the toxicological appraisal of effects of ozone and other oxidants; effects observed in controlled human exposures; effects observed in field and epidemiological studies; and effects on vegetation, natural and agroecosystems, and nonbiological materials.

CL-PCO PHOTO CHEMICAL OXIDANTS
EA EXPOSURE ASSESSMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
10028-15-6 OZONE

PB87-142972/REB

Air Quality Criteria for Ozone and Other Photochemical Oxidants.
Volume 3

EPA, Research Triangle Park, NC, ECAO
Aug 86, 458p, EPA-600/8-84-020CF, PC A20/MF A01

Abstract: Selected scientific information through early 1985 is presented and evaluated relative to the health and welfare effects associated with exposure to ozone and other photochemical oxidants. Data on health and welfare effects are emphasized; additional information is provided for understanding the oxidant pollution problem, for evaluating the reliability of effects data, and for assessing effects data relative to concentration occurring in ambient air. Information is also presented on exposure-related topics: sources, measurement, and concentrations of oxidant precursors; formation and transport of ozone and other photochemical oxidants; properties, chemistry, and measurement of ozone and other photochemical oxidants; and the concentrations of ozone and other photochemical oxidants typically found in ambient air. The specific areas addressed by chapters on health and welfare effects are the toxicological appraisal of effects of ozone and other oxidants; effects observed in controlled human exposures; effects observed in field and epidemiological studies; and effects on vegetation, natural and agroecosystems, and nonbiological materials.

CL-PCO PHOTO CHEMICAL OXIDANTS
EA EXPOSURE ASSESSMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
10028-15-6 OZONE

PB87-142980/REB

Air Quality Criteria for Ozone and Other Photochemical Oxidants.

Volume 4

EPA, Research Triangle Park, NC, ECAO

Aug 86, 333p, EPA-600/8-84-0200F, PC A15/MF A011

Abstract: Selected scientific information through early 1985 is presented and evaluated relative to the health and welfare effects associated with exposure to ozone and other photochemical oxidants. Data on health and welfare effects are emphasized; additional information is provided for understanding the oxidant pollution problem, for evaluating the reliability of effects data, and for assessing effects data relative to concentration occurring in ambient air. Information is also presented on exposure-related topics: sources, measurement, and concentrations of oxidant precursors; formation and transport of ozone and other photochemical oxidants; properties, chemistry, and measurement of ozone and other photochemical oxidants; and the concentrations of ozone and other photochemical oxidants typically found in ambient air. The specific areas addressed by chapters on health and welfare effects are the toxicological appraisal of effects of ozone and other oxidants; effects observed in controlled human exposures; effects observed in field and epidemiological studies; and effects on vegetation, natural and agroecosystems, and non-biological materials.

CL-PCO PHOTO CHEMICAL OXIDANTS

EA EXPOSURE ASSESSMENT

EPA ENVIRONMENTAL PROTECTION AGENCY

HA HEALTH ASSESSMENT

10028-15-6 OZONE

PB87-142998/REB

Air Quality Criteria for Ozone and Other Photochemical Oxidants.

Volume 5

EPA, Research Triangle Park, NC, ECAO

Aug 86, 328p, EPA-600/8-84-0200F, PC A15/MF A01

Abstract: Selected scientific information through early 1986 is presented and evaluated relative to the health and welfare effects associated with exposure to ozone and other photochemical oxidants. Data on health and welfare effects are emphasized; additional information is provided for understanding the oxidant pollution problem, for evaluating the reliability of effects data, and for assessing effects data relative to concentrations occurring in ambient air. Information is also presented on exposure-related topics: sources, measurement, and concentrations of oxidant precursors; formation and transport of ozone and other photochemical oxidants; properties, chemistry, and measurement of ozone and other photochemical oxidants; and the concentrations of ozone and other photochemical oxidants typically found in ambient air. The specific areas addressed by chapters on health and welfare effects are the toxicological appraisal of effects of ozone and other oxidants; effects observed in controlled human exposures; effects observed in field and epidemiological studies; and effects on vegetation, natural and agroecosystems, and nonbiological materials.

CL-PCO PHOTO CHEMICAL OXIDANTS

EA EXPOSURE ASSESSMENT

EPA ENVIRONMENTAL PROTECTION AGENCY

HA HEALTH ASSESSMENT

10028-15-6 OZONE

PB87-145033/XAB

Registry of Toxic Effects on Chemical Substances, 1983-84 Cumulative Supplement to the 1981-81 Edition. Volumes 1 and 2
National Institute for Occupational Safety and Health
Nov 85, 2110p, DHHS/PUB/NIOSH-86/103, PC A99

Abstract: This is the thirteenth edition of the 'Registry of Toxic Effects of Chemical Substances' (RTECS). This publication is a 2-volume 1983-84 Supplement to the 1981-82 Edition of the RTECS. RTECS is intended to provide basic information on the known toxic and biological effects of chemical substances to employers, employees, physicians, industrial hygienists, toxicologists, researchers, and anyone else with the need to know in order to assure proper and safe handling of chemicals. This Supplement contains 26,341 prime chemical substances with their associated toxicity data. For these entries, 113,211 synonyms are included as cross-references. All prime name listings are either new entries to the file or contain changes in the data from the 1981-82 Edition.

CL-VARIOUS VARIOUS

NA HEALTH ASSESSMENT

NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

PB87-145363/REB

PTPLU - A Single Source Gaussian Dispersion Algorithm. Addendum
EPA, Research Triangle Park, NC, ASRL
Dec 86, 18p, EPA-600/8-86-042, PC A02/MF A01

Abstract: PTPLU has been modified to include urban dispersion coefficients, urban wind profile exponents, and a default option. This modification has resulted in PTPLU-Version 2.0. This document briefly describes the modifications to PTPLU and presents a test case.

DM DISPERSION MODELING

EPA ENVIRONMENTAL PROTECTION AGENCY

PB87-145843/REB

User's Manual for Single-Source (CRSTER) Model (Addendum)
EPA, Research Triangle Park, NC, ASRL
Aerocomp, Inc.
J.A. Catalano
Jan 87, 141p, EPA-600/8-86-041, PC A07/MF A01

Abstract: The Single Source (CRSTER) Model computes hourly concentrations of quasi-stable pollutants in rural or urban settings. The model is applicable to design, modification, and evaluation studies for New Source Review, Prevention of Significant Deterioration, other permit-related applications, and evaluations that require the mathematical simulation of effects from stack effluents of a facility. Up to nineteen collocated stacks can be considered. For various averaging times, impacts are calculated on a polar grid of one hundred eighty receptors which can be at heights other than plant grade provided no receptor exceeds the height of the lowest stack. This addendum gives model changes in conjunction with UNAMAP Version 6. New in this release is the addition of a default option for the automatic setting of variables and program switches for regulatory application of the model.

DM DISPERSION MODELING

EPA ENVIRONMENTAL PROTECTION AGENCY

PB87-145942/REB

Field Assessment of Aerated Lagoon Emissions and Their Control
Using an Inflated Dome
EPA, Cincinnati, OH, HWERL
Radian Corp.

T. Nelson, B. Eklund, and R. Wetherold
Jan 87, 267p, EPA-600/2-87-009, PC A12/MF A01

Abstract: The fates of volatile organic compounds (VOC) in an industrial wastewater activated sludge system were investigated in a 4-day sampling and analysis program. The system included an aerated lagoon which was covered by an inflated synthetic dome and had a carbon adsorption unit to reduce the emissions of odorous organic compounds. Samples of air, water and sludge streams associated with the activated sludge system were collected, along with air samples at the inlet and outlet of the carbon adsorber. These samples were analyzed to determine the concentrations of individual organic constituents. The effectiveness of the dome and carbon adsorption unit in reducing lagoon emissions of volatile organic compounds was investigated, as was the applicability of the Thibodeaux, Parker and Heck model for predicting lagoon emissions. Approximate percentages of removal of VOC by biodegradation, adsorption, and volatilization in the aerated lagoon were determined.

CL-ODOR ODORS
CL-ORGANIC ORGANIC COMPOUNDS
CL-VOC VOLATILE ORGANIC COMPOUNDS
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

PB87-147039/REB

Health Assessment Document for Phosgene
EPA, Washington, DC, OHEA
N. P. Hajjar, et al.

Aug 86, 121p, EPA-600/8-86-022A, PC A06/MF A01

Abstract: Phosgene is primarily manufactured for the synthesis of isocyanate-based polymers, carbonic acid esters, and acid chlorides. Ambient and indoor air concentrations of phosgene are produced by direct emissions during its manufacture, handling, and use; thermal decomposition of chlorinated hydrocarbons; and photo-chemical oxidation of chloroethylenes in the air. The effects of acute inhalation exposure are primarily respiratory, causing pulmonary emphysema, pulmonary edema, and possibly death due to paralysis of the respiratory center as a result of anoxia. Limited epidemiology studies indicate no increase in the incidence of cancers among workers chronically exposed to phosgene. No definitive conclusions can be drawn regarding possible teratogenic, reproductive, carcinogenic, or mutagenic effects of phosgene exposure because adequate studies have not been performed.

CL-CHLOR CHLORINE COMPOUNDS
CL-ORGANIC ORGANIC COMPOUNDS
EA EXPOSURE ASSESSMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
28 CHEMICALS AND ALLIED PRODUCTS
286 INDUSTRIAL ORGANIC CHEMICALS
2869 INDUSTRIAL ORGANIC CHEMICALS, NEC
75-01-4 VINYL CHLORIDE
75-44-5 PHOSGENE

P887-148219/XAB

Health Hazard Alert: Benzidine-, o-Tolidine-, and o-Dianisidine-Based Dyes

National Institute for Occupational Safety and Health

Dec 80, 42p, DHHS/PUB/NIOSH-81-106, PC A03/MF A01

Abstract: Studies on the carcinogenicity and metabolism of benzidine, o-tolidine, and o-dianisidine based dyes are reviewed. Results of animal and human experiments are summarized. The authors conclude that exposure of workers to benzidine based dyes should be discontinued or reduced to the lowest possible concentrations. Exposure to o-tolidine and o-dianisidine based dyes should be limited. Recommendations to reduce worker exposure to these dyes include substituting less toxic dyes, establishing engineering controls for these chemicals, ensuring good housekeeping procedures and industrial hygiene practices, establishing restricted areas, informing employees of the adverse health effects of working with these dyes, placing employees with occupational exposure to these dyes under a medical monitoring program, providing facilities to remove residual chemicals and monitoring employee exposure.

CT CONTROL TECHNOLOGY DOCUMENT

EA EXPOSURE ASSESSMENT

ES EPIDEMIOLOGY STUDY

HA HEALTH ASSESSMENT

NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

TT TOXICITY TESTING

119-90-4 DIMETHOXYBENZIDINE,3,3'-

28 CHEMICALS AND ALLIED PRODUCTS

286 INDUSTRIAL ORGANIC CHEMICALS

2865 CYCLIC CRUDES AND INTERMEDIATES

92-87-5 BENZIDINE

95-53-4 TOLUIDINE,0-

P887-149274/XAB

Current Intelligence Bulletin 21. Trimellitic Anhydride (TMA)

National Institute for Occupational Safety and Health

Feb 78, 13p, DHEW/PUB/NIOSH-78/121, PC A02/MF A01

Abstract: The National Institute for Occupational Safety and Health (NIOSH) recommends that trimellitic anhydride (TMA) be handled as an extremely toxic agent in the workplace. Exposure to this compound may result in noncardiac pulmonary edema (apparently without benefit of pulmonary irritation warning), immunological sensitization, and irritation of the pulmonary tract, eyes, nose, and skin. There is no current Occupational Safety and Health Administration (OSHA) exposure standard for trimellitic anhydride. The Amoco Chemicals Corporation, the sole domestic producer, suggests a limit of 0.05 mg/m3 or less for susceptible individuals.

EA EXPOSURE ASSESSMENT

HA HEALTH ASSESSMENT

NIOSH NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

552-30-7 TRIMELLITIC ANHYDRIDE

P887-152146/REB

Sampling for Organic Compounds

EPA, Research Triangle Park, NC, EMSL

J.B. Clements, and R.G. Lewis

Jan 87, 18p, EPA-600/D-87-052, PC A02/MF A01

Abstract: The methods of sampling ambient air for organic compounds for subsequent analysis are discussed. The following methods of sample collection are presented and the advantages and disadvantages of each is given: concentration of component of interest on to solid sorbents, into liquid sorbents or on to filter-sorbent combinations; cryogenic concentration; derivatization of the component of interest; integrated sampling into containers such as canisters and bags; and direct analysis. Sampling problems of breakthrough of component of interest, formation of artifacts during sampling, and interferences from water collected from air during sampling are also discussed. The relative advantages of integrated sampling into containers versus concentrating on to sorbents and/or filters are presented.

AM AMBIENT MONITORING

CL-ORGANIC ORGANIC COMPOUNDS

EPA ENVIRONMENTAL PROTECTION AGENCY

SS SOURCE SAMPLING

PB87-152336/REB

Ammonia Emission Factors for the MAPAP (National Acid Precipitation Assessment Program) Emission Inventory
EPA, Research Triangle Park, NC, AEERL
Alliance Technologies Corp.
D.C. Misenheimer, T.E. Warr, and S. Zelmanowitz
Jan 87, 63p, EPA-600/7-87-001, PC A04/MF A01

Abstract: The report provides information on certain sources of ammonia emissions to the atmosphere for use in the National Acid Precipitation Assessment Program (MAPAP) emission inventories. Major anthropogenic sources of ammonia emissions to the atmosphere are identified, and emission factors for these sources are presented based on a review of the most recent data available. The emission factors developed are used to estimate nationwide emissions for base year 1980 and are compared to ammonia emission factors used in other emission inventories. Major anthropogenic source categories covered are cropland spreading of livestock wastes, beef cattle feedlots, fertilizer manufacture and use, fuel combustion, ammonia synthesis, petroleum refineries, and coke manufacture. Approximately 840,000 tons of ammonia is estimated to have been emitted in the U.S. in 1980; over 64% of which is estimated to have been from livestock wastes.

EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
02 AGRICULTURAL PRODUCTION-LIVESTOCK
021 LIVESTOCK, EXC. DAIRY, POULTRY, ETC.
0211 BEEF CATTLE FEEDLOTS
07 AGRICULTURAL SERVICES
071 SOIL PREPARATION SERVICES
0711 SOIL PREPARATION SERVICES
28 CHEMICALS AND ALLIED PRODUCTS
284 SOAP, CLEANERS, AND TOILET GOODS
2842 POLISHES AND SANITATION GOODS
287 AGRICULTURAL CHEMICALS
2873 NITROGENOUS FERTILIZERS
29 PETROLEUM AND COAL PRODUCTS
291 PETROLEUM REFINING
2911 PETROLEUM REFINING
33 PRIMARY METAL INDUSTRIES
331 BLAST FURNACE AND BASIC STEEL PRODUCTS
3312 BLAST FURNACES AND STEEL MILLS
7664-41-7 AMMONIA

PB87-154480/REB

Reduction of Total Toxic Organic Discharges and VOC (Volatile Organic Compounds) Emissions from Paint Stripping Operations Using Plastic Media Blasting
EPA, Cincinnati, OH, WERL
Acurex Corp.
C.D. Wolbach, and C. McDonald
Feb 87, 106p, EPA-600/2-87-014, PC A06/MF A01

Abstract: The U.S. Army Toxic and Hazardous Materials Agency and the U.S. EPA Water Engineering Research Laboratory cooperated to investigate the feasibility of Plastic Media Blasting (PMB) as a paint removal technique for aluminum military shelters. The PMB process was compared in field tests with sandblasting and with chemical stripping to determine relative cost, effectiveness, efficiency, and environmental consequence. The PMB process was judged superior to the chemical stripping process and marginally better than sandblasting based upon the evaluation criteria.

CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
17 SPECIAL TRADE CONTRACTORS
179 MISC. SPECIAL TRADE CONTRACTORS
1799 SPECIAL TRADE CONTRACTORS, NEC

PB87-155917/XAB

Description of UNAMAP (User's Network For Applied Modeling of Air Pollution) (Version 6)
EPA, Research Triangle Park, NC, ASRL
D.B. Turner, and L.W. Bender
Dec 86, 14p, EPA-600/M-86-027, PC A02/MF A01

Abstract: UNAMAP (VERSION 6) represents the 1986 update to the User's Network for Applied Modeling of Air Pollution. UNAMAP consists of an ASCII magnetic tape containing FORTRAN codes and test data for 25 air quality simulation models as well as associated documentation. The tape and documentation are available as a single package from NTIS (Accession Number PB86-222 361). This provides technical transfer of these models from the Environmental Protection Agency to model users.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

P887-165262/REB

Intercomparison of Sampling Techniques for Toxic Organic Compounds in Indoor Air
EPA, Research Triangle Park, NC, EMSL
Battelle Columbus Div.
C.M. Spicer, et al.
Mar 87, 146p, EPA-600/4-87-008, PC A07/WF A01

Abstract: People spend a major fraction of their time indoors, and there is concern over exposure to volatile organic compounds present in indoor air. The study was initiated to compare several VOC sampling techniques in an indoor environment. The techniques which were compared include distributive air volume sampling, high and low rate passive sampling, and whole air collection in canisters. The study focused on ten target compounds: chloroform, 1,1,1-trichloroethane, benzene, bromodichloromethane, trichloroethylene, toluene, tetrachloroethylene, styrene, p-dichlorobenzene, and hexachlorobutadiene. Altogether, ten separate 12-hour sampling experiments were conducted. Two experiments sampled the background air of the residence. For the other eight experiments, the indoor air was spiked with the target compounds. Statistical analysis of the results indicates generally high correlation coefficients (greater than 0.90) between the methods. The most notable exception was benzene, which had lower correlation coefficients. In general, the distributed air volume sampling technique measure concentrations less than or equal to the canister method.

CL-IAP	INDOOR AIR POLLUTANTS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
SS	SOURCE SAMPLING
100-42-5	STYRENE
108-88-3	TOLUENE
127-18-4	TETRACHLOROETHYLENE
541-73-1	DICHLOROBENZENE, 1,3-
67-66-3	CHLOROFORM
71-43-2	BENZENE
71-55-6	TRICHLOROETHANE, 1,1,1-
75-27-4	BROMODICHLOROMETHANE
79-01-6	TRICHLOROETHYLENE
87-68-3	HEXACHLORO-1,3-BUTADIENE

P887-168688/XAB

Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air
EPA
Battelle Columbus Labs
R.M. Riggan
Apr 84, 160p, EPA-600/4-84-041, PC A08/WF A01

Abstract: The Methods Compendium is intended to provide regional, state, and local environmental regulatory agencies, as well as other interested parties, with specific guidance on the determination of selected toxic organic compounds in ambient air. The current Methods Compendium consists of five methods for determining a wide variety of volatile organic compounds. Additional methods and/or modifications of the current methods will be added to the compendium from time to time.

AM AMBIENT MONITORING
CL-ORGANIC ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY

P887-168696/XAB

Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Supplement
EPA, Research Triangle Park, NC, EMSL
Battelle Columbus Labs
R.M. Riggan, M.T. Winberry, and M.V. Tilley
Sep 86, 118p, EPA-600/4-87-006, PC A06/WF A01

Abstract: Determination of toxic organic compounds in ambient air is a complex task, primarily because of the wide variety of compounds of interest and the lack of standardized sampling and analysis procedures. This methods compendium has been prepared to provide a standardized format for such analytical procedures. A core set of five methods covering 29 air toxic compounds was presented in the original document. In an effort to update the original compendium, four new specific methods have been added. With this addition, the compendium now contains nine standardized sampling and analysis procedures covering 36 air toxic compounds. As advancements are made, the current methods may be modified from time to time along with new additions to the compendium.

AM AMBIENT MONITORING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB87-168787/REB

User's Guide for PAL 2.0: A Gaussian-Plume Algorithm for Point, Area, and Line Sources
EPA, Research Triangle Park, NC, ASRL
W.B. Petersen, and E.D. Ramsey
Mar 87, 98p, EPA-600/8-87-009

Abstract: PAL is an acronym for the Point, Area, and Line source algorithm. PAL is a method of estimating short-term dispersion using Gaussian-plume steady state assumptions. The algorithm can be used for estimating concentrations of non-reactive pollutants at 99 receptors for averaging times of from 1 to 24 hours, and for a limited number of point, area, and line sources (99 of each type). Calculations are performed for each hour. The hourly meteorological data required are wind direction, wind speed, stability class, and mixing height. Single values of each of these four parameters are assumed representative for the area modeled. The Pasquill-Gifford or McElroy-Pooler dispersion curves are used to characterize dispersion. The PAL model can treat deposition of both gaseous and suspended particulate pollutants in the plume since gravitational settling and dry deposition of the particles are explicitly accounted for. In the limit when pollutant settling and deposition velocities are zero, they reduce to the usual Gaussian-plume diffusion algorithms.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

PB87-168803/REB

Stability of Parts-Per-Billion Hazardous Organic Cylinder Gases and Performance Audit Results of Source Test and Ambient Air Measurement Systems. Status Report 3
EPA, Research Triangle Park, EMSL
Research Triangle Inst.
J.M. Allen, et al.
Mar 87, 195p, EPA-600/4-87-007, PC A09/MF A01

Abstract: An evaluation of 27 gaseous organic compounds at parts-per-billion (ppb) levels in compressed gas cylinders has been conducted by the U.S. Environmental Protection Agency (EPA). The primary objectives of this on-going project are: (1) to evaluate the quality of measurements made by USEPA, state/local agencies or their contractors by using ppb gas cylinders for performance audits to assess the relative accuracy of source measurement systems during hazardous waste trial burn tests and ambient air monitoring programs; (2) to verify the manufacturer's certified analysis of the multi-component gas mixtures; (3) to determine the stability of gas mixtures with time; and (4) to develop new audit materials as requested by EPA. The cylinders consist of 4 mixtures of 5, 6, 7 and 9 organic compounds each. These mixtures were blended by a commercial gas supplier in aluminum cylinders in a balance gas of nitrogen. To date, 95 performance audits have been initiated and 76 are complete. The results of these audits and description of the experimental procedures used for analyses and available stability data are presented in this Status Report No. 3.

AM AMBIENT MONITORING
CL-HAZUAST HAZARDOUS WASTES
CL-ORGANIC ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
127-18-4 TETRACHLOROETHYLENE
49 ELECTRIC, GAS, AND SANITARY SERVICES
492 GAS PRODUCTION AND DISTRIBUTION
4925 GAS PRODUCTION AND/OR DISTRIBUTION
56-23-5 CARBON TETRACHLORIDE
67-66-3 CHLOROFORM
71-43-2 BENZENE
74-85-1 ETHYLENE
75-01-4 VINYL CHLORIDE

PB87-171906/REB

ROADWAY: A Numerical Model for Predicting Air Pollutants Near Highways. User's Guide
EPA, Research Triangle Park, NC, ASRL
Aerocomp, Inc.
R. Eskridge, and J. Catalano
Mar 87, 148p, EPA-600/8-87-010, PC A07/MF A01

Abstract: ROADWAY is a finite-difference model which solves a conservation of species equation to predict pollutant concentrations within two hundred meters of a highway. It uses surface layer similarity theory to predict wind and eddy diffusion profiles from temperature at two heights and wind velocity upwind of the highway. A unique feature of the model is its use of vehicle wake theory which was originally developed by Eskridge and Hunt (1979), and was modified by Eskridge and Thompson (1982); Eskridge and Rao (1983, 1985). It is assumed that vehicle wakes affect the wind and turbulence fields in a linear manner with wake intensity a function of vehicle speed, downwind distance, and distance from the wake center. The user has the option of considering NO, NO₂, and O₃ chemical reactions near the road. Output from the model consists of x-z fields of wind components, eddy diffusion coefficients, and concentration of pollutant.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY
10028-15-6 OZONE
10102-43-9 NITRIC OXIDE
10102-44-0 NITROGEN DIOXIDE

PB87-173811/REB

Background Information Document for the Development of Regulations to Control the Burning of Hazardous Wastes in Boilers and Industrial Furnaces
EPA, Washington, DC, OSWER
Engineering Science
Jan 87, 645p-in 3v, PC E99

Abstract: Set of three volumes: PB87-173829, PB87-173837, and PB87-173845. Volume 1, PB87-173829, deals with industrial boilers, and Volume 2, PB87-173837, covers industrial furnaces. Volume 3, PB87-173845, is not available as a separate volume as of 7-18-88. This background information document summarizes the Waste Management Division's studies in the development of proposed regulations for the burning of hazardous waste in boilers and industrial furnaces. For further information, see abstracts for PB87-173829 and PB87-173837.

CL-HAZWAST HAZARDOUS WASTES
CT CONTROL TECHNOLOGY DOCUMENT
EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
PRA PRE-REGULATORY ASSESSMENT
RDG REGULATORY DEVELOPMENT GUIDANCE
SA SOURCE ASSESSMENT
35 MACHINERY, EXCEPT ELECTRICAL
356 GENERAL INDUSTRIAL MACHINERY
3567 INDUSTRIAL FURNACES AND OVENS
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

PB87-173829/REB

Background Information Document for the Development of Regulations to Control the Burning of Hazardous Wastes in Boilers and Industrial Furnaces. Volume 1. Industrial Boilers
EPA, Washington, DC, OSWER
Engineering-Science
Jan 87, 220p, EPA-530/SW-87-014A, PC A10/MF A01

Abstract: The background information document summarizes the Waste Management Division's studies in the development of proposed regulations for the burning of hazardous waste in boilers. The report includes a characterization of industrial boilers which have a potential for burning hazardous waste as well as a summary of test data and test methods used in determining the emissions from these devices when burning hazardous waste. Also included in the report is a characterization of various hazardous waste streams from various data sources, quantities of hazardous waste burned in boilers and furnaces, modifications to boilers systems to burn hazardous waste, and various cost elements needed for the Regulatory Impact Analysis.

CL-HAZWAST HAZARDOUS WASTES
CT CONTROL TECHNOLOGY DOCUMENT
EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
PRA PRE-REGULATORY ASSESSMENT
35 MACHINERY, EXCEPT ELECTRICAL
356 GENERAL INDUSTRIAL MACHINERY
3567 INDUSTRIAL FURNACES AND OVENS

PB87-173837/REB

Background Information Document for the Development of Regulations to Control the Burning of Hazardous Wastes in Boilers and Industrial Furnaces. Volume 2. Industrial Furnaces
EPA, Washington, DC, OSWER
Engineering-Science
Jan 87, 162p, EPA-530/SW-87-014B, PC A08/MF A01

Abstract: The report summarizes the Waste Management Division's studies for the development of regulations for burning hazardous waste in industrial furnaces. The report includes a characterization of the industrial furnaces which have a capability for burning hazardous waste. The furnaces addressed are cement kilns (wet and dry processes), lines kilns, light-weight aggregate kilns, blast furnaces, open hearth furnaces, sulfuric acid recovery furnaces, and asphalt concrete plants. The report also includes a summary of test data and methods used in determining both organic and inorganic emissions from these devices. The destruction and removal efficiencies of various organic compounds are also determined based on actual test results. Finally cost elements needed for the Regulatory Impact Analysis are also given.

CL-HAZWAST HAZARDOUS WASTES
CL-INORGANIC INORGANIC COMPOUNDS
CL-ORGANIC ORGANIC COMPOUNDS
EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
PRA PRE-REGULATORY ASSESSMENT
SA SOURCE ASSESSMENT
35 MACHINERY, EXCEPT ELECTRICAL
356 GENERAL INDUSTRIAL MACHINERY
3567 INDUSTRIAL FURNACES AND OVENS
7664-93-9 SULFURIC ACID

PB87-174876/REB

Statistical Aspects of Autoregressive Models in the Assessment of Radon Mitigation

EPA, Research Triangle Park, NC, AEERL
J.E. Dunn, and D.B. Henschel

Mar 87, 13p, EPA-600/D-87-085, PC A02/MF A01

Abstract: The paper discusses statistical aspects of autoregressive models in the assessment of radon mitigation. Radon values, as reflected by hourly scintillation counts, seem dominated by major, pseudo-periodic, random fluctuations. The methodological paper reports a moderate degree of success in modeling these data using relatively simple autoregressive-moving average models in order to assess the effectiveness of radon mitigation techniques in existing housing. While accounting for the natural correlation of successive observations, familiar summary statistics such as steady state estimates, standard errors, confidence limits, and tests of hypothesis are produced. The Box-Jenkins approach is used throughout. In particular, intervention analysis provides an objective means of assessing the effectiveness of an active mitigation measure, such as fan on/off cycle. Occasionally, failure to declare a significant intervention has suggested a diagnosis of the data collection procedure.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON

PB87-174892/REB

Resolving the Radon Problem in Clinton, New Jersey, Houses
EPA, Research Triangle Park, NC, AEERL

M.C. Osborne

Mar 87, 9p, EPA-600/D-87-093, PC A02/MF A01

Abstract: The paper discusses the resolution of a radon problem in Clinton, New Jersey, where significantly elevated radon concentrations were found in several adjacent houses. The U.S. EPA screened 56 of the houses and selected 10 for demonstration of radon reduction techniques. Each of the 10 houses received an intensive radon diagnostic evaluation before a house-specific radon reduction plan was developed. Before and after the plans were implemented, radon concentrations were determined by charcoal canisters and continuous radon monitors. A variety of sealing and sub-slab depressurization techniques were applied to the 10 houses. Radon concentrations were reduced by over 95% in all 10 houses. Five meetings were held to explain to homeowners the radon reduction techniques being implemented and to answer questions of homeowners interested in applying similar radon reduction efforts to their houses.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SA SOURCE ASSESSMENT
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

PB87-175006/REB

Monitoring Before and After Radon Mitigation
EPA, Research Triangle Park, NC, AEERL
Research Triangle Inst.

T. Brennan, and M.C. Osborne

Mar 87, 14p, EPA-600/D-87-094, PC A02/MF A01

Abstract: The paper discusses a radon reduction demonstration project in 1986 on 10 houses in Clinton, NJ. As part of this effort, radon was measured before and after radon reduction techniques were applied. The purpose of the measurements was to ascertain the effectiveness of the radon control methods being used. Since radon concentrations are normally highest in a depressurized house (commonly observed during cold winter months), efforts were made to emulate winter depressurization. Before radon reduction techniques were applied, four houses were tested using a common window fan to induce 7 Pa of negative pressure. Results of these tests showed that fan-induced negative pressure has a dramatic impact on radon concentrations. For some houses, this technique was shown to adequately emulate winter-time radon entry rates during warm summer months. Potential problems which may cause this technique to fail in some houses were identified.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

PB87-175568/REB

WESHAPs (National Emissions Standards for Hazardous Air Pollutants)
Asbestos Demolition and Renovation Inspection Workshop Manual
EPA, Washington, DC, OAQPS
GCA Corp.

S. Piper, and M. Grant

Dec 84, 156p, EPA-340/1-85-008, PC A08/MF A01

Abstract: The document presents the technical content of a workshop designed for training regulatory inspectors involved in enforcement of the asbestos WESHAP regulation, 40 CFR Part 61, Subpart M, dealing with the demolition and renovation of buildings containing asbestos materials. Information presented in this document covers health effects related to inhalation of asbestos, asbestos in schools program, demolition and renovation regulations, asbestos in schools program, OSHA requirements, safety equipment recommendations, legal issues of case development, inspection procedures and bulk sampling/analyses.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
WESHAP NAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
1332-21-4 ASBESTOS
15 GENERAL BUILDING CONTRACTORS
152 RESIDENTIAL BUILDING CONSTRUCTION
1522 RESIDENTIAL CONSTRUCTION, NEC
154 NONRESIDENTIAL BUILDING CONSTRUCTION
1541 INDUSTRIAL BUILDINGS AND WAREHOUSES
1542 NONRESIDENTIAL CONSTRUCTION, NEC
17 SPECIAL TRADE CONTRACTORS
179 MISC. SPECIAL CONTRACTORS
1795 WRECKING AND DEMOLITION WORK
95 ENVIRONMENTAL QUALITY AND HOUSING
953 HOUSING AND URBAN DEVELOPMENT
9531 HOUSING PROGRAMS

PB87-175576/REB

National Air Toxics Information Clearinghouse (NATICH) Database
Users Guide for Data Entry and Editing
EPA, Research Triangle Park, NC, OAQPS
Radian Corp.
S.A. Smith
Feb 87, 95p, EPA-450/5-87-002, PC A05/MF A01

Abstract: The report will serve as guide for State and local agency personnel entering data into the National Air Toxics Information Clearinghouse (NATICH) database. The NATICH database is a computerized database which contains indexed information on toxic and potentially toxic air pollutants. The database has been established by EPA to support State and local programs in the control of non-criteria air pollutants.

RDG ENVIRONMENTAL PROTECTION AGENCY
REGULATORY DEVELOPMENT GUIDANCE

PB87-176426/REB

Some Results from the Demonstration of Indoor Radon Reduction Measures in Block Basement Houses
EPA, Research Triangle Park, NC, AEERL
American ATCOM, Inc.
D.B. Menschel, and A.G. Scott
Mar 87, 11p, EPA 600/D-87-089, PC A02/MF A01

Abstract: The paper gives results of tests of active soil ventilation techniques in 24 block-wall basement houses in eastern Pennsylvania having significantly elevated indoor radon concentrations, generally above 740 Bq/cu m. The results indicate that radon levels can be reduced substantially (often below the U.S. EPA guideline of 148 Bq/cu m) if effective suction can be drawn on the soil underneath the concrete slabs of these houses. Such effective suction appears achievable when either: (a) the house has a complete loop of drain tile around its footings for water drainage purposes, and suction is drawn on that loop; or (b) a sufficient number of suction pipes can be inserted at the proper locations into the crushed rock or soil underneath the slab.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

PB87-178711/REB

Proliferative Hepatocellular Lesions of the Rat: Review and Future Use in Risk Assessment
EPA, Washington, DC, OPTS
E. Rinde, et al.
Feb 86, 31p, EPA-625/3-86-011, PC A03/MF A01

Abstract: The paper addresses three questions that are crucial in the evaluation of rat tumor data and in the assessment of carcinogenic risk for humans. One question is whether to consider these lesions 'hyperplastic' or 'neoplastic' in nature, the latter classification being indicative of tumor formation. A second question is to interpret the finding that in some experimental systems, certain nonmalignant proliferative lesions may regress with only a small proportion of the lesions persisting. Finally, it is important to know whether any of these lesions may progress to carcinoma.

CL-CARCIN CARCINOGENS
EPA ENVIRONMENTAL PROTECTION AGENCY
RA RISK ASSESSMENT

PB87-182713/REB

Measurement of Toxic Air Pollutants. Proceedings of the 1986 EPA/APCA (Environmental Protection Agency/Air Pollution Control Association) Symposium Held at Raleigh, North Carolina on April 27-30, 1986
EPA, Research Triangle Park, NC, ENSL
Air Pollution Control Association
Apr 86, 920p, EPA-600/9-86-013, PC A99/MF E04

Abstract: The technical program consisted of 95 presentations, held in ten separate technical sessions, on recent advances in the measurement and monitoring of toxic and other contaminants found in ambient and source atmospheres. Presentations included: (1) Measurement of Indoor Toxic Air Contaminants; (2) Measurement of Semi-Volatile and Volatile Organic Pollutants in Ambient Air; (3) Chemometrics and Environmental Data Analysis; (4) Acidic Deposition -- Nitrogen Species Methods Comparison Study; (5) Measurement of Hazardous Waste Emissions; (6) Measurement of Wood Stove Emissions; (7) Source Monitoring; and (8) General Papers Related to Quality Assurance and Particulate Measurements.

AM AMBIENT MONITORING
CL-HAZWAST HAZARDOUS WASTES
CL-1AP INDOOR AIR POLLUTANTS
CL-SVOC SEMI-VOLATILE ORGANIC COMPOUNDS
CL-VOC VOLATILE ORGANIC COMPOUNDS
CL-WOOD WOOD SMOKE
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING
10102-43-9 NITRIC OXIDE
10102-44-0 NITROGEN DIOXIDE

PB87-183414/REB

Preliminary Compilation of Air Pollutant Emission Factors for Selected Air Toxic Compounds
EPA, Research Triangle Park, NC, OADPS
A.A. Pope
Apr 87, 65p, EPA-450/4-86-010A, PC A04/MF A01

Abstract: The report presents emission factors for selected air toxic compounds, and it associates the emission factors to levels of source activity. The majority of the emission factors in the report was previously presented in Appendix H of the EPA report, Compiling Air Toxic Emission Inventories, EPA-450/4-86-010. Appendix H was updated to include emission factors for ethylene oxide and chlorobenzenes. The emission factors were compiled primarily in two series of EPA reports, Locating and Estimating Air Emissions From Sources of (Substance) and Survey of (Substance) Emission Sources. The purpose of the report is to offer a technical service to air pollution control agencies in performing preliminary estimates of air toxics emissions. The emission factors are preliminary, and they are not intended to provide exact estimates of releases of air toxics from specific facilities.

EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
108-90-70 CHLOROBENZENE
75-21-8 ETHYLENE OXIDE

P887-186151/REB

Evaluation of the Carcinogenicity of Unleaded Gasoline
EPA, Washington, DC, OHEA

Apr 87, 403p, EPA-600/6-87-001, PC A18/MF A01

Abstract: In the document the likelihood that unleaded gasoline vapors are carcinogenic to humans is evaluated. From carcinogenicity data in animals, an estimate is made of the magnitude of cancer risk a person would experience, assuming that gasoline vapors are carcinogenic. All biological factors believed to be relevant to carcinogenesis are reviewed. A quantitative analysis of cancer incidence in the two long-term animal gasoline inhalation studies is performed, an upper-bound cancer risk potency estimate calculated, and the uncertainties in the estimate discussed. The major conclusions are:

- (1) although employment in the petroleum refineries is possibly associated with several types of cancers, exposure to gasoline cannot be implicated as a causative agent because of confounding exposure to other chemicals and inadequate information on gasoline exposure;
- (2) the occurrence of liver cancer in female mice and kidney cancer in male rats provides 'sufficient' evidence in animals that inhalation of wholly aerosolized gasoline is carcinogenic; and (3) gasoline vapors from vehicle refueling might be less carcinogenic than indicated by animal experiments using wholly aerosolized gasoline, if the less volatile components, apparently responsible for acute kidney cancer, also contribute to the observed carcinogenic response.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
RA RISK ASSESSMENT
TT TOXICITY TESTING
29 PETROLEUM AND COAL PRODUCTS
291 PETROLEUM REFINING
2911 PETROLEUM REFINING
8006-61-9 GASOLINE

P887-186227/REB

Bibliography on Asbestos in Schools
EPA, Washington, DC, IMSD

Feb 86, 59p, EPA-IMSD-86-001, PC A04/MF A01

Abstract: The bibliography contains references to information on asbestos in school buildings. The citations are organized by the format of the various references, including EPA reports, books, journals, articles, and regulatory citations.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
1332-21-4 ASBESTOS
82 EDUCATIONAL SERVICES

P887-186235/REB

Bibliography on Indoor Radon Pollution
EPA, Washington, DC, IMSD

May 86, 115p, EPA-IMSD-86-002, PC A06/MF A01

Abstract: The bibliography contains references to information on the measurement and modeling of radon, mitigation of radon, health effects and contributing factors, effect of ventilation and energy efficiency on radon concentrations in buildings, and radon in water. It includes an appendix containing a list of contacts for further information on radon.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON

P887-186433/REB

Fate and Persistence in Soil of Selected Toxic Organic Chemicals
EPA, Washington, DC, OHEA
PEI Associates, Inc.

R. Sukol, E. Woolson, and M. Thompson
May 87, 127p, EPA-600/6-87-003, PC A07

Abstract: The persistence of toxic and generally refractory halogenated hydrocarbons in the environment is a key factor in evaluating human exposure. The report summarizes the chemical and physical properties of some of these compounds and addresses how these properties can affect their persistence and behavior in various environmental media. The property that affects persistence and mobility of organic compounds in soil most directly is water solubility. Within a class of compounds the higher the degree of halogenation, the lower the water solubility, and thus, the greater the persistence. Persistence in the environment is dependent also upon several environmental factors, including soil organic matter, total precipitation and intensity, temperature, intensity of sunlight and soil texture. In general, the organic carbon content of soil has the greatest effect on the behavior of hydrophobic organic compounds, as these compounds sorb strongly to the organic matter in the soil. Sorbed organic compounds in soil are subject to several possible fates in the environment, including volatilization, microbial degradation, photodecomposition on the soil surface, translocation to plants, chemical degradation, and leaching to ground water.

CL-BROM BROMINE COMPOUNDS
CL-CHC CHLORINATED HYDROCARBONS
CL-ORGANIC ORGANIC COMPOUNDS
EA EXPOSURE ASSESSMENT
EPA ENVIRONMENTAL PROTECTION AGENCY

PB87-188124/REB

Testing of Indoor Radon Reduction Techniques in Eastern Pennsylvania
EPA, Research Triangle Park, NC, AEERL
American ATCOM, Inc.
D.B. Henschel, and A.G. Scott
May 87, 21p, EPA-600/D-87-156, PC A02/WF A01

Abstract: The paper updates information from EPA tests of indoor radon reduction techniques on 38 houses in the Reading Prong area of eastern Pennsylvania. All were basement houses with hollow-block or poured-concrete foundation walls. Most techniques tested involved active soil ventilation, including: suction on the footing drain tile system; suction under the concrete slabs, using pipes inserted through the slabs from inside the houses; and ventilation of the void network inside hollow-block foundation walls. Heat recovery ventilators (HRVs) were tested in three houses. Results confirm that, for the houses tested, drain tile suction consistently provides high radon reductions when a complete loop of drain tile exists, often reducing high-radon level houses to 4 pCi/l (148 Bq/cu m) and less. Sub-slab suction (with pipes through the slab) can provide high reductions if enough suction pipes are located properly. Placing one or more sub-slab suction pipes near each perimeter wall appears to aid in treating the major soil gas entry routes, although fewer pipes can sometimes give high reductions if conditions are favorable. Ventilation of block wall voids can be effective if major wall openings can be adequately closed, and if there are no major slab-related entry routes remote from the walls.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

PB87-189841/REB

Locating and Estimating Air Emissions from Sources of Chlorobenzenes
EPA, Research Triangle Park, OAQPS
Sep 86, 146p, EPA-450/4-84-007M, PC A07/WF

Abstract: To assist groups interested in inventorying air emissions of various potentially toxic substances, EPA is preparing a series of documents such as this to compile available information on sources and emissions of these substances. The document deals specifically with chlorobenzenes. Its intended audience includes Federal, State, and local air pollution personnel and others interested in locating potential emitters of chlorobenzenes and in making gross estimates of air emissions therefrom. The document presents information on (1) the types of sources that may emit chlorobenzenes, (2) process variations and release points that may be expected within these sources, and (3) available emissions information indicating the potential for chlorobenzenes release into the air from each operation.

EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
108-90-70 CHLOROBENZENE

PB87-190880/REB

Multimedia Approaches to Assessment and Management of Hazardous Air Contaminants
EPA, Research Triangle Park, NC, ECAO
F.V. Bradow, and A.H. App
Mar 87, 122p, EPA-600/8-87-012, PC A06/MF A01

Abstract: Since its inception in 1969, NATO's Committee on the Challenges of Modern Society (CMS) has been involved in environmental concerns. For 15 years, the NATO/CMS Air Pollution Pilot Study series developed information on air pollution control strategies and impact modeling. The workshops would maintain the network of technical information communication which had developed through the pilot studies, and would provide a forum for considering problems of international scope. The topic in the first workshop was advanced air pollution assessment methods and monitoring techniques. The second workshop, summarized in the report, was hosted by the Environmental Protection Agency on behalf of the United States of America. The workshop's theme was multimedia approaches to risk assessment and management of hazardous air contaminants. The workshop was designed to challenge air pollution research and control professionals to consider the broader context of environmental pollution. As many countries are beginning to understand, measures to safeguard public health and the environment will often require an integrated approach in order to be effective. The workshop offered an opportunity for exploring various countries' efforts toward developing such integrated, multimedia approaches to assessing and managing air pollutants.

AM AMBIENT MONITORING
EPA ENVIRONMENTAL PROTECTION AGENCY
RA RISK ASSESSMENT
SS SOURCE SAMPLING

PB87-191540/REB

Practical Problems Reducing Radon in Houses
EPA, Research Triangle Park, NC, AEERL
M. C. Osborne, and T. Brennan
May 87, 11p, EPA-600/D-87-161, PC A02/MF A01

Abstract: The paper discusses practical problems encountered during efforts to reduce radon concentrations in houses. The 10 problems identified represent only a few of the many daily problems encountered by diagnosticians and mitigators. Nonetheless, they are some of the current common problems that need to be considered and hopefully resolved in the near future. The 10 problems are: inconsistent sub-slab aggregate, hidden pathways to chimneys, variations in porosity of concrete/cinder block and block coatings, access to radon entry surfaces, diurnal/seasonal variation in radon concentrations, impact of radon-in-water on radon-in-air, sealing the top row of concrete blocks, insulating half-basements, sealing large thermal bypasses, and coping with direct rock exposure.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

P887-191557/REB

Monitoring Radon Reduction in Clinton, New Jersey Houses
EPA, Research Triangle Park, NC
Research Triangle Inst.
M.C. Osborne, T. Brennan, and L.D. Michaels
May 87, 15p, EPA-600/D-87-162, PC A02/MF A01

Abstract: The paper discusses EPA experience in monitoring radon reduction in Clinton, NJ, houses. Both the temperature-driven stack effect and typical household appliances (e.f., furnaces, whole-house fans, clothes dryers, and bathroom fans) were observed to reduce indoor pressure and potentially increase radon levels. Radon measurements obtained during cold weather, after residential heating systems were back in full operation, showed that the radon reduction techniques that were applied had been effective and that radon concentrations were significantly reduced. Although both grab sample and continuous monitor measurements were helpful in assessing radon entry sites and hour-to-hour fluctuations, respectively, only charcoal canister data collected under near-winter conditions could be used as a valid comparison with earlier March/April 1986 generated pre-radon reduction data.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

P887-191615/REB

Human Exposure to Mutagens from Indoor Combustion Sources
EPA, Research Triangle Park, NC, HERL
J. Lewtas, L.D. Claxton, and J.L. Mumford
May 87, 9p, EPA-600/D-87-144, PC A02/MF A01

Abstract: The authors have measured human exposure to mutagens, using indoor medium-volume samplers and personal samplers, in targeted field studies of homes in the U.S. The combustion sources included in these studies were woodstoves, fireplaces, gas appliances, cooking, and tobacco smoking. These studies demonstrate that the presence of environmental tobacco smoke (ETS) consistently results in human exposure to mutagens which are significantly higher than outdoor air or non-smoking indoor spaces. The mutagenic emission rates from the other indoor combustion sources (e.g., kerosene heaters) as determined in chamber studies are more variable than ETS and are dependent on the combustion source design and operation. Woodstoves and fireplaces result in higher concentrations of mutagens outdoors, which may indirectly influence the concentration of mutagens indoors.

CL-ETS ENVIRONMENTAL TOBACCO SMOKE
CL-IAP INDOOR AIR POLLUTANTS
CL-WOOD WOOD SMOKE
EPA ENVIRONMENTAL PROTECTION AGENCY
IA HEALTH ASSESSMENT
IA INDOOR AIR

P887-191839/REB

Organic Emissions from Consumer Products to the Indoor Environment
EPA, Research Triangle Park, NC, AEERL
Acurex Corp.
B.A. Tichenor, and M.A. Mason
May 87, 19p, EPA-600/D-87-163, PC A02/MF A01

Abstract: The paper discusses EPA studies in small environmental test chambers on a variety of building materials and consumer products. A number of test conditions are critical in effectively determining emission rates (e.g., temperature, humidity, air exchange rate, and product loading--area of sample/volume of test chamber). In addition, the effects of chamber concentration and chamber wall effects (i.e., adsorption to and desorption from surfaces) need to be determined. Finally, the age and condition of the sample affect its emission rate. All of these variables and phenomena are considered in the EPA research program.

CL-IAP INDOOR AIR POLLUTANTS
CL-ORGANIC ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING

PB87-191847/REB

Radon Mitigation in 10 Clinton, New Jersey Houses: A Case History
EPA, Research Triangle Park, NC, AEERL
Research Triangle Inst.
M.C. Osborne, T. Brennan, and L.D. Michaels
May 87, 16p, EPA-600/D-87-164, PC A02/MF A01

Abstract: The paper discusses an EPA radon mitigation demonstration project in Clinton, NJ, which included testing radon reduction techniques in 10 houses. The 10 houses were selected from a group of 56 volunteers in the Clinton Knolls subdivision. Each of the 10 selected houses received an intensive radon diagnostic evaluation before a house-specific radon reduction plan was developed. Before and after the plans were implemented, radon concentrations were determined by charcoal canisters and continuous radon monitors. A variety of sealing and sub-slab depressurization techniques were applied to the 10 houses. Radon concentrations were reduced by over 95% in all 10 houses. Three-month alpha track radon measurements will continue in the radon reduction demonstration houses for the next 2 years.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

PB87-198362

Review of the Canadian and Swedish Experience for the Control of Indoor Radon
EPA, Research Triangle Park, NC, AEERL
D.C. Sanchez
Jun 87, 19p, EPA-600/D-87-181, PC A02/MF A01

Abstract: The paper reviews Canadian and Swedish experience in controlling indoor radon. Interest in and concern about elevated levels of radon (Rn) and radon daughters (RnD) in the indoor environment have been growing steadily during the last 10 years. During this period the federal governments of Canada and Sweden, in conjunction with provincial authorities, have developed a coordinated response or program for reducing the national health risk of indoor Rn/RnD exposure. The focus of these programs is on characterizing and/or locating the problem areas or dwellings, and providing demonstrated control approaches to deal with the indoor Rn/RnD problem. The investigations by Canada and Sweden have identified numerous control approaches that are effective when they are applied appropriately and carefully. Among these control techniques are the use of subfloor (depressurization) ventilation, crawlspace ventilation, house ventilation, and new construction practices such as monolithic pours with floor/wall joint sealing.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

PB87-198982/REB

Incorporation of Biological Information in Cancer Risk Assessment:

Example- Vinyl Chloride

EPA, Washington, DC, OHEA

C.W. Chen, and J.M. Blancato

Jun 87, 51p, EPA-600/D-87-188, PC A04/MF A01

Abstract: Vinyl chloride (VC) is used as an example to demonstrate how biological information can be incorporated into quantitative risk assessment. The information included is the pharmacokinetics of VC in animals and humans and the data-generated hypothesis that VC primarily affects the initiation stage of the multistage carcinogenesis. The emphasis in the paper is on the improvement of risk assessment methodology rather than the risk assessment of VC per se. Sufficient data are available to construct physiologically-based pharmacokinetic models for both animals and humans. These models are used to calculate the metabolized dose corresponding to exposure scenarios in animals and in humans. On the basis of the data on liver angiosarcomas and carcinomas in rats, the cancer risk per unit of metabolized dose is comparable, irrespective of routes (oral or inhalation) of exposure. The tumor response from an intermittent/partial lifetime exposure is shown to be consistent with that from a lifetime exposure when VC is assumed to affect the first (initiation) stage of the multistage carcinogenic process. Furthermore, the risk estimates calculated on the basis of animal data are shown to be consistent with the human experience.

CL-CARCIN CARCINOGENS
EPA ENVIRONMENTAL PROTECTION AGENCY
RA RISK ASSESSMENT
75-01-4 VINYL CHLORIDE

PB87-199154/REB

Organic Emission Measurements via Small Chamber Testing

EPA, Research Triangle Park, NC, AEERL

B.A. Tichenor

Jun 87, 12p, EPA-600/D-87-187, PC A02/MF A01

Abstract: The paper discusses the measurement of organic emissions from a variety of indoor materials, using small (166 Liter) environmental test chambers. The following materials were tested: adhesives, caulks, pressed wood products, floor waxes, paints, solid insecticides. For each material, chamber concentration of organics has been determined for a range of environmental conditions (e.g., air exchange rate, temperature, and relative humidity). Various product loading ratios (area of sample/volume of chamber) have also been investigated. Emission rates for individual organic compounds, as well as total measured organics, were calculated. The effects of environmental variables on emission rates have been evaluated. Models are used to evaluate the effect of chamber walls and concentration on emission rates.

CL-IAP INDOOR AIR POLLUTANTS
CL-ORGANIC ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
1A INDOOR AIR

PB87-199162/REB

Use of Diagnostic Measurements to Enhance the Selection and Effectiveness of Radon Mitigation for Detached Dwellings
EPA, Research Triangle Park, NC, AEERL
D.D. Sanchez, L.M. Hubbard, and D. Harrje
Jun 87, 10p*, EPA-600/D-87-168, PC A02/MF A01

Abstract: The paper discusses the use of diagnostic measurements to enhance the selection and effectiveness of radon mitigation for detached dwellings. The development of appropriate and cost effective radon mitigation for a specific house is ultimately tied to the degree to which the authors understand the source of the indoor radon problem, how house characteristics affect radon entry rates, and how candidate mitigation systems influence radon entry processes. Diagnostic measurements and procedures allow for qualitative and quantitative assessments of water, materials, and soil as sources of radon and the assessment of soil-gas-borne radon flow potentials related to indoor/outdoor differential pressure driving forces and soil-air permeability. The discussed diagnostics are being developed and tested as part of an intensive State and Federal government study of radon entry and mitigation processes in 14 Piedmont, New Jersey houses.

EPA ENVIRONMENTAL PROTECTION AGENCY
1A INDOOR AIR
SS SOURCE SAMPLING
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

PB87-199626/REB

Potential Emissions of Hazardous Organic Compounds from Sewage Sludge Incineration
EPA, Cincinnati, OH, WERL
Dayton Univ., OH Research Inst.
S.L. Mazer, P.M. Taylor, and B. Dellinger
Jun 87, 146p, EPA-600/2-87-046, PC A07/MF A01

Abstract: Laboratory thermal decomposition studies were undertaken to evaluate potential organic emissions from sewage sludge incinerators. Precisely controlled thermal decomposition experiments were conducted on sludge spiked with mixtures of hazardous organic compounds, on the mixtures of pure compounds in absence of sludge, and on unspiked sludge. These experiments were conducted using laboratory flow-reactor systems interfaced with a gas chromatograph or gas chromatograph-mass spectrometer for product analysis. Issues which were addressed included the effect of the sludge matrix on the thermal decomposition behavior of the hazardous sludge contaminants; potential emissions from incineration of contaminated and uncontaminated sludge; the relative contributions of the biomass and the contaminants to mass emissions in sewage sludge incineration; potential emissions due to volatilization of organics from sludge in the drying zones of multiple hearth incinerators.

CL-HAZMAST HAZARDOUS WASTES
CL-ORGANIC ORGANIC COMPOUNDS
CL-SEWSLUD SEWAGE SLUDGE
CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

P887-199675/REB

Production of Mutagenic Compounds as a Result of Urban Photochemistry
EPA, Research Triangle Park, NC, ASRL
Northrop Services, Inc.
P.B. Shepson, T.E. Kleindienst, and E.O. Edney
Jun 87, 86p, EPA-600/3-87-020, PC A05/MF A01

Abstract: A series of atmospheric simulation experiments was conducted to examine the role of urban photochemical processes on the formation and removal of potentially hazardous air pollutants. The chemicals examined included ubiquitous urban pollutants (e.g., propylene, toluene, and acetaldehyde), a potentially hazardous chlorinated solvent (allyl chloride), and complex mixtures (wood smoke and auto exhaust) from common urban pollutant sources. In all cases, the irradiated products were more mutagenic than the original chemicals.

CL-PCO PHOTO CHEMICAL OXIDANTS
CL-WOOD WOOD SMOKE
DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY
TT TOXICITY TESTING
107-05-1 CHLOROPROPENE, 3-
108-88-3 TOLUENE
115-07-1 PROPYLENE
75-07-0 ACETALDEHYDE
9016-87-9 ISOCYANIC ACID, POLYMETHYLENEPOLYPHENYL

P887-200176/RFR

Health Advisories for 16 Pesticides (Including Alachlor, Aldicarb, Carbofuran, Chlordane, DBCP, 1,2-dichloropropane, 2,4-D, Endrin, Ethylene Dibromide, Heptachlor/Heptachlor epoxide, Lindane, Methoxychlor, Oxamyl, Pentachlorophenol...)
EPA, Washington, DC, ODU
Mar 87, 264p, PC A12/MF A01

Abstract: These documents summarize the health effects of 16 pesticides including: alachlor, aldicarb, carbofuran, chlordane, DBCP, 1,2-dichloropropane, 2,4-D, endrin, ethylene dibromide, heptachlor/heptachlor epoxide, lindane, methoxychlor, oxamyl, pentachlorophenol, toxaphene, and 2,4,5-TP. Topics discussed include: General Information and Properties, Pharmacokinetics, Health Effects in Humans and Animals, Quantification of Toxicological Effects, Other Criteria Guidance and Standards, Analytical Methods, and Treatment Technologies.

CL-PEST PESTICIDES
EPA ENVIRONMENTAL PROTECTION AGENCY
NA HEALTH ASSESSMENT
1024-57-3 HEPTACHLOR EPOXIDE
106-93-4 ETHYLENE DIBROMIDE
116-06-3 ALDICARB
1563-66-2 CARBOFURAN
15972-60-8 ALACHLOR
23135-22-0 OXAMYL
57-74-9 CHLORDANE
58-89-9 LINDANE
72-20-8 ENDRIN
72-43-5 METHOXYCHLOR
76-44-8 HEPTACHLOR
78-87-5 DICHLOROPROPANE, 1,2-
8001-35-2 TOXAPHENE
87-86-5 PENTACHLOROPHENOL
93-72-1 SILVEX
94-75-7 DICHLOROPHENOXYACETIC ACID, 2,4-
96-12-8 DIBROMOCHLOROPROPANE, 1,2,3-

P887-201513/REB

Research Overview: Sources of Indoor Air Pollutants
EPA, Research Triangle Park, NC, AEERL
W.G. Tucker
Jun 87, 14p, EPA-600/D-87-207, PC A02/MF A01

Abstract: The paper briefly traces the history of air quality problems in residential, office, and public access buildings to show the evolution of indoor air quality (IAQ) concerns. It then briefly discusses sources of IAQ problems--both known and suspected--then reviews the current state of knowledge of emissions from these sources. It summarizes recent and current research in federal and private-sector organizations. Combustion sources, material sources (e.g., building materials and consumer products), activity sources (e.g., outdoor air, soil gas, and contaminated groundwater) are used as categories to describe the complex problems being researched. The paper concludes with suggestions to building design, construction, and management professionals regarding potential IAQ problems from sources of greatest potential concern in today's residential office, and public access buildings.

CL-1AP INDOOR AIR POLLUTANTS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

P887-202446/REB

Health Assessment Document for Acetaldehyde.
External Review Draft.
EPA, Research Triangle Park, NC, ECAO
Apr 87, 216p, EPA-600/8-86-015A

Abstract: Acetaldehyde, a chemical intermediate in the synthesis of several organic compounds, is rapidly and completely absorbed and is extensively metabolized to acetate, carbon dioxide, and water in mammalian systems. It readily forms adducts with membranous and intracellular macromolecules; such formation may be associated with its toxicity. Acute inhalation of acetaldehyde resulted in depressed respiratory rate and elevated blood pressure in experimental animals. Acetaldehyde vapors produced systemic effects and growth retardation in the hamster in a chronic study. No LEL or NOEL has been established. The primary acute effect on humans is irritation of eyes, skin, and respiratory tract. A population exposed to environmental sources of acetaldehyde may be adding to a body burden of this compound produced by normal metabolism and by such habits as cigarette smoking and ethanol consumption. No comparison of the relative magnitude of exposure from these various sources is possible with the available data and, so, is not attempted in the document.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
28 CHEMICALS AND ALLIED PRODUCTS
286 INDUSTRIAL ORGANIC CHEMICALS
75-07-0 ACETALDEHYDE

PB87-204137/XAB

Toxicology and Carcinogenesis Studies of Tetrakis (Hydroxymethyl) Phosphonium Sulfate (THPS) (CAS NO> 55566-30-8) and Tetrakis (Hydroxymethyl) Phosphonium Chloride (THPC) (CAS NO. 124-64-1) in F344/N Rats and B6C3F1 Mice
NTP, Research Triangle Park, NC
Feb 87, 277p, NTP-TR-296, PC A13/MF A01

Abstract: Two year toxicology and carcinogenesis studies of tetrakis (hydroxymethyl) phosphonium sulfate (THPS) and tetrakis (hydroxymethyl) phosphonium chloride (THPC) were conducted by administering the test chemical by gavage to F344/N rats and B6C3F1 mice. Toxicology and carcinogenesis studies were conducted by administering 0, 5, or 10 mg/kg THPS or 0, 3.75, or 7.5 mg/kg THPC in deionized water by gavage to groups of 49 or 50 animals of each sex, 5 days per week for 103 or 104 weeks. Groups of 50 B6C3F1 mice were administered 0, 5, or 10 mg/kg THPS (each sex), 0, 7.5, or 15 mg/kg THPC (males), or 0, 15, or 30 mg/kg THPC (females). Under the conditions of these 2-year gavage studies, there was no evidence of carcinogenicity of THPS in either sex of F344/N rats given 3.75 or 7.5 mg/kg, in male B6C3F1 mice given 7.5 or 15 mg/kg, or in female B6C3F1 mice given 15 or 30 mg/kg.

EPA ENVIRONMENTAL PROTECTION AGENCY
TT TOXICITY TESTING
124-64-1 HYDROXYMETHYLPHOSPHONIUMCHLORIDE, TETRA
55566-30-8 HYDROXYMETHYLPHOSPHONIUMSULFATE, TETRA

PB87-206074/REB

Municipal Waste Combustion Study: Report to Congress
EPA, Washington, DC, OSWER
Radian Corp.
S. Greene
Jun 87, 172p, EPA-530/SW-87-021A, PC A08/MF A01

Abstract: The report to Congress is in response to Section 102 of the Hazardous and Solid Waste Amendments (HSWA) of 1984. Section 102 of HSWA requires that the EPA provide a report to Congress describing: (1) the current data and information available on emissions of polychlorinated dibenzo-p-dioxins from resource recovery facilities burning municipal solid waste; (2) any significant risks to human health posed by these emissions; and (3) operating practices appropriate for controlling these emissions. EPA expanded the scope of the report to cover additional pollutants emitted from municipal waste combustors and all available pollution control techniques. The report provides an overview of the entire municipal waste combustion study. The report discusses the numbers and types of existing and projected facilities; estimates of emissions; options for controlling emissions; risks from emissions and potential for control; costs; and sampling, analysis, and monitoring of emissions.

CL-DIOXIN DIOXINS
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
RA RISK ASSESSMENT
SA SOURCE ASSESSMENT
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

PBB7-206082/REB

Municipal Waste Combustion Study: Emission Data Base for Municipal Waste Combustors

EPA, Washington, DC, OSWER
Midwest Research Inst.

P. Schindler

Jun 87, 332p, EPA-530/SW-87-0128, PC A15/MF A01

Abstract: The report describes an emission data base compiled from test reports for Municipal Waste Combustors (MWCs) in the U.S., Canada, Japan, and Europe. These emission data are presented in a format that allows comparison and analysis in order to identify, to the extent of available data, the emission levels of organic compounds (including polychlorinated dibenzo-p-dioxin (PCDD) and polychlorinated dibenzofuran (PCDF)), metals, acid gases, and criteria pollutants that have been achieved from MWC's on a commercial scale. The available operating conditions and control techniques associated with the lowest emission levels for each pollutant of concern are identified.

CL-ACID ACIDIC COMPOUNDS
CL-DIOXIN DIOXINS
CL-FURAN FURANS
CL-METAL METALLIC COMPOUNDS
CL-ORGANIC ORGANIC COMPOUNDS
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

PBB7-206090/REB

Municipal Waste Combustion Study: Combustion Control of Organic Emissions

EPA, Washington, DC, OSWER
Energy and Environmental Research Corp.

J. Kilgroe

Jun 87, 223p, EPA-530/SW-87/021C, PC A10/MF A01

Abstract: The report discusses the combustion practices expected to result in decreased emissions of organic compounds from municipal waste combustion facilities. The objectives of the study were: To determine the current state of combustion control of municipal solid waste combustion technology; To formulate a combustion control strategy based upon "best engineering practice" that will minimize the emission of trace organics from waste-to-energy plants; to define the research which is necessary to develop and verify this combustion control strategy. Although the focus of the study was concerned with the best combustion practices which will minimize the emissions of organics, including polychlorinated dibenzo (p) dioxin and furans (PCDDs/PCDFs), the interrelationship with other pollutants such as particulate matter, metals, NOx, other organics, and carbon monoxide was also considered. The study focused on the design of new units and the operation and monitoring of new and existing units from the viewpoint of the combustor/boiler subsystem. The report discusses current technologies for mass-burn refuse-derived fuel, and starved-air combustors, and the strategies for achieving improved combustion from these technologies.

CL-DIOXIN DIOXINS
CL-FURAN FURANS
CL-METAL METALLIC COMPOUNDS
CL-ORGANIC ORGANIC COMPOUNDS
CL-PH PARTICULATE MATTER
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
10102-44-0 NITROGEN DIOXIDE
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS
630-08-0 CARBON MONOXIDE

P887-206108/REB

Municipal Waste Combustion Study: Flue Gas Cleaning Technology

EPA, Washington, DC, OSWER

T.G. Bina, and C.B. Sedman

Jun 87, 83p, EPA-503/SW-87-021D, PC A05/MF A01

Abstract: The report discusses post-combustion pollution control systems applicable to municipal waste combustion facilities. It describes each generic control system, design and operating considerations, and control effectiveness on selected pollutants. Control systems are discussed for particulate matter control, gaseous controls, and the more advanced multipollutant control systems. The report summarizes the effectiveness of the control systems for particulate matter, selected acid gases, selected organic pollutants, and selected trace heavy metals. Since the data from commercial municipal solid waste incinerators are limited, pilot plant data were also considered in reporting the control effectiveness of some pollutants. The report also addresses the operation and maintenance of flue gas cleaning systems.

CL-ACID ACIDIC COMPOUNDS
CL-METAL METALLIC COMPOUNDS
CL-ORGANIC ORGANIC COMPOUNDS
CL-PM PARTICULATE MATTER
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

P887-206116/REB

Municipal Waste Combustion Study: Costs of Flue Gas Cleaning Technologies

EPA, Washington, DC, OSWER

M. Johnston

Jun 87, 120p, EPA-530/SW-87-021E, PC A06/MF A01

Abstract: The report is an assessment of emission control costs for municipal waste combustors (MWCs). The details of the cost estimates, including their development, components, and cost premises, are addressed. A model plant approach was used in the sizing and costing of the emission control systems. Due to differences in the feed waste characteristics, combustion parameters, and emissions, separate cost estimates were required for mass burning (MB), modular (MOD), refuse-derived fuel (RDF), and fluid bed combustion (FBC) type furnaces.

Cost estimates were developed for control of particulate matter (PM) emissions only and for control of both acid gas and PM emissions from the MWC model plants. Controlled PM emission levels of 0.03, 0.02, and 0.01 gr/dscf, corrected to 12 percent CO₂, and 90 and 70 percent reductions of HCl and SO₂, respectively, were used to develop the control cost estimates. Costs were developed using the cost information received from a number of air pollution control equipment manufacturers.

CL-ACID ACIDIC COMPOUNDS
CL-PM PARTICULATE MATTER
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
124-38-9 CARBON DIOXIDE
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS
7446-09-5 SULFUR DIOXIDE
7647-01-0 HYDROGEN CHLORIDE

P887-206124/REB

Municipal Waste Combustion Study: Sampling and Analysis of Municipal Waste Combustors
EPA, Washington, DC, OSWER
Little (Arthur D.), Inc.
Jun 87, 130p, EPA-530/SW-87-021F, PC A07/MF A01

Abstract: The purpose of the document is to provide guidance on sampling and analysis methods to assist federal, state, and local environmental authorities in reviewing plans for operations and testing of MSW combustors. The sampling and analysis procedures outlined here are intended to represent state-of-the-art methods that may be useful in determining the regulatory compliance status of MSW incineration facilities and in assessing their environmental impacts. These same methods may be useful in research and development programs related to MSW combustion technology, standard setting, etc.

EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

P887-206132/REB

Municipal Waste Combustion Study: Assessment of Health Risks Associated with Municipal Waste Combustion Emissions
EPA, Washington, DC, OSWER
Radian Corp.
D.H. Cleverly
Sep 87, 232p, EPA-530/SW-87-021G, PC A11/MF A01

Abstract: The report is an analysis of potential human health risks and environmental effects associated with pollutants emitted to the air from both existing as well as planned municipal waste combustors in the U.S. Quantitative cancer risk assessment was restricted to direct inhalation of organic and metal emissions. Limited analysis of indirect exposure pathways, e.g., ingestion and dermal absorption, was performed to qualitatively determine the importance of this exposure relative to direct inhalation. Potential welfare effects were also evaluated. This effort was in support of a regulatory determination of municipal waste combustor emissions under the Clean Air Act. Pollutants considered in the analysis included: polychlorinated dioxins and dibenzofurans, chlorophenols, chlorobenzenes, formaldehyde, polychlorinated biphenyls, polycyclic aromatic hydrocarbons, arsenic, beryllium, cadmium, hexavalent chromium, lead, mercury, and hydrogen chloride.

CL-DIOXIN DIOXINS
CL-METAL METALLIC COMPOUNDS
CL-ORGANIC ORGANIC COMPOUNDS
CL-PAN POLYCYCLIC AROMATIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
RA RISK ASSESSMENT
RDG REGULATORY DEVELOPMENT GUIDANCE
106-48-9 CHLOROPHENOL, P-
108-43-0 CHLOROPHENOL, M-
132-64-9 DIBENZOFURAN
1336-36-3 POLYCHLORINATED BIPHENYLS
18540-29-9 CHROMIUM (VI) COMPOUNDS
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS
50-00-0 FORMALDEHYDE
7439-92-1 LEAD POWDER
7439-97-6 MERCURY
7440-38-2 ARSENIC AND COMPOUNDS AS AS
7440-41-7 BERYLLIUM
7440-43-9 CADMIUM
7647-01-0 HYDROGEN CHLORIDE
95-57-8 CHLOROPHENOL, O-

PB87-206140/REB

Municipal Waste Combustion Study: Characterization of the Municipal Waste Combustion Industry
EPA, Washington, DC, OSWER
Radian Corp.

R. Morrison

Jun 87, 97p, EPA-530/SW-87-021H, PC A05/MF A01

Abstract: The report assesses future trends in MMC use by investigating current and projected levels of municipal waste generation. In projecting the need for new MMC facilities, attempts were made to define the probable configurations (including emission controls) and locations of future sources. The time frame for the characterization of trends in the MMC industry is generally the present through 1995, with limited data being available for the period to 2000. Included in the analysis of potential MMC growth are: an assessment of the existing and predicted quantities of municipal waste generated nationally; an assessment of the impact of land disposal programs on MMC demand; an assessment of factors such as pending air emission or solid waste regulations affecting resource recovery of municipal wastes; a description of the existing MMC industry and its effect on future growth.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

PB87-206157/REB

Municipal Waste Combustion Study: Recycling of Solid Waste
EPA, Washington, DC, OSWER
Radian Corp.

D. Cleverly

Jun 87, 65p, EPA-530/SW-87-021I, PC A04/MF A01

Abstract: In the report, background information on recycling, its status in the United States and abroad, and its technical feasibility are examined. Also, because recycling is expected to be an integral part of a solid waste management plan that includes combustion, potential effects on combustion of removing materials from the waste are considered. The report is designed to convey a sense of the current status of recycling and its technical feasibility, rather than to embody comprehensive authoritative reference material. Subjects addressed in the report include the current extent of recycling in the United States and in several other countries; feasibility of recycling; methods for separation of materials; information on uses and markets for recovered materials; and questions concerning the effects of recycling activities on combustion processes.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

PB87-206835/XAB

Toxicology and Carcinogenesis Studies of Chlorendic Acid (CAS NO. 115-28-6) in F344/N Rats and B6C3F1 Mice (Feed Studies)
NTP, Research Triangle Park, NC
Apr 87, 214p, NTP-TR-304, PC A10/MF A01

Abstract: Two-year toxicology and carcinogenesis studies of chlorendic acid were conducted by administering the chemical in feed to groups of 50 of each sex of F344/N rats and B6C3F1 mice at concentrations of 0, 620, or 1,250 ppm. Under the conditions of these studies, there was clear evidence of carcinogenicity of chlorendic acid for male F344/N rats as shown by increased incidences of neoplastic nodules of the liver and acinar cell adenomas of the pancreas. Increased incidences of alveolar/bronchiolar adenomas and preputial gland carcinomas may have been related to the administration of chlorendic acid. There was clear evidence of carcinogenicity of chlorendic acid for female F344/N rats, shown by increased incidences of neoplastic nodules and of carcinomas of the liver. There was clear evidence of carcinogenicity of chlorendic acid for male B6C3F1 mice, shown by increased incidences of hepatocellular adenomas and of hepatocellular carcinomas. There was no evidence of carcinogenicity of chlorendic acid for female B6C3F1 mice.

EPA ENVIRONMENTAL PROTECTION AGENCY
TT TOXICITY TESTING
115-28-6 CHLORENDIC ACID

PB87-207437/REB

Final Rule for Radon-222 Emissions from Licensed Uranium Mill Tailings - Economic Analysis
EPA, Washington, DC, ORP
Aug 86, 239p, EPA-520/1-86-010, PC A11/MF A01

Abstract: The report presents the findings of an economic analysis of alternative proposed work practices for controlling radon-222 emissions during the operation of licensed uranium mills. It gives descriptions of proposed alternative work practices for controlling radon-222 emissions from tailings impoundments and estimates of the benefits and costs of these alternative work practices. It also discusses the probable economic impact of the proposed rules and consideration of the financial impacts of the proposed rule on the owners of existing and future mills, and the consumers of nuclear generated electricity.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
MESMAP NAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
MSPS NEW SOURCE PERFORMANCE STANDARD
10043-92-2 RADON
28 CHEMICALS AND ALLIED PRODUCTS
281 INDUSTRIAL INORGANIC CHEMICALS
2819 INDUSTRIAL INORGANIC CHEMICALS, NEC

P887-207569/REB

Final Rule for Radon-222 Emissions from Licensed Uranium Mill Tailings. Background Information Document
EPA, Washington, DC, ORP

Aug 86, 226p, EPA-520/1-86-009, PC A11/MF A01

Abstract: The background information report summarizes the health effects of radon - 222 and the risk assessment procedure. It describes the source of radon - 222 emissions. Estimates of radon - radon - 222 emissions from the existing tailings impoundments are presented. The baseline industry risk assessment for individuals, regional and national populations and the control techniques and work practices that can be used to reduce radon - 222 emissions are described. The resulting emissions after application of these control methods are estimated and a comparison of work practices, costs, and effectiveness is presented.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
HA HEALTH ASSESSMENT
WESHAP NAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
RA RISK ASSESSMENT
SA SOURCE ASSESSMENT
10 METAL MINING
10043-92-2 RADON
109 MISCELLANEOUS METAL ORES
1094 URANIUM-RADIUM-VANADIUM ORES
7440-61-1 URANIUM

P887-208757/REB

Carcinogenicity Assessment of Chlordane and Heptachlor/Heptachlor Epoxide
EPA, Washington, DC, CAG
F.L. Cavender, et al.
Dec 86, 208p, EPA-600/6-87-004, PC A10/MF A01

Abstract: Evidence pertaining to the carcinogenicity of chlordane and heptachlor/heptachlor epoxide reviewed and evaluated. The report covers studies completed before 1985. Case reports and epidemiologic studies of pesticide applicators and pesticide manufacturing workers are reviewed, but because of methodologic limitations, these studies establish neither a positive nor a negative association between cancer and chlordane or heptachlor/heptachlor epoxide exposure. A number of independent studies of laboratory animals, however, demonstrates that chlordane and heptachlor/heptachlor epoxide cause liver cancer in mice and rats. Based on the accumulated evidence, chlordane and heptachlor/heptachlor epoxide are classified as probable human carcinogens, Group B2 using EPA's Guidelines for Carcinogen Risk Assessment. The carcinogenic potency of chlordane and heptachlor/heptachlor epoxide is estimated by fitting mathematical models to the laboratory animal data. These estimates indicate that chlordane and heptachlor/heptachlor epoxide are rather potent carcinogens, ranking in the second quartile of potential carcinogens evaluated by EPA's Carcinogen Assessment Group. A separate mutagenicity assessment of chlordane and heptachlor/heptachlor epoxide is attached as an appendix to the report.

EPA ENVIRONMENTAL PROTECTION AGENCY
ES EPIDEMIOLOGY STUDY
HA HEALTH ASSESSMENT
RA RISK ASSESSMENT
TT TOXICITY TESTING
1024-57-3 HEPTACHLOR EPOXIDE
28 CHEMICALS AND ALLIED PRODUCTS
287 AGRICULTURAL CHEMICALS
2879 AGRICULTURAL CHEMICALS, NEC
57-74-9 CHLORDANE
76-44-8 HEPTACHLOR

P887-208807/REB

AESF/EPA (American Electroplaters and Surface Finishers/Environmental Protection Agency) Conference on Pollution Control for the Metal Finishing Industry
EPA, Cincinnati, OH, VERL
American Electroplaters and Surface Finishers Society
J.H. Schumacher, and R.C. Wilmoth
Jul 87, 311p, EPA-600/9-87-012, PC A14/MF A01

Abstract: The 8th Annual AESF/EPA Conference and Exhibit on Pollution Control for the Metal Finishing Industry was held in San Diego, California, February 9, 10, and 11, 1987. The primary objective of the 8th Conference was to continue the dialogue established by the first AESF/EPA Conference in 1978 between key members of the Agency and the metal finishing industry. The program featured key EPA representatives who explained and discussed regulatory guidelines in detail; in addition, leading industrial experts discussed industry's efforts to effectively address the ramifications of the EPA regulations.

CL-METAL METALLIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
RDG REGULATORY DEVELOPMENT GUIDANCE
SA SOURCE ASSESSMENT
34 FABRICATED METAL PRODUCTS
347 METAL SERVICES, NEC
3471 PLATING AND POLISHING

P887-209540/REB

Locating and Estimating Air Emissions from Sources of Polychlorinated Biphenyls (PCB)
EPA, Research Triangle Park, NC, OAQPS
May 87, 80p, EPA-450/4-84-007N, PC A05/MF A01

Abstract: To assist groups interested in inventorying air emissions of various potentially toxic substances, EPA is preparing a series of documents such as this to compile available information on sources and emissions of these substances. The document deals specifically with polychlorinated biphenyls. Its intended audience includes Federal, State, and local air pollution personnel and others interested in locating potential emitters of polychlorinated biphenyls and in making gross estimates of air emissions therefrom. The document presents information on (1) the types of sources that may emit polychlorinated biphenyls, (2) process variations and release points that may be expected within these sources, and (3) available emissions information indicating the potential for polychlorinated biphenyls release into the air from each operation.

EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
1336-36-3 POLYCHLORINATED BIPHENYLS

P887-210712/REB

EPA (Environmental Protection Agency) Indoor Air Quality Implementation Plan
EPA, Washington, DC, OHEA
Jun 87, 623p, PC E99

Abstract: in 5v
No abstract available.

CL-IAP INDOOR AIR POLLUTANTS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

P887-210720/REB

EPA (Environmental Protection Agency) Indoor Air Quality Implementation Plan. A Report to Congress under Title IV of the Superfund Amendments and Reauthorization Act of 1986: Radon Gas and Indoor Air Quality Research
EPA, Washington, DC, OHEA
Jun 87, 33p, EPA-600/8-87-031, PC A03/MF A01

Abstract: The "EPA Indoor Air Quality Implementation Plan" provides information on the direction of EPA's indoor air program, including the Agency's policy on indoor air and priorities for research and information dissemination over the next two years. EPA submitted the report to Congress on July 2, 1987 as required by the Superfund Amendments and Reauthorization Act of 1986. There are five appendices to the report: Appendix A--Preliminary Indoor Air Pollution Information Assessment; Appendix B--FY 87 Indoor Air Research Program; Appendix C--EPA Radon Program; Appendix D--Indoor Air Resource History (Published with Appendix C); Appendix E--Indoor Air Reference Data Base.

CL-IAP INDOOR AIR POLLUTANTS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON

PB87-210738/REB

EPA (Environmental Protection Agency) Indoor Air Quality Implementation Plan. Appendix A. Preliminary Indoor Air Pollution Information Assessment

EPA, Washington, DC, OHEA

Jun 87, 320p, EPA-600/8-87-014, PC A14/MF A01

Abstract: The "Preliminary Indoor Air Pollution Information Assessment" summarizes and assesses information from the published scientific literature regarding sources of indoor pollutants, monitoring methodology and instrumentation, exposure, health effects and mitigation strategies. Information is pollutant specific, and where possible, source specific. Gaps in scientific information are identified to form the basis of a research needs statement addressing specific research initiatives needed to fill these gaps.

CL-IAP INDOOR AIR POLLUTANTS
CT CONTROL TECHNOLOGY DOCUMENT
EA EXPOSURE ASSESSMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
IA INDOOR AIR
SS SOURCE SAMPLING

PB87-210746/REB

EPA (Environmental Protection Agency) Indoor Air Quality Implementation Plan. Appendix B. FY 87 Indoor Air Research Program

EPA, Washington, DC, OHEA

Jun 87, 65p, EPA-600/8-87-032, PC A04/MF A01

Abstract: The "FY 87 Indoor Air Research Program" summarizes the research projects undertaken in FY 87. The projects are categorized under Problem Characterization, Mitigation Assessment and Actions, and Information Dissemination.

CL-IAP INDOOR AIR POLLUTANTS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

PB87-210753/REB

EPA (Environmental Protection Agency) Indoor Air Quality Implementation Plan. Appendix C. EPA Radon Program. Appendix D. Indoor Air Resource History

EPA, Washington, DC, OHEA

Jun 87, 20p, EPA-600/8-87-033, PC A02/MF A01

Abstract: The "EPA Radon Program" briefly describes the goals, strategy and implementation plan adopted by the Agency for dealing specifically with radon as an indoor air pollutant. This discussion is excerpted from a more comprehensive report, "EPA Interim Report to Congress on Indoor Air Pollution and Radon." The "Indoor Air Resource History" is a one page summary of EPA resources (funds and personnel) expended on the indoor air program. The summary begins with FY 84 and extends to FY 88 where projected figures are given.

CL-IAP INDOOR AIR POLLUTANTS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON

PB87-210761/REB

EPA (Environmental Protection Agency) Indoor Air Quality Implementation Plan. Appendix E. Indoor Air Reference Data Base

EPA, Washington, DC, OHEA

Jun 87, 185p, EPA-600/8-87-016, PC A09/MF A01

Abstract: The "Indoor Air Reference Data Base" is a complete and up-to-date bibliography of reference materials on indoor air pollution. Prior to the document there was no comprehensive bibliography of reference materials on indoor air pollution. The Environmental Criteria and Assessment Office conducted a thorough search of the literature and combined several existing reference data bases to establish the Indoor Air Reference Data Base. This source consists of a single data base of over 2,200 references for use by personnel within EPA, other Federal agencies, State agencies, and private individuals upon request.

CL-IAP INDOOR AIR POLLUTANTS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

PB87-212882/REB

Development of an Indoor Air Pollution Source Emissions Database
EPA, Research Triangle Park, NC, AEERL
North Carolina Univ. at Chapel Hill. School of Public Health
P.C. Reist, J.C. Reeves, and J.B. White
Jul 87, 9p, EPA-600/D-87-221, PC A02/MF A01

Abstract: The paper discusses the design, structure, and theory of a microcomputer-based relational database which has been created to archive and retrieve published information concerning sources of indoor air pollutants. The database is designed to be used by researchers, architects, policy makers, and others as a research aid to provide indoor air pollution source data for estimating emissions or predicting health effects.

CL-IAP INDOOR AIR POLLUTANTS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

PB87-215331/REB

Characterization of Indoor Sources of Air Contaminants: Report on a Technical Conference
EPA, Research Triangle Park, NC, AEERL
John B. Pierce Foundation Lab
B.P. Leaderer
Jul 87, 67p, EPA-600/9-87-014, PC A04/MF A01

Abstract: The report describes a technical conference, "Characterization of Contaminant Emissions from Indoor Sources," held in Chapel Hill, NC, May 13-15, 1985, to assess the status of methodological issues in the laboratory and field evaluation of air contaminants from indoor sources. A total of 29 invited papers were presented in five technical sessions during the 3-day conference. A sixth session was a panel discussion summarizing the conference findings, led by the conference chairman and the five session chairmen. The papers presented at the conference and the session summaries, written by the session chairmen, have been published in Atmospheric Environment, Vol. 21, No. 2, February 1987. The report contains a description of the purpose of the conference, a conference program, abstracts of the papers presented, a list of attendees, and a conference review.

CL-ETS ENVIRONMENTAL TOBACCO SMOKE
CL-IAP INDOOR AIR POLLUTANTS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON
50-00-0 FORMALDEHYDE

PB87-215356/REB

Development and Demonstration of Indoor Radon Reduction Measures for 10 Homes in Clinton, New Jersey
EPA, Research Triangle Park, NC, AEERL
Research Triangle Inst.
L.D. Michaels, et al.
Jul 87, 176p, EPA-600/8-87-027, PC A09/MF A01

Abstract: The report discusses the development and demonstration of indoor radon reduction methods for 10 houses in Clinton, New Jersey, where (in the spring of 1986) the New Jersey Department of Environmental Protection (DEP) located a cluster of houses with extremely high radon levels. The work was to be completed before the 1986-87 winter heating season began. The demonstration houses were selected from 56 in the Clinton Knolls subdivision. All of these houses had shown radon concentrations in excess of 64 pCi/l when monitored in the spring of 1986. Each house was inspected, and 10 representative houses were selected for the radon reduction demonstration project. Following intensive diagnostic work and monitoring in each house, house-specific radon reduction plans were developed. With the agreement of the homeowners, radon reduction systems were installed during the summer of 1986. All 10 of the houses had radon concentrations reduced significantly by the fall of 1986. The average cost of radon reduction was \$3,127.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

PB87-215877/REB

EERF (Eastern Environmental Radiation Facility) Standard Operating Procedures for Radon-222 Measurement Using Charcoal Canisters
EPA, Montgomery, AL, ORP/EERF
D.J. Gray, and S.T. Windham
Jun 87, 36p, EPA-520/1-87-005, PC A03/MF A01

Abstract: The report describes in detail EPA's Office of Radiation Programs Eastern Environmental Radiation Facility's standard operating procedures for radon-222 measurement using charcoal canisters. It lists the materials and equipment that are used and explains their laboratory and survey methods.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING
10043-92-2 RADON

PB87-216438/REB

Summary Review of the Health Effects Associated with Propylene

Oxide: Health Issue Assessment

EPA, Research Triangle Park, NC, ECAO

Jun 87, 40p, EPA-600/8-86-007f, PC A03/MF A01

Abstract: The report provides a brief summary of the data available on the health effects of exposure to propylene oxide. Emphasis is placed on determining whether there is evidence to suggest that propylene oxide exerts effects on human health under conditions and at concentrations commonly experienced by the general public. Both acute and chronic effects are addressed, including general toxicity, teratogenicity, mutagenicity, and carcinogenicity. To place the health effects discussion in perspective, the report also summarizes air quality aspects of propylene oxide in the United States, including sources, distribution, fate, and concentrations associated with certain point sources.

EA EXPOSURE ASSESSMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
75-56-9 PROPYLENE OXIDE

PB87-221032/REB

Evaluation of Air Pollution Regulatory Strategies for Gasoline

Marketing Industry - Response to Public Comments

EPA, Research Triangle Park, NC, OAQPS

Jul 87, 329p, EPA-450/3-84-012C, PC A15/MF A01

Abstract: The gasoline marketing industry (bulk terminals, bulk plants, service station storage tanks, and service station vehicle refueling operations) emit to the atmosphere several organic compounds of concern. These include: volatile organic compounds (VOC), which contribute to ozone formation; benzene, which has been listed as a hazardous air pollutant based on human evidence of carcinogenicity; and gasoline vapors, for which there is animal evidence of carcinogenicity. This document provides a summary of EPA in 1984 (EPA-450/3-84-012a and b). Changes made to EPA's 1984 analysis in response to public comments, additional analyses performed, and a summary of the results are contained in a separate two-volume draft Regulatory Impact Analysis document (EPA-450/3-87-001a and b).

CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
RDG REGULATORY DEVELOPMENT GUIDANCE
10028-15-0 OZONE
51 WHOLESALE TRADE-NONDURABLE GOODS
517 PETROLEUM AND PETROLEUM PRODUCTS
5171 PETROLEUM BULK STATIONS & TERMINALS
55 AUTOMOTIVE DEALERS & SERVICE STATIONS
554 GASOLINE SERVICE STATIONS
5541 GASOLINE SERVICE STATIONS
71-43-2 BENZENE
8006-61-9 GASOLINE

PB87-224358/REB

Environmental Source Book on the Photovoltaics Industry
EPA, Research Triangle Park, NC, AEERL
Rookhaven National Lab
P.D. Moskowitz, et al.
Jul 87, 97p, EPA-600/8-87-035, PC A05/MF A01

Abstract: The report gives background information on the photovoltaics industry to help the U.S. EPA evaluate pre-manufacture notice (PMN) and significant new use regulation (SNUR) submissions from the industry. It also gives information for photovoltaics industry on the Toxic Substances Control Act (TSCA) compliance requirements. This industry uses a large diversity of toxic and hazardous chemicals. Attention is currently focused on such gases as silane, phosphine, arsine, diborane, and hydrogen selenide which may be used in large quantities and for which there is limited industrial experience. Most materials used by the industry are already listed in the TSCA Inventory List. Unlisted compounds are used as feedstocks or are the actual products themselves. Manufacturers using or producing unlisted materials must apply to the EPA for a PMN. Some materials (especially those defined to be acutely toxic) contained in the Inventory List may be used in larger quantity or in applications which differ from current industrial use; these are potential candidates for SNUR.

EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
19287-45-7 DIBORANE
36 ELECTRIC AND ELECTRONIC EQUIPMENT
367 ELECTRONIC COMPONENTS AND ACCESSORIES
3674 SEMICONDUCTORS AND RELATED DEVICES
51 WHOLESALE TRADE-NONDURABLE GOODS
519 MIS(NONDURABLE GOODS
5191 FARM SUPPLIES
7783-07-5 HYDROGEN SELENIDE
7784-42-1 ARSINE
7803-51-2 PHOSPHINE
7803-62-5 SILANE

PB87-227047/REB

Prevention Reference Manual: Chemical Specific. Volume 1. Control of Accidental Releases of Hydrogen Fluoride (SCAQMD) (South Coast Air Quality Management District).
EPA, Research Triangle Park, NC, AEERL
Radian Corp.
D.S. Davis, G.B. DeVolf, and J.D. Quass
Jul 87, 125p, EPA-600/8-87-034A, PC A06/MF A01

Abstract: The manual summarizes technical information that will assist in identifying and controlling hydrogen fluoride release hazards specific to the South Coast Air Quality Management District (SCAQMD) of southern California. The SCAQMD has considered a strategy for reducing the risk of a major accidental air release of toxic chemicals. The strategy includes monitoring the storage, handling, and use of certain chemicals and provides guidance to industry and communities. Anhydrous hydrogen fluoride, a corrosive liquid that boils at room temperature, rapidly absorbs moisture to form highly corrosive hydrofluoric acid. Hydrogen fluoride gas has an IDLH (immediately dangerous to life and health) concentration of 20 ppm, which makes it a substantial acute toxic hazard. Reducing the risk associated with an accidental release of hydrogen fluoride involves identifying some of the potential causes of accidental releases that apply to the processes that use hydrogen fluoride in the SCAQMD. The manual identifies examples of potential causes as well as measures that may be taken to reduce the accidental release risk.

EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
7664-39-3 HYDROGEN FLUORIDE

PB87-227054/REB

Prevention Reference Manual: Chemical Specific. Volume 2. Control of Accidental Releases of Chlorine (SCAQMD) (South Coast Air Quality Management District)
EPA, Research Triangle Park, NC, AEERL
Radian Corp.
D.S. Davis, ET AL.

Jul 87, 131p, EPA-600/8-87-0348, PC A07/MF A01

Abstract: The manual discusses reducing the risk associated with an accidental release of chlorine. It identifies some of the potential causes of accidental releases that apply to the processes that use chlorine. It also identifies examples of potential causes, as well as measures that may be taken to reduce the accidental release risk. Such measures include recommendations on: Plant design practices; prevention, protection, and mitigation technologies; and operation and maintenance practices. It provides conceptual cost estimates of possible prevention, protection, and mitigation measures. Chlorine is a highly reactive and corrosive liquid that boils at room temperature. It has an IDLH (immediately dangerous to life and health) concentration of 25 ppm, which makes it a substantial acute toxic hazard. Accidental releases of toxic chemicals at Bhopal and Chernobyl have increased public awareness of toxic release problems. As a result of other, perhaps less dramatic incidents in the past, portions of the chemical industry were aware of this problem long before these events. These same portions of the industry have made advances in the area.

EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
28 CHEMICALS AND ALLIED PRODUCTS
7782-50-5 CHLORINE

PB87-227062/REB

Prevention Reference Manual: Chemical Specific. Volume 3. Control of Accidental Releases of Hydrogen Cyanide (SCAQMD) (South Coast Air Quality Management District)
EPA, Research Triangle Park, NC, AEERL
Radian Corp.

D.S. Davis, G.B. DeWolf, and J.D. Quass
Jul 87, 89p, EPA-600/8-87-034C, PC A05/MF A01

Abstract: The report discusses a strategy (being considered by the South Coast Air Quality Management District--SCAQMD--of Southern California) for reducing the risk of a major accidental air release of toxic chemicals. The strategy, intended to guide both industry and communities, consists of monitoring activities associated with the storage, handling, and use of certain chemicals. The hydrogen cyanide (HCN) manual summarizes technical information that will aid in identifying and controlling release hazards (specific to the SCAQMD) associated with HCN. Because HCN has an IDLH (immediately dangerous to life and health) concentration of 50 ppm, it is an acute toxic hazard. The manual identifies the potential causes of accidental releases that apply to processes using cyanides in the SCAQMD and also describes measures that may be taken to reduce the accidental release risk. Such measures include recommendations on plant design practices; prevention, protection, and mitigation technologies; and operation and maintenance practices. Conceptual cost estimates of examples of these measures are provided.

EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
34 FABRICATED METAL PRODUCTS
347 METAL SERVICES, NEC
3471 PLATING AND POLISHING
74-90-8 HYDROGEN CYANIDE

P887-228508/REB

Total Mass Emissions from a Hazardous Waste Incinerator
EPA, Cincinnati, OH, HWERL
Midwest Research Inst.
A. Trenholm, ET AL.
Aug 87, 233p, EPA-600/2-87-064, PC A11/MF A01

Abstract: Past studies of hazardous waste incinerators by the Hazardous Waste Engineering Research Laboratory have primarily examined the performance of combustion systems relative to the destruction and removal efficiency (DRE) for Resource Conservation and Recovery Act (RCRA) Appendix VIII compounds in the waste feed. These earlier studies demonstrated that in general most facilities performed quite well relative to the DRE. However, subsequent review by the Environmental Protection Agency's (EPA) Science Advisory Board raised questions about additional Appendix VIII or non-Appendix VIII constituents that were not identified in the earlier tests and might be emitted from hazardous waste combustion. The report presents results of a characterization of incinerator effluents to the extent that the emitted compounds can be identified and quantified. Measurements were made of both Appendix VIII and non-Appendix VIII compounds in all effluents (stack, ash, water, etc.) from a full scale incinerator.

CL-HAZWAST HAZARDOUS WASTES
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

P887-228557/REB

Technical Analysis of New Methods and Data Regarding Dichloromethane
Hazard Assessments
EPA, Washington, DC, OHEA
S. Bayard, et al.
Jun 87, 171p, EPA-600/8-87-029A, PC A08/MF A01

Abstract: New information on cytotoxicity, genotoxicity, and epidemiology has raised some questions about the federal regulatory agencies' cancer risk assessments for dichloromethane (DCM, methylene chloride). In addition, physiologically based pharmacokinetic models have been developed, showing that tissue-level delivery of metabolically activated DCM may be disproportionately reduced at low exposure levels. These studies suggest to some that the clear carcinogenic response seen in mice under chronic high exposures does not imply substantive human risk at low doses. The Health/Risk Assessment Committee (HRAC), comprising representatives of four federal regulatory agencies, was convened to conduct joint analyses of these new data. The document reports on the HRAC's consideration of the data and the questions they raise about human cancer risk from DCM. It serves as a source of up-to-date analyses that may be drawn upon by each agency as it considers modifying its cancer risk assessment. The HRAC finds that, despite new data, the mechanism of carcinogenic action of DCM remains problematical; there is no basis at present to conclude that carcinogenic response is unique to mice or confined to high exposure levels.

EPA ENVIRONMENTAL PROTECTION AGENCY
ES EPIDEMIOLOGY STUDY
HA HEALTH ASSESSMENT
RA RISK ASSESSMENT
75-09-2 METHYLENE CHLORIDE

P887-228565/REB

Update to the Health Assessment Document and Addendum to Dichloromethane (Methylene Chloride): Pharmacokinetics, Mechanism of Action, and Epidemiology
EPA, Washington, DC, OHEA
J.M. Bła and maintenance of physical components, and by duplicating components where warranted. The probability of equipment failure (causing a release) can be reduced by considering various aspects of physical plant design. Finally, protection system technologies (e.g., flares, scrubbers, and enclosures) offer a last line of defense against accidental toxic chemical releases.

CL-INORGANIC INORGANIC COMPOUNDS
CL-ORGANIC ORGANIC COMPOUNDS
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
28 CHEMICALS AND ALLIED PRODUCTS

PB87-228664/REB

Prevention Reference Manual: Chemical Specific. Volume 9.

Control of Accidental Releases of Chlorine.

EPA, Research Triangle Park, NC, AEERL

Radian Corp.

D.S. Davis, ET AL.

Aud 87, 174p, EPA-600/8-87-0341, PC A08/MF A01

Abstract: The manual discusses reducing the risk associated with an accidental release of chlorine. It identifies examples of potential causes of accidental releases that apply to processes that use chlorine, as well as measures that may be taken to reduce the accidental release risk. Such measures include recommendations on plant design practices; prevention, protection, and mitigation technologies; and operation and maintenance practices. It provides conceptual cost estimates of possible prevention, protection, and mitigation measures. Chlorine has an IDLH (immediately dangerous to life and health) concentration, making it a substantial acute toxic hazard.

EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
28 CHEMICALS AND ALLIED PRODUCTS
7782-50-5 CHLORINE

PB87-231254/REB

Prevention Reference Manual: Chemical Specific. Volume 4.

Control of Accidental Releases of Ammonia (SCAQMD) (South Coast

Air Quality Management District).

EPA, Research Triangle Park, NC, AEERL

Radian Corp.

D.S. Davis, ET AL.

Aud 87, 128p, EPA-600/8-87-034D, PC A07/MF A01

Abstract: The manual summarizes technical information that will assist in identifying and (therefore) controlling ammonia-associated release hazards specific to the South Coast Air Quality Management District (SCAQMD), which has considered strategies for reducing the risk of a major accidental air release to toxic chemicals. The strategy includes monitoring the storage, handling, and use of certain chemicals and providing guidance to industry and communities. Ammonia gas has an immediately dangerous to life and health (IDLH) concentration of 500 ppm, which makes it an acute toxic hazard. To reduce the risk associated with an accidental release of ammonia, some of the potential causes of accidental releases that apply to processes using ammonia in the SCAQMD must be identified. Examples of such potential causes are identified, as are measures that may be taken to reduce the accidental risk. These measures include recommendations on: plant design practices; prevention, protection, and mitigation technologies; and operation and maintenance practices. Conceptual costs of possible prevention, protection, and mitigation measures are estimated.

EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
7664-41-7 AMMONIA

PB87-231262/REB

Prevention Reference Manual: Chemical Specific. Volume II.
Control of Accidental Releases of Ammonia.
EPA, Research Triangle Park, NC, AEERL
Radian Corp.

D.S. Davis, ET AL.
Aug 87, 160p, EPA-600/8-87-034K, PC A08/MF A01

Abstract: The report discusses the control of accidental releases of ammonia to the atmosphere. Ammonia has an IDLH (immediately dangerous to life and health) concentration of 500 ppm, making it an acute toxic hazard. Reducing the risk associated with an accidental release of ammonia involves identifying some of the potential causes of accidental releases that apply to process facilities that use ammonia. This manual identifies examples of potential causes and measures that may be taken to reduce the accidental release risk. Such measures include recommendations on: plant design practices; prevention, protection, mitigation technologies; and operation and maintenance practices. Conceptual cost estimates of example prevention, protection, and mitigation measures are provided. The accidental release of a toxic chemical at Bhopal, India, in 1984 was a milestone in creating increased public awareness of toxic release problems. As a result of other, perhaps less dramatic incidents in the past, portions of the chemical industry were aware of the problem long before Bhopal.

EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
7664-41-7 AMMONIA

PB87-232112/REB

Prevention Reference Manual: User's Guide Overview for Controlling Accidental Releases of Air Toxics
EPA, Research Triangle Park, NC, AEERL
Radian Corp.

D.S. Davis, G.B. DeWolf, and J.D. Quass
Jul 87, 173p, EPA-600/8-87-028, PC A08/MF A01

Abstract: The User's Guide, the first in a series of manuals, presents an overview of available methods for identifying, evaluating, and controlling hazards in facilities that use, manufacture, or store acutely toxic chemicals that could be released into the environment. Hazardous chemicals and their key characteristics are discussed, followed by a discussion of the potential hazards in process and physical plant design and in operational procedures. Formal methods of hazard identification and evaluation are discussed, their major features are compared, and an overview of control principles for prevention, protection, and mitigation is presented. Examples of control technologies are listed, and an example guide for inspecting facilities is presented. Important references on the topic of accidental toxic chemical release prevention are cited.

CL-VARIOUS VARIOUS
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
28 CHEMICALS AND ALLIED PRODUCTS

PB87-232260/REB

Technical Support to the South Coast Air Quality Management District
Toxic Chemical Accidental Air Releases
EPA, Research Triangle Park, NC, AEERL
Radian Corp.

D.S. Davis, and G.B. DeWolf
Aug 87, 169p, EPA-600/8-87-040, PC A08/MF A01

Abstract: The South Coast Air Quality Management District requested technical support toward developing a regulatory approach for controlling potential accidental air releases of toxic chemicals. The report provides some of the technical input and describes other support efforts. These efforts included preparation of the technical contents of an example draft rule applicable to facilities using or storing seven specific toxic chemicals and technical reference manuals concerning hazards and their control in such facilities.

EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
RDG REGULATORY DEVELOPMENT GUIDANCE

PB87-234332/REB

Summary of Indoor Air Quality Research Through 1984
EPA, Research Triangle Park, NC, AEERL
Research Triangle Inst.
Aug 87, 214p, EPA-600/9-87-020, PC A10/MF A01

Abstract: The report reviews indoor air quality research from 1980 through December 1984. It is also a compilation of two documents that review relevant literature on the subject and summarize the efforts of leading research scientists. The first effort involved: (1) a review of journal articles, symposium presentations, and bibliographic reports from 1980 through 1983; (2) a list of contacts with approximately 30 prominent researchers in the indoor air quality field; and (3) a list of significant articles that appeared prior to 1980. The second effort updated the initial literature review to January 1985. Again, articles, symposium proceedings, and reports were screened in developing the update report. The vast majority of material found in the two reports, "Review of Recent Research in Indoor Air Quality" (EPA-600/2-84-009) and "Update of Indoor Air Quality Bibliography" (draft), has been retained in the document. The report integrates the material from the two reports, following the organization of the earlier.

CL-IAP INDOOR AIR POLLUTANTS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

PB87-234514/REB

Prevention Reference Manual: Chemical Specific. Volume 6.
Control of Accidental Releases of Carbon Tetrachloride (SCAQMD)
(South Coast Air Quality Management District).
EPA, Research Triangle Park, NC, AEERL
Radian Corp.
D.S. Davis, G.B. DeVolf, and J.D. Quass
Aug 87, 96p, EPA-600/8-87-034F

Abstract: The manual summarizes information that will aid in identifying and controlling release hazards specific to the South Coast Air Quality Management District (SCAQMD) of southern California. The SCAQMD has been considering a strategy for reducing the risk of a major accidental air release of toxic chemicals. The strategy, which will serve as a guide to industry and communities, includes monitoring activities associated with the storage, handling, and use of certain chemicals. Carbon tetrachloride has an immediately dangerous to life and health (IDLH) concentration of 300 ppm, making it a moderate acute toxic hazard. To reduce the risk associated with an accidental release of carbon tetrachloride, the potential causes of releases from processes using carbon tetrachloride in the SCAQMD must be identified. Such measures include recommendations on: plant design practices; prevention, protection, and mitigation technologies; and operation and maintenance practices. Conceptual costs of possible prevention, protection, and mitigation measures are estimated.

EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
56-23-5 CARBON TETRACHLORIDE

PB87-234522/REB

Prevention Reference Manual: Chemical specific. Volume 7.
Control of Accidental Releases of Chloropicrin (SCAQMD) (South
Coast Air Quality Management District).
EPA, Research Triangle Park, NC, AEERL
Radian Corp.
D.S. Davis, G.B. DeWolf, and J.D. Quass
Aug 87, 85p, EPA-600/8-87-034G, PC A05/MF A01

Abstract: The manual summarizes technical information that will assist in identifying and controlling chloropicrin-associated release hazards specific to the South Coast Air Quality Management District (SCAQMD) of southern California. The SCAQMD has been considering a strategy for reducing the risk of a major accidental air release of toxic chemicals. The strategy includes monitoring the storage, handling, and use of certain chemicals and providing guidance to industry and communities. Chloropicrin has an immediately dangerous to life and health (IDLH) concentration of 1 ppm, making it a substantial acute toxic hazard. To reduce the risks associated with an accidental release of chloropicrin, some of the potential causes of accidental releases that apply to processes that use chloropicrin in the SCAQMD must be identified. Examples of potential causes are identified, as are measures that may be taken to reduce the accidental release risk. Such measures include recommendations on: plant design practices; prevention, protection, and mitigation technologies; and operation and maintenance practices. Conceptual costs of possible prevention, protection, and mitigation measures are estimated.

EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
76-06-2 CHLOROPICRIN

PB87-234530/REB

Prevention Reference Manual: Chemical Specific. Volume 8.
Control of Accidental Releases of Hydrogen Fluoride.
EPA, Research Triangle Park, NC, AEERL
Radian Corp.
D.S. Davis, G.B. DeWolf, and J.D. Quass
Aug 87, 148p, EPA-600/8-87-034H, PC A07/MF A01

Abstract: The report is a chemical specific manual for hydrogen fluoride (HF). It summarizes information to aid regulators and industry personnel in identifying and controlling release hazards associated with HF. Reducing the risk associated with accidental release of HF involves identifying some of the potential causes of accidental releases that apply to the process facilities that handle and store HF. It identifies examples of potential causes and measures that may be taken to reduce the accidental release risk. Such measures include recommendations on plant design practices; prevention, protection, and mitigation technologies; and operation and maintenance practices. Conceptual cost estimates of example prevention, protection, and mitigation measures are provided. Interest in reducing the probability and consequences of accidental toxic chemical releases that might harm workers within a process facility and people in the surrounding community prompted the preparation of a series of technical manuals addressing accidental releases of toxic chemicals.

EPA ENVIRONMENTAL PROTECTION AGENCY
ER ACCIDENT PREVENTION AND/OR EMERGENCY RESPONSE
7664-39-3 HYDROGEN FLUORIDE

P887-235578/REB

Health Advisories for 25 Organics (Including Acrylamide, Benzene, Carbon Tetrachloride, Chlorobenzene, Dichlorobenzene(s), 1,2-Dichloroethane, 1,1-Dichloroethylene, Cis-1,2-Dichloroethylene, Trans-1,2-Dichloroethylene, Dichloromethane....)
EPA, Washington, DC, OOW
Mar 87, 399p, PC A17/MF A01

Abstract: These documents summarize the health effects of 25 organics including: acrylamide, benzene, carbon tetrachloride, chlorobenzene, dichlorobenzene(s), 1,2-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, dichloromethane, p-dioxane, dioxin, epichlorohydrin, ethylbenzene, ethylene glycol, hexachlorobenzene, hexane, methyl ethyl ketone, styrene, tetrachloroethylene, toluene, 1,1,1-trichloroethane, trichloroethylene, vinyl chloride, xylenes. Topics discussed include: General Information and Properties, Pharmacokinetics, Health Effects in Humans and Animals, Quantification of Toxicological Effects, Other Criteria Guidance and Standards, Analytical Methods and Treatment Technologies.

EPA ENVIRONMENTAL PROTECTION AGENCY

HA HEALTH ASSESSMENT
100-41-4 ETHYL BENZENE
100-42-5 STYRENE
106-42-3 XYLENE, P-
106-46-7 DICHLOROBENZENE, 1,4-
106-89-8 EPICHLOROHYDRIN
107-21-1 ETHYLENE GLYCOL
108-38-3 XYLENE, M-
108-88-3 TOLUENE
108-90-70 CHLOROBENZENE
110-54-3 HEXANE, N-
118-74-1 HEXACHLOROBENZENE
123-91-1 DIOXANE, 1,4-
127-18-4 TETRACHLOROETHYLENE
1330-20-7 XYLENE
156-59-2 DICHLOROETHYLENE, 1,2-, CIS-
156-60-5 DICHLOROETHYLENE, 1,2-, TRANS-
541-73-1 DICHLOROBENZENE, 1,3-
56-23-5 CARBON TETRACHLORIDE
71-43-2 BENZENE
71-55-6 TRICHLOROETHANE, 1,1,1-
75-01-4 VINYL CHLORIDE
75-09-2 METHYLENE CHLORIDE
75-35-4 DICHLOROETHYLENE, 1,1-
78-93-3 METHYL ETHYL KETONE
79-01-6 TRICHLOROETHYLENE
79-06-1 ACRYLAMIDE
95-47-6 XYLENE, O-
95-50-1 DICHLOROBENZENE, 1,2-

P887-235586/REB

Health Advisories for Legionella and 7 Inorganics (Including Barium, Cadmium, Chromium, Cyanide, Mercury, Nickel/Nitrite)
EPA, Washington, DC, OOW
Mar 87, 126p, PC A07/MF A01

Abstract: The document summarizes the health effects of Legionella and seven inorganics including: barium, cadmium, chromium, cyanide, mercury, nickel and nitrate/nitrite. Topics discussed include: general information and properties, pharmacokinetics, health effects in humans and animals, quantification of toxicological effects, other criteria guidance and standards, analytical methods, and treatment technologies.

CL-INORGAN INORGANIC COMPOUNDS

CL-NITRATE NITRATES
CL-NITRITE NITRITES
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
57-12-5 CYANIDE
7439-97-6 MERCURY
7440-02-2 NICKEL
7440-39-3 BARIUM
7440-43-9 CADMIUM
7440-47-3 CHROMIUM

PB88-101142/REB

National Dioxin Study Tier 4 - Combustion Sources: Final Test Report - Site 6, Wire Reclamation Incinerator WRI-A
EPA, Research Triangle Park, NC, OAQPS
Radian Corp.

L.E. Keller, J.R. Reynolds, and D.J. Benson
Apr 87, 211p, EPA-450/4-84-0140

Abstract: The report summarizes the results of a dioxin/furan emissions test of a wire reclamation incinerator equipped with an afterburner for hydrocarbon emissions control. The wire reclamation incinerator is used for recovery of copper from coated cooper wire and drained transformer cores. The test was the sixth in a series of several dioxin/furan emissions tests conducted under Tier 4 of the National Dioxin Study. The primary objective of Tier 4 is to determine if various combustion sources are found to emit dioxin and/or furan, the secondary objective of Tier 4 is to quantify these emissions. Wire reclamation incinerators are one of 8 combustion source categories that have been tested in the Tier 4 program. The tested incinerator, hereafter referred to as incinerator WRI-A, was selected for the test after an initial information screening and a one-day pretest survey visit. Incinerator WRI-A is considered representative of the wire reclamation incinerator population in the United States. Data presented in the report include dioxin (tetra through octa homologue +2378 TCDF) and furan (tetra through octa homologue +2378 TCDF) results for both stack samples and ash samples. In addition, process data collected during sampling are also presented.

CL-DIOXIN DIOXINS
CL-FURAN FURANS
CL-PEST PESTICIDES
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING
1746-01-6 TETRACHLORODIBENZODIOXIN,2,3,7,8-,p-
262-12-4 DIBENZO-P-DIOXIN
30402-15-4 PENTA CHLORO FURANS
3268-87-9 OCTACHLORODIBENZO-P-DIOXIN
51207-31-9 TETRACHLORODIBENZOFURAN,2,3,7,8-

PB88-101159/REB

National Dioxin Study Tier 4 - Combustion Sources: Final Test Report - Site 77, Wood Fired Boiler WFB-A
EPA, Research Triangle Park, NC, OAQPS
Radian Corp.

L.E. Keller, M.H. Keating, and C.L. Jamgochian
Apr 87, 298p, EPA-450/4-84-014P, PC A13/MF A01

Abstract: The report summarizes the results of a dioxin/furan emissions test of a wood-fired boiler equipped with a fabric filter system for particulate emissions control. The boiler combusts a combination of bark, hogged wood, sawdust, and green and dry planar shavings. The test is the seventh in a series of emission tests conducted under Tier 4 of the National Dioxin Study. The primary objective of Tier 4 is to determine if various combustion devices are sources of dioxin and/or furan emissions. If any of the combustion sources are found to emit dioxin or furan, the secondary objective of Tier 4 is to quantify these emissions. The tested boiler, hereafter referred to as Boiler WFB-A, was selected for this test after an initial information screening and a 1-day pretest survey. The logs which are processed at the plant are stored in a salt water body adjacent to the plant. Thus, the feed to Boiler WFB-A has a higher inorganic chloride content than the feed to most wood-fired boilers. Boiler WFB-A is considered representative of those wood-fired boilers in the U.S. firing salt-laden wood. Data presented in the report include dioxin (tetra through octa homologue +2378 TCDF) and furan (tetra through octa homologue +2378 TCDF) results for both stack samples and ash samples, and process data.

CL-DIOXIN DIOXINS
CL-FURAN FURANS
CL-PEST PESTICIDES
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING
1746-01-6 TETRACHLORODIBENZODIOXIN,2,3,7,8-,p-
262-12-4 DIBENZO-P-DIOXIN
30402-15-4 PENTA CHLORO FURANS
3268-87-9 OCTACHLORODIBENZO-P-DIOXIN
51207-31-9 TETRACHLORODIBENZOFURAN,2,3,7,8-

PB88-101167/REB

National Dioxin Study Tier 4 - Combustion Sources: Final Test
Report - Site 8, Black Liquor Boiler BLB-C
EPA, Research Triangle Park, NC, OAQPS
Radian Corp.

C.L. Jangochian, and L.E. Keller
Apr 87, 202p, EPA-450/4-84-014Q, PC A10/MF A01

Abstract: The report summarizes the results of a dioxin/furan emissions test of a black liquor recovery boiler equipped with a dry-bottom electrostatic precipitator for particulate emissions control. Black liquor recovery boilers are used at kraft pulp mills to produce process steam and to reclaim inorganic chemicals from spent wood pulping liquors. The dioxin/furan emissions test was conducted under Tier 4 of the National Dioxin Study. The primary objective of Tier 4 is to determine if various combustion sources are sources of dioxin and/or furan emissions. If any of the combustion sources are found to emit dioxin or furan, the secondary objective of Tier 4 is to quantify these emissions. The tested black liquor boiler, hereafter referred to as boiler BLB-C, was selected for the test after an initial information screening and a one-day pretest survey visit. Boiler BLB-C is considered representative of black liquor recovery boilers with dry-bottom electrostatic precipitators. The amount of chloride present in the black liquor circuit at this site is considered intermediate to high, relative to that found at other kraft pulp mills. Data presented in the report include dioxin (tetra through octa homologue +2378 TCDF) and furan (tetra through octa homologue +2378 TCDF) results for both stack samples and ash samples, and process data.

CL-DIOXIN	DIOXINS
CL-FURAN	FURANS
CL-PEST	PESTICIDES
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
1746-01-6	TETRACHLORODIBENZODIOXIN, 2,3,7,8-P,
262-12-4	DIBENZO-P-DIOXIN
30402-15-4	PENTA CHLORO FURANS
3268-87-9	OCTACHLORODIBENZO-P-DIOXIN
51207-31-9	TETRACHLORODIBENZOFURAN, 2,3,7,8

PB88-101175/REB

National Dioxin Study Tier 4 - Combustion Sources: Final Test
Report - Site 9, Carbon Regeneration Furnace CRF-A
EPA, Research Triangle Park, NC, OAQPS
Radian Corp.

C.L. Jangochian, L.E. Keller, and W. Kelly
Apr 87, 271p, EPA-450/4-84-014R, PC A12

Abstract: The EPA is assessing the potential for the emissions of dioxin/furans from combustion sources under Tier 4 of the National Dioxin Study. If any of the combustion sources are found to emit dioxins, the secondary purpose of the Tier 4 study is to quantify these emissions and, if possible, related the emissions to combustion parameters. Carbon regeneration furnaces are 1 of 8 source categories that have been included in the field test program. Carbon regeneration furnaces reactive spent carbon from industrial or municipal water treatment facilities. The spent carbon may contain absorbed chlorinated compounds. The report presents the results of an emission test program conducted by Radian during May 28-31, 1985, at an industrial carbon regeneration furnace designated as Site CRF-A. The furnace was selected after an initial information screening and a pretest survey visit. The facility is considered representative of other carbon regeneration furnaces in the United States. Furnace CRF-A regenerates spent carbon from more than 20 plants that use activated carbon for industrial wastewater treatment. Data presented in the report include dioxin (tetra through octa homologue +2378 TCDF) and furan (tetra through octa homologue +2378 TCDF) results for both stack samples and ash samples, and process data.

CL-DIOXIN	DIOXINS
CL-FURAN	FURANS
CL-PEST	PESTICIDES
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
1746-01-6	TETRACHLORODIBENZODIOXIN, 2,3,7,8-P,
262-12-4	DIBENZO-P-DIOXIN
30402-15-4	PENTA CHLORO FURANS
3268-87-9	OCTACHLORODIBENZO-P-DIOXIN
51207-31-9	TETRACHLORODIBENZOFURAN, 2,3,7,8

PB88-101183/REB

National Dioxin Study Tier 4 - Combustion Sources: Final Test Report - Site 10, Secondary Copper Recovery Cupola Furnace MET-A
EPA, Research Triangle Park, NC, QAQPS
Radian Corp.
L.E. Keller, J.R. McReynolds, and D.J. Benson
Apr 87, 181p, EPA-450/4-84-014S, PC A09/MF A01

Abstract: The report summarizes the results of a dioxin/furan emissions test of a secondary copper recovery cupola furnace equipped with an afterburner for hydrocarbon emissions control and two baghouses for particulate emissions control. The cupola furnace is used for recovery of copper from telephone scrap and other copper-bearing materials. The test was the 10th in a series of dioxin/furan emissions tests conducted under Tier 4 of the National Dioxin Study. The primary objective of Tier 4 is to determine if various combustion sources are sources of dioxin or furan emissions. If any of the combustion sources are found to emit dioxin or furan, the secondary objective of Tier 4 is to quantify these emissions. The tested cupola furnace, hereafter referred to as cupola furnace MET-A, was selected for the test after an initial information screening and a one-day pretest survey visit. Cupola furnace MET-A is a large secondary copper recovery cupola furnace relative to others in the United States. The furnace feed includes plastic-bearing materials of various types, some of which may contain chlorinated organic compounds. Data presented in the report include dioxin (tetra through octa homologue +2378 TCDD) and furan (tetra through octa homologue +2378 TCDF) results for both stack samples and ash samples, and process data.

CL-DIOXIN	DIOXINS
CL-FURAN	FURANS
CL-PEST	PESTICIDES
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
1746-01-6	TETRACHLORODIBENZODIOXIN,2,3,7,8-,p-
262-12-4	DIBENZO-P-DIOXIN
30402-15-4	PENTA CHLORO FURANS
3268-87-9	OCTACHLORODIBENZO-P-DIOXIN
33	PRIMARY METAL INDUSTRIES
334	SECONDARY NONFERROUS METALS
51207-31-9	TETRACHLORODIBENZOFURAN,2,3,7,8-

PB88-101191/REB

National Dioxin Study Tier 4 - Combustion Sources: Final Test Report - Site 11, Drum and Barrel Reclamation Furnace DBR-A
EPA, Research Triangle Park, NC, QAQPS
Radian Corp.
D.R. Knisley, W.E. Kelly, and L.E. Keller
Apr 87, 190p, EPA-450/4-84-014T, PC A09/MF A01

Abstract: The report summarizes the results of a dioxin/furan emissions test of a drum and barrel reconditioning furnace equipped with an afterburner for emissions control. Steel drums are reconditioned by combusting the drum contents (residual material) in a tunnel furnace. The test was the 11th in a series of emission tests conducted under Tier 4 of the National Dioxin Study. The primary objective of Tier 4 is to determine if various combustion devices are sources of dioxin and/or furan emissions. If any of the combustion sources are found to emit dioxin or furan, the secondary objective of Tier 4 is to quantify these emissions. The tested furnace, hereafter referred to as furnace DBR-A, was selected for the test after an initial information screening and a one-day pretest survey. The drums which are processed at the plant are received from a number of different sources; thus the combustible material burned in the furnace is heterogeneous. Furnace DBR-A is considered representative of other drum reconditioning furnaces operating in the United States. Data presented in the report include dioxin (tetra through octa homologue +2378 TCDD) and furan (tetra through octa homologue +2378 TCDF) results for both stack samples and ash samples. In addition, process data collected during sampling are also presented.

CL-DIOXIN	DIOXINS
CL-FURAN	FURANS
CL-PEST	PESTICIDES
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
1746-01-6	TETRACHLORODIBENZODIOXIN,2,3,7,8-,p-
262-12-4	DIBENZO-P-DIOXIN
30402-15-4	PENTA CHLORO FURANS
3268-87-9	OCTACHLORODIBENZO-P-DIOXIN
51207-31-9	TETRACHLORODIBENZOFURAN,2,3,7,8-

PB88-101209/REB

National Dioxin Study Tier 4 - Combustion Sources: Final Test
Report - Site 12, Sewage Sludge Incinerator SSI-C
EPA, Research Triangle Park, NC, OAQPS
Radian Corp.
M.A. Palazzolo, et al.
Apr 87, 143p, EPA-450-4-84-014J, PC A07

Abstract: The draft report summarizes the results of a dioxin/furan emissions test of a sewage sludge incinerator equipped with a wet scrubber system for particulate emissions control. The test was the 12th in a series of thirteen dioxin/furan emissions tests being conducted under Tier 4 of the National Dioxin Study. The primary objective of Tier 4 is to determine if various combustion sources emit dioxins or furans. The secondary objective of Tier 4 is to quantify these emissions. Sewage sludge incinerators are one of eight combustion device categories that have been tested in the Tier 4 program. The tested sewage sludge incinerator, hereafter referred to as incinerator SSI-C, was selected for the test after an initial information screening and a one-day pretest survey visit. Data presented in the report include dioxin (tetra through octa homologue + 2378 TCDD) and furan (tetra through octa homologue + 2378 TCDF) results for both stack samples and ash samples. In addition, process data collected during sampling are also presented.

CL-DIOXIN DIOXINS
CL-FURAN FURANS
CL-PEST PESTICIDES
EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING
1746-01-6 TETRACHLORODIBENZODIOXIN,2,3,7,8-P-
262-12-4 DIBENZO-P-DIOXIN
30402-15-4 PENTA CHLORO FURANS
3268-87-9 OCTACHLORODIBENZO-P-DIOXIN
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS
51207-31-9 TETRACHLORODIBENZOFURAN,2,3,7,8-

PB88-101217/REB

National Dioxin Study Tier 4 - Combustion Sources: Final Test
Report - Site 13, Residential Wood Stove WS-A
EPA, Research Triangle Park, NC, OAQPS
Radian Corp.
M.W. Hartman, D.J. Benson, and L.E. Keller
Apr 87, 67p, EPA-450/4-84-014V, PC A04/MF A01

Abstract: The report summarizes the results of a dioxin/furan emission test of a residential woodstove conducted by Radian Corporation. The stove is a freestanding non-catalytic model manufactured by Atlanta Stove Works and offered for sale in the Sears Catalog (\$42684156W). During testing, oak and pine were burned at low burn rates, which is representative of normal residential use. The test was the 13th in a series of dioxin/furan emissions tests conducted under Tier 4 of the National Dioxin Study. The primary objective is to determine if various combustion sources are sources of dioxin and/or furan emissions. If any of the combustion sources are found to emit dioxin or furan, the secondary objective of Tier 4 is to quantify these emissions. The tested woodstove, hereafter referred to as Woodstove WS-A, is a test unit located at an EPA contractor facility. The woodstove tested is considered representative of woodstoves built in the last 5 to 10 years. No dioxin/furan stack data were obtained from the source. Labelled internal standards used to determine analytical recovery efficiency were not detected because of the very high levels of hydrocarbons present in the stack gas. Dioxin/furan ash data are presented.

CL-DIOXIN DIOXINS
CL-FURAN FURANS
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING

PB88-101530/REB

Summary and Analysis of Comments on the Recommended Practice for the Measurement of Refueling Emissions
EPA, Ann Arbor, MI, SD58
Mar 87, 130p, PC A07/MF A01

Abstract: As a result of concerns about the emissions which occur when gasoline vapors are displaced from fuel tanks during the refueling of motor vehicles, EPA has been examining the need for the control of these refueling emissions and the methods to do so. One such method involves the collection on the vehicle of the displaced hydrocarbons and the measurement of the effectiveness of the refueling vapor control system. The type of control is referred to as onboard control of refueling emissions. The report presents a summary of the comments on the recommended refueling test procedure, EPA's analysis of the issues raised by the commenters, and the resulting changes made to the recommended test procedures.

EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING
55 AUTOMOTIVE DEALERS & SERVICE STATIONS
554 GASOLINE SERVICE STATIONS
5541 GASOLINE SERVICE STATIONS
8006-61-9 GASOLINE

PB88-102603/REB

Safety Implications of Onboard Refueling Vapor Recovery Systems
EPA, Ann Arbor, MI, SD58
Jun 87, 103p, EPA-AA/SD58-87-05, PC A06/MF A01

Abstract: The report evaluates the safety implications of requiring onboard refueling vapor recovery systems on gasoline-powered passenger cars, light trucks, and heavy-duty vehicles. Special attention is given to the analysis of the design considerations for a safe onboard system and other measures necessary to insure that the design considerations incorporated are capable of providing a high level of in-use fuel system integrity. Concerns over the potential safety implications of onboard systems have been raised. These concerns can be grouped into four general areas. These include requirements to pass the National Highway Traffic Safety Administration (NHTSA) safety test, the effects of tampering and system defects, refueling operations, and in-use fuel system safety. All of these concerns are presented as well as design considerations for a safe system. In use fuel system safety is also presented as well as cost and leadtime considerations for implementing a safe system.

CT CONTROL TECHNOLOGY DOCUMENT
EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
8006-61-9 GASOLINE

PB88-103015/REB

Characterization of Particle and Organic Emissions from Unvented Kerosene Space Heaters
EPA, Research Triangle Park, NC, AEERL
Yale Univ.
J.B. White, et al.
Sep 87, 9p, EPA-600/D-87-269, PC A02/MF A01

Abstract: The paper gives results from Phase 1 of a three-phase study to characterize and model contaminant emissions from unvented kerosene space heaters. In Phase 1 (a screening phase), emissions from 12 heaters, covering a range of design types and Btu ratings, were evaluated during start-up, at three steady-state operating conditions (normal, low, and high flame settings), and after shutdown. Aerosol mass, size distribution, extractable mass, bioassay, trace element content, and conventional gas (CO, NOx, etc.) measurements were made for all the heaters tested, while volatile and semivolatile organics measurements were made for a subsample.

CL-IAP INDOOR AIR POLLUTANTS
CL-PM PARTICULATE MATTER
CL-SVOC SEMIVOLATILE ORGANIC COMPOUNDS
CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

PB88-103783/REB

Health and Environmental Effects Profile for n-Propyl Alcohol
EPA, Cincinnati, OH, ECAO
May 83, 41p, EPA-600/X-84-116, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for n-Propyl Alcohol was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an Acceptable Daily Intake (ADI) or a carcinogenic potency factor for n-Propyl Alcohol.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
71-23-8 PROPYL ALCOHOL

PB88-104351/REB
 Health and Environmental Effects Profile for Dichlorobutenes
 EPA, Cincinnati, OH, ECAO
 May 83, 35p, EPA-600/X-84-118, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for Dichlorobutenes was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertain to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an Acceptable Daily Intake (ADI) or a carcinogenic potency factor for Dichlorobutenes.

EPA ENVIRONMENTAL PROTECTION AGENCY
 HA HEALTH ASSESSMENT
 760-23-6 DICHLORO-1-BUTENE, 3,4-

PB88-105929/REB
 Health and Environmental Effects Profile for Monochlorobutenes
 EPA, Cincinnati, OH, ECAO
 May 83, 36p, EPA-600/X-84-117, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for Monochlorobutenes was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertain to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an Acceptable Daily Intake (ADI) or carcinogenic potency factor for Monochlorobutenes.

EPA ENVIRONMENTAL PROTECTION AGENCY
 HA HEALTH ASSESSMENT
 109-69-3 BUTYLCHLORIDE, N-

PB88-106315/REB
 Review of Selected State-of-the-Art Applications of Diagnostic Measurements for Radon Mitigation Planning
 EPA, Research Triangle Park, NC, AEERL
 L.M. Hubbard, et al.
 Sep 87, 10p, EPA-600/D-87-245, PC A02/MF A01

Abstract: Since late-1984, EPA's AEERL has supported a program to develop and demonstrate radon mitigation techniques for single-family detached dwellings. As part of the program, projects have been started directed at developing and demonstrating the use of diagnostic measurements in all phases of the radon mitigation process. Diagnostic measurements are used to assess: (1) the radon sources' strengths, variability, and locations; and, (2) radon transport to the house and its entry and distribution in the house as influenced by environmental, house characteristics, and occupancy factors. The diagnostic measurements reported include: (1) soil-gas grab sampling; (2) communication (air flow or pressure field extension) tests; (3) whole house infiltration; (4) differential pressure; (5) gamma radiation; and, (6) radon flux. The paper concludes that the above selected diagnostic measurements have been found especially useful in characterizing houses which have indoor radon problems attributable to soil-gas-borne radon which may be amenable to mitigation through the use of subslab ventilation.

CT CONTROL TECHNOLOGY DOCUMENT
 EPA ENVIRONMENTAL PROTECTION AGENCY
 IA INDOOR AIR
 10043-92-2 RADON

PB88-107628/REB

Summary Review of Health Effects Associated with Zinc and Zinc

Oxide: Health Issue Assessment

EPA, Washington, DC, OHEA

Jul 87, 52p, PC A04/MF A01

Abstract: Zinc is a dense, bluish-white, relatively soft metal used extensively in the galvanizing of iron and steel. Zinc oxide, the most valued of the variety of compounds formed by zinc, is used principally in rubber products as an activator in the vulcanization process and in the treatment of burns, infections, and skin diseases. Zinc occurs naturally in the environment; however, zinc may also enter the environment as the result of mining and processing the production of zinc oxide and the manufacture and use of products containing zinc oxide, the combustion of coal and oil, the production of iron and steel, and the incineration of refuse. Humans are mainly exposed to zinc through the ingestion of food (between 8 and 18.6 mg/kg/day) and drink (averaging up to 10 mg/day). Based on annual average airborne zinc concentrations in areas throughout the U.S. without mines or smelters of generally <1mg/cu m., the contribution of zinc from inhaled air represents an insignificant amount of daily zinc exposure, averaging about 20 micrograms. The literature on the toxic effects of zinc is limited. The most widely known systemic effect resulting from acute inhalation of freshly formed zinc oxide fumes is "metal fume fever," which occurs in certain occupational settings. The exposure level at which the fever occurs is not known.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
10 METAL MINING
103 LEAD AND ZINC ORES
1031 LEAD AND ZINC ORES
1314-13-2 ZINC OXIDE, FUME
28 CHEMICALS AND ALLIED PRODUCTS
281 INDUSTRIAL INORGANIC CHEMICALS
2816 INORGANIC PIGMENTS
285 PAINTS AND ALLIED PRODUCTS
2851 PAINTS AND ALLIED PRODUCTS
33 PRIMARY METAL INDUSTRIES
332 IRON AND STEEL FOUNDRIES
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS
7440-66-6 ZINC

PB88-107735/REB

Evaluation of Emission Sources at a Waferboard Manufacturing Plant

EPA, Research Triangle Park, NC, QAQPS

Radian Corp.

J.H.E. Stelling

Sep 87, 77p, EPA-450/3-87-021, PC A05/MF A01

Abstract: A state pollution control agency requested assistance from EPA's Control Technology Center (CTC) in determining possible emission sources within the plant and assessing potential controls for those emissions. The report summarizes the results of a site visit and the review of the plant operations and test reports. Data gathering involved collection of test reports, permit applications and other information on waferboard manufacturing operations. States where waferboard is manufactured were contacted to establish controls used for various operations. A site inspection was made to examine operations first-hand and to verify controls in-place. In addition, one state office was visited to discuss the extent of complaints, stack tests conducted, and results of emission dispersion modeling. It appears that substitution of another wood species for aspen which is currently predominantly used would reduce emissions. Another potential option for reduction of emissions is a variation of the dryer operating conditions. Use of a water or caustic scrubber is another potential control mechanism.

CL-VOC VOLATILE ORGANIC COMPOUNDS
CT CONTROL TECHNOLOGY DOCUMENT
DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
SS SOURCE SAMPLING
24 LUMBER AND WOOD PRODUCTS
249 MISCELLANEOUS WOOD PRODUCTS
2499 WOOD PRODUCTS, NEC

PB88-107818/REB

Results of Air Sampling from Selected Asbestos Abatement Projects

EPA, Cincinnati, OH, WERL

W.C. Cain, T.J. Powers, and R.C. Wilmoth

Sep 87, 14p, EPA-600/D-87-304, PC A03/MF A01

Abstract: The results of asbestos abatement monitoring at nine sites are discussed, comparing transmission electron microscopy analyses of post-abatement indoor levels with outdoor levels and comparing the t-test, z-test, and Wilcoxon test for clearance.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
SS SOURCE SAMPLING
1332-21-4 ASBESTOS

PB88-110978/XAB

Policies and Procedures for Control of Indoor Air Quality
National Academy of Sciences
Jul 87, 84p, PC A05/MF A01

Abstract: Increasing incidents of discomfort or illness in the non-industrial workplace that could often be traced to indoor air quality problems led to the study. Guidance is presented on how to identify and alleviate or prevent such problems. The primary focus on existing office buildings, although findings can be applied to other kinds of structures and to buildings being planned, constructed, or renovated. Suggestions are directed to facilities administrators, planners, designers, and managers as well as to maintenance and operating personnel and to the building occupants themselves. The various factors that affect indoor air quality are described. These include thermal conditions, odors, irritants, toxic substances, and micro-organisms. Other issues that are not technically related to air quality but that may aggravate a situation are also discussed. Procedures for diagnosing and controlling problems include consideration of the structure itself, the ventilation system requirements and performance, and the conformance with established ventilation criteria. Several case studies illustrate typical problems and their solutions.

CL-IAP INDOOR AIR POLLUTANTS
IA INDOOR AIR
NAS NATIONAL ACADEMY OF SCIENCES

PB88-111067/REB

Summary of State Radon Programs
EPA, Washington, DC, OEP
Aug 87, 48p, EPA-520/1-87-19-1

Abstract: The report describes the range of State radon activities underway, the administrative and legislative mechanisms used to support these activities, and the resources devoted to them. The report focuses on the scope and magnitude of the radon problem within each State, rather than on the radon problem and how to address it. Hence, the report is not a comprehensive source of technical information, nor a source of measurement or mitigation results.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON

PB88-111844/REB

Health and Environmental Effects Profile for Diallate
EPA, Cincinnati, OH, ECAO
Dec 83, 45p, EPA-600/X-84-123, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for Diallate was prepared by the Office of Health and Environmental Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Diallate has been evaluated as a carcinogen. The human carcinogen potency factor (q1*) for Diallate is 7.8×10^{-1} (mg/kg bw/day)⁻¹ for oral exposure.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
2303-16-4 DIALATE

PB88-112289/REB

Health and Environmental Effects Profile for EPTC
EPA, Cincinnati, OH, ECAO
Jan 84, 45p, EPA-600/X-84-125, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for ethyl dipropylcarbamothioate (EPTC) was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, Ohio, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. EPTC has been determined to be a systemic toxicant. An acceptable daily intake (ADI) level, defined as the amount of a chemical to which humans can be exposed on a daily basis over an extended period of time (usually a lifetime) without suffering a deleterious effect, for EPTC is .05 (mg/kg bw/day) for oral exposure.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
759-94-4 ETHYLDIPROPYLCARBAMTHIOAT, S-

P888-113188/XAB

National Air Toxics Information Clearinghouse: Qualitative and Quantitative Carcinogenic Risk Assessment
EPA, Research Triangle Park, NC, SASD
Radian Corp.

I. Cote and S. Bayard

Jun 87, 174p, EPA-450/5-87-003, PC A08/MF A01

Abstract: The document describes the basic principles and assumptions associated with a qualitative and quantitative carcinogenic risk assessment and illustrates these features using several examples of quantitative risk assessment done by State and local agencies. The report is intended to help readers better understand and interpret a risk assessment rather than to provide instructions that would enable them to conduct a risk assessment. The report is aimed at managers and staff members in State and local agencies who are concerned with the use of qualitative and quantitative carcinogenic risk assessment for evaluating emissions of toxic air pollutants. The report discusses the four steps of risk assessment: hazard identification, dose-response assessment, exposure assessment, and risk characterization, focusing primarily on the dose-response assessment.

CL-CARCIN.4 CARCINOGENS

EPA ENVIRONMENTAL PROTECTION AGENCY
RA RISK ASSESSMENT

P888-113261/XAB

User's Guide for RAM, Second Edition
EPA, Research Triangle Park, NC, ASRL
Aerocomp, Inc.

J.A. Catalano, D.B. Turner, and J.H. Novak

Oct 87, 203p, EPA-600/8-87-046, PC A10/MF A01

Abstract: RAM is an air quality model based on the Gaussian-plume simplification of the diffusion equation which assumes time independence in the input meteorology and concentration. The model is primarily used to determine short-term (one hour to one day) concentrations from point and area sources. A maximum of 250 point sources and 100 area sources can be considered to yield pollutant concentrations at a maximum of 180 receptors. The simulation is done using hourly meteorological data for periods ranging from one hour to one year. A default option is available in the model for regulatory applications. Use of this option automatically sets certain parameters to preassigned values for consistency with the "Guideline on Air Quality Models (Revised)" (EPA, 1986).

DM DISPERSION MODELING

EPA ENVIRONMENTAL PROTECTION AGENCY

P888-113428/XAB

National Air Toxics Information Clearinghouse: NATICH Data Base Report on State, Local and EPA (Environmental Protection Agency) Air Toxics Activities, July 1987

EPA, Research Triangle Park, NC, SASD

Radian Corp.

Jul 87, 358p, EPA-450/5-87-006, PC A16/MF A01

Abstract: The report disseminates information provided to the National Air Toxics Information Clearinghouse (NATICH) data base by State and local air agencies on their air toxics activities. The computer-generated report supersedes manually- and computer-prepared reports published in September 1984, March 1985, September 1985, and July 1986. The report includes a listing of State and local agencies that have provided information to the clearinghouse, air toxics contacts, regulatory program information, acceptable ambient concentration guidelines or standards and the bases of those guidelines/standards, pollutant research information, methods development activities, permitting information, source testing information, ambient monitoring information, emissions inventory information, and risk assessment information. Because of the large volume of data that now resides in the data base, the document reports only a subset of the permitting and source testing information.

AM AMBIENT MONITORING

CL-VARIOUS VARIOUS

EPA ENVIRONMENTAL PROTECTION AGENCY

RA RISK ASSESSMENT

RDG REGULATORY DEVELOPMENT GUIDANCE

SA SOURCE ASSESSMENT

SS SOURCE SAMPLING

PB88-113543/XAB

Health Advisories for 50 Pesticides (Including Acifluorfen, Ametryn, Ammonium Sulfamate, Atrazine, Baygon, Bentazon, Bromacil, Butylate, Carbaryl, Carboxin, Chloramben, Chlorothalonil, Cyanazine, Dalapon, Dacthal, Diazinon, Dicamba, 1,3-Dichloropropene, Dieldrin, Dimethrin.) EPA, Washington, DC, OOW
Aug 87, 82pp, PC A99/WF E04

Abstract: These documents summarize the health effects of 50 pesticides including: acifluorfen, ametryn, ammonium sulfamate, atrazine, baygon, bentazon, bromacil, butylate, carbaryl, carboxin, chloramben, chlorothalonil, cyanazine, dalapon, dacthal, diazinon, dicamba, 1,3-dichloropropene, dieldrin, dimethrin, dinoseb, diphenamid, disulfoton, diuron, endosulfan, ethylene thiourea, fenamiphos, fluometicon, fonofos, glyphosate, hexazinone, maleic hydrazide, MCPA, methomyl, methyl parathion, metolachlor, metribuzin, paraquat, picloram, prometon, pronamide, propachlor, propazine, propanil, simazine, 2,4,5-T, tebuthiuron, terbacil, terbufos, and trifluralin. Topics discussed include: General Information and Properties, Pharmacokinetics, Health Effects in Humans and Animals, Quantification of Toxicological Effects, Other Criteria Guidance and Standards, Analytical Methods, and Treatment Technologies.

CL-PEST PESTICIDES
EPA ENVIRONMENTAL PROTECTION AGENCY

HA HEALTH ASSESSMENT
GLYPHOSATE

1071-83-6 BAYGON

114-26-1 SIMAZINE

122-34-9 PROPHAM

122-42-9 MALEIC HYDRAZIDE

123-33-1 ENDOSULFAN

129-67-9 TERBUFOS

13071-79-9 CHLORAMBEN

133-90-4 PROPACHLOR

139-40-2 TRIFLURALIN

1582-09-8 PROMETON

1610-18-0 METHOMYL

16752-77-5 DACTHAL

1861-32-1 CHLOROTHALONIL

1897-45-6 PARAQUAT

1910-42-5 ATRAZINE

1912-24-9 DICAMBA

1918-00-9 PICLORAM

1918-02-1 PROPACHLOR

2008-41-5 BUTYLATE

21087-64-9 METRIBUZIN

2164-17-2 FLUOMETRON

21725-46-2 CYANAZINE

22224-92-6 PHENAMIPHOS

23950-58-5 PRONAMIDE

PB88-113543/XAB (continued)

25057-89-0 1H-2,1,3-BENZOTHIADIAZIN-4(3H)-ONE, 3-Is

298-00-0 METHYL PARATHION

298-04-4 DISULFOTON

314-40-9 BROMACIL

330-54-1 DIURON

333-41-5 DIAZINON

34014-18-1 TEBUTHIURON

51218-45-2 METOLACHLOR

51235-04-2 HEXAZINONE

5234-68-4 CARBOXIN

542-75-6 DICHLOROPROPENE, 1,3-

5902-51-2 TERBACIL

60-57-1 DIELDRIN

62476-59-9 ACIFLUORFEN

63-25-2 CARBARYL

70-38-2 DIMETHRIN

75-99-0 DALAPON

7773-06-0 AMMONIUM SULFAMATE

834-12-8 AMETRYN

88-85-7 DINITROBUTYLPHENOL, 2,4-, 6-SEC-

93-76-5 TRICHLOROXYACETIC ACID, 2,4,5-

94-74-6 METHYL-4-CHLOROPHENOXYACETIC ACID, 2-

944-21-9 FONOFOS

957-51-7 DIPHENAMID

96-45-7 ETHYLENE THIOUREA

PB88-113659/REB

Human Exposure Estimation for 2,3,7,8-TCDD

EPA, Washington, DC, OHEA

C.M. Nauman, and J.N. Schaum

Sep 87, 10p, EPA-600-D-87-311, PC A02/WF A01

Abstract: Exposure assessment procedures have been developed using relevant and likely scenarios through which humans could be exposed to dioxin-contaminated soil. Five exposure pathways were chosen for analysis: dust inhalation; fish ingestion; dermal absorption; soil ingestion; and beef/dairy product ingestion. Equations for calculating exposure levels and associated cancer risks are presented, and factors describing contact rate, exposure duration, absorbed fraction and miscellaneous parameters for each pathway are discussed.

CL-DIOXIN DIOXINS

EA EXPOSURE ASSESSMENT

EPA ENVIRONMENTAL PROTECTION AGENCY

1746-01-6 TETRACHLORODIBENZODIOXIN, 2,3,7,8-P-

PB88-115001/REB

Air Toxics Emissions from Motor Vehicles

EPA, Ann Arbor, MI, QMS

P.M. Carey

Sep 87, 129p, EPA-AA/TSS/PA-86-5, PC A07/MF A01

Abstract: Pollutants and pollutant categories discussed in this report include diesel particulate, formaldehyde, benzene, gasoline vapors, gas phase organics, organics associated with gasoline particulate, dioxins, asbestos, vehicle interior emissions, and metals. For each pollutant, information is provided regarding emissions, ambient concentrations, and health effects. Where adequate information was available, upper bound quantitative estimates of U.S. cancer incidence were made for calendar years 1986 and 1995.

CL-DIESEL DIESEL FUEL EMISSIONS
CL-DIOXIN DIOXINS
CL-METAL METALLIC COMPOUNDS
CL-PM PARTICULATE MATTER
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
1332-21-4 ASBESTOS
50-00-0 FORMALDEHYDE
71-43-2 BENZENE
8006-61-9 GASOLINE

PB88-117981/REB

Summary of State Radon Programs. Appendix

EPA, Washington, DC, ORP

Aug 87, 288p, EPA-520/1-87-19-2, PC A13/MF A01

Abstract: The report describes the range of State radon activities underway, the administrative and legislative mechanisms used to support these activities, and the resources devoted to them. The report focuses on the scope and magnitude of the radon program within each State, rather than on the radon problem and how to address it. Hence, the report is not a comprehensive source of technical information, nor a source of measurement or mitigation results.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON

PB88-118930/REB

Health and Environmental Effects Profile for Maneb

EPA, Cincinnati, OH, ECAO

Jan 84, 58p, EPA-600/X-84-127, PC A04/MF A01

Abstract: The Health and Environmental Effects Profile for Maneb was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Maneb has been determined to be a systemic toxicant. An Acceptable Daily Intake (ADI), defined as the amount of a chemical to which humans can be exposed on a daily basis over an extended period of time (usually a lifetime) without suffering a deleterious effect, for Maneb is 5x.010 mg/kg bw/day for oral exposure.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
12427-38-2 MANEB

PB88-120704/REB

National Dioxin Study Tier 4 - Combustion Sources: Engineering

Analysis Report

EPA, Research Triangle Park, NC, OAQPS

Radian Corp.

A.J. Miles, M.H. Keating, and C.L. Jangochian

Sep 87, 370p*, EPA-450/4-84-014H, PC A16/MF A01

Abstract: The report summarizes the complete results of Tier 4 (combustion sources) of the National Dioxin Study. The purpose of the Tier 4 study was to address the following questions: Do combustion sources emit dioxin. If so, how much. Are these emissions significant. A secondary objective was to attempt to determine what combustion parameters affect dioxin emissions and to determine the effectiveness of conventional control devices for controlling dioxin emissions and to determine the effectiveness of conventional control devices for controlling dioxin emissions. The report presents the results of a literature review containing 249 references, the results of a stack sampling program, and the results of an ash sampling program. The stack sampling program produced valid data from 12 sites covering 8 combustion source categories. Data are presented for dioxin (tetra through octa homologue + 2378-TCDF) and furan (tetra through octa homologue + 2378-TCDF) emissions as well as combustion conditions. Where possible, data were obtained before and after control devices. Ash samples were collected from 74 sites covering 22 combustion source categories. Dioxin and furan data are presented for the ash data. Various data correlations are presented.

CL-DIOXIN DIOXINS
CL-FURAN FURANS
CL-PEST PESTICIDES
EF EMISSION FACTOR
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
SS SOURCE SAMPLING
1746-01-6 TETRACHLORODIBENZODIOXIN,2,3,7,8-P-
262-12-4 DIBENZO-P-DIOXIN
30402-15-4 PENTA CHLORO FURANS
3268-87-9 OCTACHLORODIBENZO-P-DIOXIN
51207-31-9 TETRACHLORODIBENZOFURAN,2,3,7,8-

PB88-120845/REB

Evaluation of Potential Emissions of IUE (Toluene Diisocyanate)

from Two Facilities

EPA, Research Triangle Park, NC, OAQPS

Oct 87, 40p, EPA-450/3-87-022, PC A03/MF A01

Abstract: Two facilities which use toluene diisocyanate (TDI) were inspected by EPA at the request of a county air pollution control agency. The inspections were performed to identify potential sources of routine and accidental releases of TDI. The report presents the results of the inspections.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
1321-38-6 DIISOCYANATE-1,1-METHYLBENZENE,2,4-
26471-62-5 TOLUENE DIISOCYANATE
286 CHEMICALS AND ALLIED PRODUCTS
286 INDUSTRIAL ORGANIC CHEMICALS
2865 CYCLIC CRUDES AND INTERMEDIATES

PB88-123997/REB

Risk Assessment Guidelines of 1986

EPA, Washington, DC, OHEA

Aug 87, 83p, EPA-600/8-87-045, PC A05/MF A01

Abstract: On September 24, 1986, the U.S. Environmental Protection Agency issued risk assessment guidelines relating to five areas: carcinogenicity, mutagenicity, chemical mixtures, suspect development toxicants, and estimating exposures (51 FR 33992-34054). The guidelines were developed to promote high technical quality and Agencywide consistency in the risk assessment process. The document presents the five guidelines as they originally appeared in the Federal Register but in a format that is easier to read.

EPA ENVIRONMENTAL PROTECTION AGENCY
RA RISK ASSESSMENT

PB88-124540/XAB

Field Assessment of Air Emissions and Their Control at a Refinery Land Treatment Facility. Volume 1.

EPA, Cincinnati, OH, HWERL

Radian Corp.

B.M. Eklund, T.P. Nelson, and R.G. Wetherold

Oct 87, 339p, EPA-600/2-86-086A, PC A15/MF A01

Abstract: A field assessment was performed to measure the emissions of volatile organics from a petroleum refinery land treatment site. As part of the study, the emissions of total volatile organics from surface-applied and subsurface-injected oily sludge were measured over a five-week period. The effect of soil tilling on the emissions was also monitored. Volatile organic emissions rates were measured using the emission isolation flux chamber method. Emission rates of carbon dioxide and methane were also measured for use in estimating biodegradation rates. Soil samples were collected during the test periods to determine soil properties, oil levels, and microbe count. Soil surface and ambient temperatures, both inside and outside the flux chambers, were measured throughout the test periods. The measured volatile organic emissions rates were compared to applicable land treatment models. The report is in two volumes. Volume I contains the body of the report and major appendices. Volume II contains secondary appendices, including all the raw sample analysis data.

AM AMBIENT MONITORING
CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
SS SOURCE SAMPLING
124-38-9 CARBON DIOXIDE
29 PETROLEUM AND COAL PRODUCTS
291 PETROLEUM REFINING
2911 PETROLEUM REFINING
74-82-8 METHANE

PB88-124557/REB

Field Assessment of Air Emissions and Their Control at a Refinery Land Treatment Facility. Volume 2.

EPA, Cincinnati, OH, HWERL

Radian Corp.

B.M. Eklund, T.P. Nelson, and R.G. Wetherold

Oct 87, 374p, EPA-600/2-87-086B

Abstract: A field assessment was performed to measure the emissions of volatile organics from a petroleum refinery land treatment site. As part of the study, the emissions of total volatile organics from surface-applied and subsurface-injected oily sludge were measured over a five-week period. The effect of soil tilling on the emissions was also monitored. Volatile organic emissions rates were measured using the emission isolation flux chamber method. Emission rates of carbon dioxide and methane were also measured for use in estimating biodegradation rates. Soil samples were collected during the test periods to determine soil properties, oil levels, and microbe count. Soil surface and ambient temperatures, both inside and outside the flux chambers, were measured throughout the test periods. The measured volatile organic emissions rates were compared to applicable land treatment models. The report is in two volumes. Volume I contains the body of the report and major appendices. Volume II contains secondary appendices, including all the raw sample analysis data.

AM AMBIENT MONITORING
CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT
SS SOURCE SAMPLING
124-38-9 CARBON DIOXIDE
29 PETROLEUM AND COAL PRODUCTS
291 PETROLEUM REFINING
2911 PETROLEUM REFINING
74-82-8 METHANE

PB88-124615/REB

Evaluation of Sampling and Analytical Methods for Nicotine and Polynuclear Aromatic Hydrocarbon in Indoor Air
EPA, Research Triangle Park, NC, EMSL
Battelle Columbus Div.
J.C. Chuang, et al.

Nov 87, 33p, EPA-600/4-87-031, PC A03/MF A01

Abstract: The objective of the project was to evaluate a potential collection medium, XAD-4 resin, for collecting nicotine and polynuclear aromatic hydrocarbon (PAH) and to determine whether one collection system and one analytical method will allow quantification of both compound classes in air. The extraction efficiency study was to determine the extraction method to quantitatively remove nicotine and PAH from XAD-4 resin. The results showed that a two-step Soxhlet extraction consisting of dichloromethane followed by ethyl acetate resulted in the best recoveries for both nicotine and PAH. In the sampling efficiency study, XAD-2 and XAD-4 resin were compared, in parallel, for collection of PAH and nicotine. Quartz fiber filters were placed upstream of both adsorbents to collect particles. Prior to sampling, both XAD-2 and XAD-4 traps were spiked with known amounts (2 microgram) of perdeuterated PAH and D3-nicotine. The experiments were performed with cigarette smoking and nonsmoking conditions. The spiked PAH were retained well in both adsorbents after exposure to more than 300 cu. m. of indoor air. The spiked XAD-4 resin gave higher recoveries for D3-nicotine than did the spiked XAD-2 resin. The collection efficiency for PAH for both adsorbents is very similar but higher levels of nicotine were collected on XAD-4 resin.

CL-PAH POLYCYCLIC AROMATIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
1A INDOOR AIR
SS SOURCE SAMPLING
54-11-5 L-NICOTINE

PB88-124755/REB

Health Effects Associated with Indoor Air Pollutants
EPA, Research Triangle Park, NC, ECAO
H.M. Ammann, et al.
Oct 87, 23p, EPA-600/D-87-324, PC A03/MF A01

Abstract: A state-of-information survey concerning health effects of indoor air pollutants in the categories of formaldehyde, volatile organics, radon, particulates, and combustion products has been prepared by the U.S. Environmental Protection Agency's Environmental Criteria and Assessment Office, RTP, N.C. Included in each category are human effects, animal exposure experiments, mutagenicity, and carcinogenicity information. In addition to those health implications associated with each category of pollutants, the problems of measuring exposure to the complex mixtures actually breathed by people in homes is addressed.

CL-PM PARTICULATE MATTER
CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
NA HEALTH ASSESSMENT
1A INDOOR AIR
10043-92-2 RADON
50-00-0 FORMALDEHYDE

PB88-130067

Nonmethane Organic Carbon Concentrations in Air Masses Advected into Urban Areas in the United States
EPA, Research Triangle Park, NC, ASRL
Washington State Univ., Pullman
H. Westberg, and L. MacGregor
Nov 87, 309p, EPA-600/3-87-045, PC A14/MF A01

Abstract: The report describes recent aircraft sampling programs to measure nonmethane organic carbon (NMOC) levels aloft in the upwind vicinity of several U.S. cities during the morning period of 0600-0900 A.M. The cities studied included Dallas-Ft. Worth, Tulsa, Atlanta, Birmingham, Philadelphia, and New York City. Individual hydrocarbon compounds were measured using gas chromatographic procedures. The organic carbonyl compounds were collected on silica packed SEP-PAK cartridges impregnated with 2,4-dinitro phenyl hydrazine (DNPH) and analyzed by HPLC. The data collected will be used in photochemical ozone models, such as OZIP, to determine ozone control strategies.

AM AMBIENT MONITORING
CL-NMHC NON-METHANE HYDROCARBONS
EPA ENVIRONMENTAL PROTECTION AGENCY
10028-15-6 OZONE

PB88-130091/REB

Health and Environmental Effects Profile for Gamma-Butyrolactone
EPA, Cincinnati, OH, ECAO
Jan 84, 35p, EPA-600/X-84-145, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for gamma-butyrolactone was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an Acceptable Daily Intake (ADI) or a carcinogenic potency factor for gamma-butyrolactone.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
96-48-0 BUTYROLACTONE, 4-

PB88-130109/REB

Health and Environmental Effects Profile for Cycloate
EPA, Cincinnati, OH, ECAO
Jan 84, 28p, EPA-600/X-84-144, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for cycloate was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an acceptable daily intake (ADI) levels or a carcinogenic potency factor for cycloate.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
1134-23-2 CYCLOATE

PB88-130117/REB

Health and Environmental Effects Profile for Carbofuran
EPA, Cincinnati, OH, ECAO
Jan 84, 60p, EPA-600/X-84-150, PC A04/MF A01

Abstract: The Health and Environmental Effects Profile for carbofurans was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an Acceptable Daily Intake (ADI) or a carcinogenic potency factor for carbofurans.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
1563-66-2 CARBOFURAN

PB88-130240/REB

Developments in National Weather Service Meteorological Data Collection Programs as Related to EPA (Environmental Protection Agency) Air Pollution Models
EPA, Research Triangle Park, NC, ASRL
T.E. Pierce, and D.B. Turner
Nov 87, 121p, EPA-600/3-87-048, PC A06/MF A01

Abstract: During the next decade, the National Weather Service (NWS) will be upgrading its meteorological instrumentation and data dissemination procedures. Because these changes will affect the operation of the U.S. Environmental Protection Agency's (EPA) air pollution models, the project has been undertaken to report on proposed changes and to recommend how to make optimal use of the new NWS data products. New instrumentation will include automated surface observation systems, next generation radar, and remote profilers. Data dissemination is being upgraded with an automated weather interactive processing system.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY
89 MISCELLANEOUS SERVICES
899 SERVICES, NEC
8999 SERVICES, NEC

PB88-131065/REB
Health and Environmental Effects Profile for Methylhydrazine
EPA, Cincinnati, OH, ECAO
Jan 84, 45p, EPA-600/X-84-142, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for methylhydrazine was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Methylhydrazine has been evaluated as a carcinogen. The human carcinogen potency factor (q1*) for methylhydrazine is 1.1 (mg/kg bw/day)-1 for oral exposure.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
60-34-4 METHYL HYDRAZINE

PB88-131073/REB
Health and Environmental Effects Profile for Selected Toluene
diamines
EPA, Cincinnati, OH, ECAO
Jan 84, 42p, EPA-600/X-84-148, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for Selected Toluene Diamines was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. 2,5-Toluene diamine and 2,6-Toluene diamine have been determined to be systemic toxicants. An Acceptable Daily Intake (ADI), defined as the amount of a chemical to which humans can be exposed on a daily basis over an extended period of time (usually a lifetime) without suffering a deleterious effect, for 2,5-Toluene diamine is 5.6x10-1 (mg/kg bw/day) and for 2,6-Toluene diamine is 1.6x10-1 (mg/kg bw/day) for oral exposure.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
95-80-7 DIAMINOTOLUENE,2,4-

PB88-131081/REB
Health and Environmental Effects Profile for Trinitrophenols
EPA, Cincinnati, OH, ECAO
Jan 84, 43p, EPA-600/X-84-141, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for trinitrophenols was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient to determine an Acceptable Daily Intake (ADI) or a carcinogenic potency factor for trinitrophenols.

CL-PHENOL PHENOLS
EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
88-89-1 PICRIC ACID

PB88-131099/REB
Health and Environmental Effects Profile for M,N-Dimethylurea
EPA, Cincinnati, OH, ECAO
Jan 84, 23p, EPA-600/X-84-110, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for M,N-dimethylurea was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an Acceptable Daily Intake (ADI) or a carcinogenic potency factor for M,N-dimethylurea.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
96-31-1 DIMETHYLUREA,N,N'-

P888-131107/REB

Health and Environmental Effects Profile for 1,2-Dibromoethane
EPA, Cincinnati, OH, ECAO
Jan 84, 86p, EPA-600/X-84-173, PC A05/MF A01

Abstract: The Health and Environmental Effects Profile for 1,2-dibromoethane was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an Acceptable Daily Intake (ADI) or a carcinogenic potency factor for 1,2-dibromoethane.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
106-93-4 ETHYLENE DIBROMIDE

P888-131115/REB

Health and Environmental Effects Profile for Methyl Ethyl Benzenes
EPA, Cincinnati, OH, ECAO
Jan 84, 31p, EPA-600/X-84-149, PC A03/MF A01

Abstract: The Health and Environmental Effects Profile for Methyl Ethyl Benzenes was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an Acceptable Daily Intake (ADI) or a carcinogenic potency factor for Methyl Ethyl Benzenes.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
98-82-8 CUMENE

P888-131123/REB

Health and Environmental Effects Profile for Chrysene
EPA, Cincinnati, OH, ECAO
Jan 84, 73p, EPA 600/X-84-186, PC A04/MF A01

Abstract: The Health and Environmental Effects Profile for chrysene was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life, and environmental effects of hazardous waste constituents. Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an Acceptable Daily Intake (ADI) or a carcinogenic potency factor for chrysene.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
218-01-9 CHRYSENE

P888-133616/XAB

Chemical Characterization of Polynuclear Aromatic Hydrocarbon Degradation Products from Sampling Artifacts
EPA, Research Triangle Park, NC, EMSL
Battelle Columbus Div.
J.C. Chuang, S.W. Hannan, and L.E. Slivon
Dec 87, 77p, EPA-600/4-87-039, PC A05/MF A01

Abstract: The objective of the study was to characterize the polar components, mainly polynuclear aromatic hydrocarbon (PAH) derivatives, in air samples and to determine whether these compounds are from sampling artifacts or from the sampled air. A literature survey was conducted to review the studies about polar PAH derivatives found in the air. In general, there is limited chemical and biological information for polar PAH available in the literature. The polar fractions of air samples did show a significant amount of mutagenic activity. More studies are needed in the area to determine the polar components responsible for the activity.

AM AMBIENT MONITORING
CL-PAH POLYCYCLIC AROMATIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING

PB88-140272/XAB

Development of Collection Methods for Semivolatile Organic Compounds in Ambient Air
EPA, Research Triangle Park, NC, EMSL
South Carolina Univ.

T.F. Bidleman, M.T. Zaranski, and G.W. Patton
Dec 87, 175p, EPA-600/4-87-042, PC A08/MF A01

Abstract: Cartridges containing solid adsorbents between layers of polyurethane foam (PUF) were evaluated for collecting chlorobenzenes, chlorophenols, hexachlorocyclohexanes (HCHs), and two-ring aromatic hydrocarbons. The 26-sq.-cm cross-section glass cartridges, packed with Tenax (5-10 g), XAD-2 (14-16 g), or Florisil (30 g) between two 2.5-cm thick PUF slices, were designed to fit into the head of a General Metal Works PS-1 sampler. An inlet was built to vaporize test compounds into a clean airstream and sweep them into the adsorbent traps. Collection efficiency experiments at 20 deg C were conducted by injecting test compounds into the sampling train and determining by mass balance the percentages recovered from the traps. Retention volumes and theoretical plate numbers were determined for dichlorobenzene elution bands on PUF-Tenax cartridges. Dichlorobenzenes and two-ring aromatic hydrocarbons were collected from up to 165 cu. m air on PUF-Tenax (10 g Tenax), with mass balances averaging 88%. At 285-372 cu. m air, mass balances for tetra- through hexachlorobenzenes and HCHs averaged 89% on PUF-Tenax (5 g Tenax), 80% on PUF-XAD-2, and 78% on PUF-Florisil. Di- and trichlorophenols were collected without breakthrough by PUF-Tenax, but low recoveries were observed for pentachlorophenol and 2,3,4,5-tetrachlorophenol.

AM	AMBIENT MONITORING
CL-PAH	POLYCYCLIC AROMATIC COMPOUNDS
CL-SVOC	SEMIVOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
106-46-7	DICHLOROBENZENE, 1,4-
106-48-9	-CHLOROPHENOL, P-
108-43-0	CHLOROPHENOL, M-
108-70-3	TRICHLOROBENZENE, 1,3,5-
108-90-70	CHLOROBENZENE
118-74-1	HEXACHLOROBENZENE
120-82-1	TRICHLOROBENZENE, 1,2,4-
12002-48-1	TRICHLOROBENZENE
541-73-1	DICHLOROBENZENE, 1,3-
608-73-1	HEXACHLOROCYCLOHEXANE
608-93-5	PENTACHLOROCYCLOHEXANE
634-66-2	TETRACHLOROBENZENE, 1,2,3,4-
634-90-2	TETRACHLOROBENZENE, 1,2,3,5-
87-61-6	TRICHLOROBENZENE, 1,2,3-
95-50-1	DICHLOROBENZENE, 1,2-
95-57-8	CHLOROPHENOL, O-
95-94-3	TETRACHLOROBENZENE, 1,2,4,5-

PB88-140553/MEP

Catalytic Treatment of Air Stripping Effluents
EPA, Research Triangle Park, NC, AEERL
M. Kosusko, et al.
Dec 87, 20p, EPA-600/D-87-359, PC A03/MF A01

Abstract: The paper reviews the applicability of catalytic oxidation to control ground-water air stripping gaseous effluents with emphasis on system designs and case histories. The contaminants and catalyst poisons encountered in stripping operations are also reviewed. Vapor-phase carbon adsorption and thermal incineration, the treatment methods which have been applied most often, have some disadvantages: adsorption merely transfers the contaminant to a solid phase, which in turn requires disposal or regeneration; and thermal incineration may be expensive, since it requires a substantial energy input to destroy dilute gas-phase contaminants. A new alternative is appearing in the form of catalytic oxidation. Like thermal incineration, it is an ultimate disposal method, but the energy costs are lower.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY

PB88-140769/REB

Northeast Cooperative Woodstove Study. Volume 1.
EPA, Research Triangle Park, NC, AEERL
OMNI Environmental Services, Inc.
P. Burnet
Nov 87, 319p, EPA-600/7-87-026A, PC A14/MF A01

Abstract: The report gives results of a 2-year study in Vermont and New York, monitoring woodstove performance. The objective of the study was to determine the effectiveness of catalytic and non-catalytic low-emission woodstove technology in reducing wood use, creosote accumulation, and particulate emissions. Wood use and creosote accumulation in chimney systems were measured in 68 houses over two heating seasons (1985-86 and 1986-87). Of these houses, 42 were instrumented to measure particulate emissions and wood use. Catalytic woodstoves, catalytic add-on/retrofit devices, and non-catalytic low-emission stoves were provided by various woodstove manufacturers for use by volunteer homeowners during the study period.

CL-PM	PARTICULATE MATTER
CL-WOOD	WOOD SMOKE
CT	CONTROL TECHNOLOGY DOCUMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
8021-39-4	CREOSOTE

PB88-140777/REB

Northeast Cooperative Woodstove Study. Volume 2. Technical Appendix.

EPA, Research Triangle Park, NC

OMN! Environmental Services

P. Burnet

Nov 87, 185p, EPA-600/7-87-0268, PC A09/MF A01

Abstract: The report gives results of a 2-year study in Vermont and New York, monitoring woodstove performance. The objective of the study was to determine the effectiveness of catalytic and non-catalytic low-emission woodstove technology in reducing wood use, creosote accumulation, and particulate emissions. Averaged results indicate that the low-emission non-catalytic stoves and catalytic stoves had lower creosote accumulation, wood use, and particulate emissions than conventional technology stoves, although the range of values was quite large. The reductions in particulate emissions by the catalytic and low-emission stoves were not as great as could be expected based on laboratory tests.

CL-PM PARTICULATE MATTER

CL-WOOD WOOD SMOKE

CT CONTROL TECHNOLOGY DOCUMENT

EPA ENVIRONMENTAL PROTECTION AGENCY

SS SOURCE SAMPLING

8001-58-9 COAL TAR

PB88-149059/XAB

Locating and Estimating Air Emissions from Sources of Polycyclic

Organic Matter (POM)

EPA, Research Triangle Park, NC, OAQPS

Sep 87, 400p, EPA-450/4-84-007p, PC A17/MF A01

Abstract: To assist groups interested in inventorying air emissions of various potentially toxic substances, EPA is preparing a series of documents such as this to compile available information on sources and emissions of these substances. The document deals specifically with polycyclic organic matter (POM). Its intended audience includes Federal, State, and local air pollution personnel and others interested in locating potential emitters of POM and in making gross estimates therefrom. The document presents information on (1) the types of sources that may emit POM; (2) process variations and release points that may be expected within these sources; and (3) available emissions information indicating the potential for POM release into the air from each operation.

CL-POM POLYCYCLIC ORGANIC MATTER

EF EMISSION FACTOR

EPA ENVIRONMENTAL PROTECTION AGENCY

SA SOURCE ASSESSMENT

PB88-150958/XAB

Guideline on Air Quality Models (Revised), Supplement A

EPA, Research Triangle Park, NC, OAQPS

Jul 87, 35p, EPA-450/2-78-027R-SUPPL-A, PC A03/MF A01

Abstract: The guideline recommends air quality modeling techniques that may be applied to air pollution control strategy evaluations and new source reviews, including prevention of significant deterioration. It is intended for use by EPA Regional Offices in judging the adequacy of modeling analyses performed by EPA, by State and local agencies, and by industry and its consultants. It also identifies modeling techniques and data bases that EPA considers acceptable. The guideline makes specific recommendations concerning air quality estimates, data bases, and general requirements for concentration models. This is Supplement A to the guideline. It contains: (1) addition of a specific version of the Rough Terrain Diffusion Model (RTDM) as a screening model; (2) modification of the downwash algorithm in the Industrial Source Complex (ISC) model; (3) addition of the Offshore and Coastal Dispersion (OCD) model to Appendix A; and, (4) addition of the AVACTA II model to Appendix B.

DM

EPA DISPERSION MODELING

ENVIRONMENTAL PROTECTION AGENCY

PB88-153671/REB

Indoor Air Quality Modeling, Phase 2 Report. Residential Indoor Air Quality Simulation

EPA, Washington, DC
National Bureau of Standards (NEL)
J.W. Axley

Oct 87, 158p, NBSIR-87/3661

Abstract: The interim report presents the results of Phase II of the NBS General Indoor Air Pollution Concentration Model Project. It describes the theoretical basis of a general-purpose nonreactive contaminant dispersal analysis model for buildings, the computational implementation of a portion of this model in the program CONTAM86, and examples of the application of the model to practical problems of contaminant dispersal analysis. Presently, the model is being extended to handle problems of reactive contaminant dispersal analysis and full computational implementation of all portions of the model is being completed. The contaminant dispersal analysis model is based upon the idealization of building air flow systems as an assemblage of flow elements connected to discrete system nodes corresponding to well-mixed air zones within the building and its HVAC system. Equations governing the air flow processes in the building (e.g., infiltration, exfiltration, HVAC system flow, and zone-to-zone flow) and equations governing the contaminant dispersal due to the flow, accounting for contaminant generation or removal, are formulated by assembling element equations so that the fundamental requirement of conservation of mass is satisfied in each zone. The character and solution of the resulting equations are discussed, and steady and

DM DISPERION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY
1A INDOOR AIR

PB88-156617/REB

Installation and Testing of Indoor Radon Reduction Techniques in 40 Eastern Pennsylvania Houses

EPA, Research Triangle Park, NC, AEERL
A.G. Scott, A. Robertson, and W.O. Findlay
Jan 88, 399p, EPA-600/8-88-002, PC A17/MF A01

Abstract: The report discusses the installation and testing of indoor radon reduction techniques in 40 houses in eastern Pennsylvania. Early in 1985, the Pennsylvania Department of Environmental Resources (PDER) started a large radon survey in communities in the Reading Prong (a granite formation) in eastern Pennsylvania, following the discovery of a house with extremely high radon concentrations, greater than 1.2 MBq/cu m. Candidate houses for the program, with radon concentrations in excess of 750 Bq/cu m, were selected from this survey. A total of 40 houses with representative substructure types were chosen from this group, and mitigation methods were selected and installed from June 1985 to June 1987. Initial soil ventilation installations achieved large reductions in radon concentrations at low cost, but these reductions were not always sustained in colder weather, and several systems were modified during the project to improve their performance. Major reductions in radon concentration were realized in all the houses worked on, with most houses with active soil ventilation systems achieving less than 150 Bq/cu m (4 pCi/L) on an annual average basis in the living areas.

CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
1A INDOOR AIR
10043-92-2 RADON
88 PRIVATE HOUSEHOLDS
881 PRIVATE HOUSEHOLDS
8811 PRIVATE HOUSEHOLDS

PB88-157813/XAB

National Air Toxics Information Clearinghouse: How the Clearinghouse Can Help to Answer Your Air Toxics Questions
EPA, Research Triangle Park, NC, SASD
Radion Corporation
Jul 86, 100p, EPA-450/5-86-009, PC A05/MF A01

Abstract: The purpose of the report is to complement the effort now underway to prepare and implement multiyear development plans by showing how the Clearinghouse can help to answer questions commonly asked by State and local agencies involved with air toxics assessment and control. Several sources were consulted to develop a series of questions and problem scenarios typical of those that State and local agencies might face in developing and implementing air toxics control programs, handling complaints, completing new source review permits, and carrying on other similar work that may not be part of a control program.

CL-VARIOUS VARIOUS
EPA ENVIRONMENTAL PROTECTION AGENCY
RUG REGULATORY DEVELOPMENT GUIDANCE

PB88-160544/XAB

Application of Matrix Isolation Infrared Spectroscopy to Analysis for Polynuclear Aromatic Hydrocarbons in Environmental Samples
EPA, Research Triangle Park, NC, EMSL
Northrop Services, Inc.
N.K. Wilson, J.W. Childers, and R.K. Barbour
Jan 88, 20p, EPA-600/D-88-020, PC A03/MF A01

Abstract: Gas chromatography combined with matrix isolation infrared spectroscopy (GC/MI-IR) enables identification and quantification of components of complex mixtures by infrared spectroscopy at levels of a few nanograms. These levels are several orders of magnitude lower than those achieved by light pipe-based infrared measurements. Researchers used GC/MI-IR to identify polynuclear aromatic hydrocarbons in extracts of several types of air samples, including ambient air particulate matter, diesel engine exhaust, and wood smoke. Included are examples of these analyses and a discussion of the ongoing research using MI-IR for identification of unknown compounds associated with the highly mutagenic fractions of air samples.

AM AMBIENT MONITORING
CL-DIESEL DIESEL FUEL EMISSIONS
CL-PAH POLYCYCLIC AROMATIC COMPOUNDS
CL-PM PARTICULATE MATTER
CL-WOOD WOOD SMOKE
EPA ENVIRONMENTAL PROTECTION AGENCY
SS SOURCE SAMPLING

PB88-163019/XAB

Toxic Air Pollutant/Source Crosswalk: Information Storage and Retrieval System User's Manual
EPA, Research Triangle Park, NC, OAQPS
Pacific Environmental Services, Inc.
Dec 87, 61p, EPA-450/4-87-0238, PC A04/MF A01

Abstract: The report presents instructions on the Toxic Air Pollutant Crosswalk System that was developed to allow easy access and updates to the crosswalk data presented in the accompanying EPA report, Toxic Air Pollutant/Source Crosswalk - A Screening Tool For Locating Possible Source Emitting Toxic Air Pollutants, EPA-450/4-87-023a. The software system is an IBM PC based application that contains a listing of industrial source categories (SIC Codes), emitting source classifications (SCC codes), and their likely associated pollutants. The crosswalk program has modules that allow users to add, delete, edit, or browse specific data and to print tables contained in the accompanying crosswalk document. EPA is making available the system and data and data base records to agency users on three high-density diskettes. The purpose of the report is to document the usage of the system. The system was designed as a tool to develop the report, Toxic Air Pollutant/Source Crosswalk - A Screening Tool For Locating Possible Sources Emitting Toxic Air Pollutant.

EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT

PB88-165683/XAB

Selection Guide for Volatilization Technologies for Water Treatment
EPA, Cincinnati, OH, HWERL
IT Corp.

J.L. Fleming

Feb 88, 130p, EPA-600/2-88-014, PC A07/MF A01

Abstract: The guide presents a methodology for evaluating applicability of volatilization technologies for removing volatile organics from water. The volatilization technologies assessed in the study include: surface sprayers, surface aerators, bubble columns, cooling towers, steam strippers, unaided evaporation from an impoundment, spray columns, and packed air stripping columns. The guide enables users to assess performance and cost under a variety of operating conditions (e.g., temperature, influent concentration, allowable liquid and gas effluent concentration, and flow rates) for representative equipment designs that could be transported on a trailer 2.4 m wide, 13.7 m long, with a maximum height of 4.1 m. The designs are used to calculate representative contaminant removal efficiency, treatment rates, air emissions, and treatment costs of each technology. A key parameter used in assessing these technologies is the Henry's Law constant (H). A tabulation of available H values is provided for volatiles designated as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Methods for estimating H are also described. Qualitative guidance is given on factors that should be considered during site-specific assessments of the technical and economic feasibility of volatilization.

CL-VOC VOLATILE ORGANIC COMPOUNDS
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY

PB88-168570/XAB

Toxicology and Carcinogenesis Studies of Methyl Carbamate (CAS No. 598-55-0) in F344/N Rats and B6C3F1 Mice (Gavage Studies)
NTP, Research Triangle Park, NC
Nov 87, 170p, NTP-TR-328, PC A08/MF A01

Abstract: Two-year studies of methyl carbamate were conducted by administering doses of 0, 100 or 100 mg/kg methyl carbamate in distilled water by gavage, 5 days per week for 103 weeks, to groups of 50 F344/N rats of each sex. Groups of 50 B6C3F1 mice of each sex were administered doses of 0, 500 or 1,000 mg/kg methyl carbamate on the same schedule. Additional groups of 30 rats of each sex were administered 0 or 400 mg/kg methyl carbamate, and additional groups of 30 mice of each sex were administered 0 or 1,000 mg/kg methyl carbamate in distilled water by gavage, 5 days per week. Ten animals from each group were killed at 6, 12, or 18 months so that the progression of lesions could be followed. Under the conditions of these studies, there was clear evidence of carcinogenic activity for male and female F344/N rats. There was no evidence of carcinogenic activity for male and female B6C3F1 mice given methylcarbamate at doses of 500 or 1,000 mg/kg.

NTP NATIONAL TOXICOLOGY PROGRAM
IT TOXICITY TESTING
598-55-0 METHYL CARBAMATE

PB88-168687/XAB

Toxicology and Carcinogenesis Studies of Bromodichloromethane (CAS No. 75-27-4) in F344/N Rats and B6C3F1 Mice (Gavage Studies)
NTP, Research Triangle Park, NC
Oct 87, 177p, NTP-TR-321, PC A09/MF A01

Abstract: Two-year toxicology and carcinogenesis studies of bromodichloromethane were conducted by administering the chemical in corn oil, by gavage, 5 days per week of 102 weeks, to groups of 50 male and 50 female rats at doses of 0, 50, or 100 mg/kg per day; to groups of 50 male mice at doses of 0, 25, 50 mg/kg per day; and to groups of 50 female mice at doses of 0, 75, or 150 mg/kg per day. Under the conditions of these 2-year gavage studies, there was clear evidence of carcinogenic activity for male and female F344/N rats and B6C3F1 mice as shown by increased incidences of tubular cell adenomas and adenocarcinomas in the kidney and adenocarcinomas and adenomatous polyps in the large intestine in male and female rats, increased incidences of tubular cell adenomas and adenocarcinomas in the kidney of male mice, and increased incidences of hepatocellular adenomas and carcinomas in female mice.

NTP NATIONAL TOXICOLOGY PROGRAM
IT TOXICITY TESTING
75-27-4 BROMODICHLOROMETHANE

P888-168695/XAB

Toxicology and Carcinogenesis Studies of Dimethyl Methylphosphonate (CAS No. 756-79-6) in F344/N Rats and B6C3F1 Mice (Gavage Studies) NTP, Research Triangle Park, NC
Nov 87, 165p, NTP-TR-323, PC A08/MF A01

Abstract: Two-year toxicology and carcinogenesis studies were conducted by administering dimethyl methylphosphonate in corn oil by gavage at doses of 0, 500 or 1,000 mg/kg per day to groups of 50 F344/N rats of each sex and at 0, 1,000 or 2,000 mg/kg per day to groups of 50 B6C3F1 mice of each sex 5 days per week for 103 weeks. Under the conditions of these 2-year gavage studies, there was some evidence of carcinogenic activity of dimethyl methylphosphonate for male F344/N rats as shown by increased incidences of tubular cell hyperplasia, tubular cell adenocarcinomas, hyperplasia of the transitional cell epithelium, and transitional cell papillomas of the kidney. There was no evidence of carcinogenic activity for female F344/N rats given doses of 500 or 1,000 mg/kg. The study in male B6C3F1 mice was an inadequate study because of decreased survival. There was no evidence of carcinogenic activity for female B6C3F1 mice at a dose of 1,000 mg/kg; decreased survival of female mice at 2,000 mg/kg made this group inadequate for determination of carcinogenic activity.

NTP NATIONAL TOXICOLOGY PROGRAM
T1 TOXICITY TESTING
756-79-6 DIMETHYL METHYLPHOSPHONATE

P888-169594/XAB

Guidance on Estimating Motor Vehicle Emission Reductions from the Use of Alternative Fuels and Fuel Blends
EPA, Ann Arbor, MI, ECTD
Jan 88, 87p, EPA/AA/TSS/PA-87/4, PC A05/MF A01

Abstract: The document provides methods and assumptions for estimating the impact of use of alternative fuels and fuel blends on motor vehicle emissions including HC, CO, and NOx. The information is presented in a format which assumes it will be used by State and local air quality planning agencies in strategies during 1988, 1989, and 1990. Such planning efforts will be necessary in areas which receive calls from EPA for revisions to their ozone or CO State Implementation Plans (SIP) following their failure to attain (or in a few cases following their failure to provide for attainment in a prospective sense) the National Ambient Air Quality Standards (NAAQS) for these pollutants. EPA has recently proposed requirements applicable to these SIP calls (52 FR 45044, November 24, 1987), and many affected areas will need to estimate current and future year motor vehicle emissions. Use of alternative fuels and fuel blends is likely to be part of future scenarios that will be examined in many areas.

CL-DIESEL DIESEL FUEL EMISSIONS
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
RDG REGULATORY DEVELOPMENT GUIDANCE
10028-15-6 OZONE
10102-43-9 NITRIC OXIDE
10102-44-0 NITROGEN DIOXIDE
630-08-0 CARBON MONOXIDE
64-17-5 ETHANOL
8006-61-9 GASOLINE

PB88-169859/XAB

Toxicology and Carcinogenesis Studies of Ethylene Oxide (CAS No. 75-21-8) in B6C3F1 Mice (Inhalation Studies) NTP, Research Triangle Park, NC
Nov 87, 113p, NTP-TR-326, PC A06/MF A01

Abstract: Two-year toxicology and carcinogenesis studies of ethylene oxide were conducted by exposing groups of 50 B6C3F1(1) mice of each sex to air containing 0, 50, or 100 ppm ethylene oxide 6 hours per day, 5 days per week for 102 weeks. Under the conditions of these 2-year inhalation studies, there was clear evidence of carcinogenic activity for B6C3F1(1) mice as indicated by dose-related increased incidences of benign or malignant neoplasms of the lung and benign neoplasms of the hardenian gland in both male and female B6C3F1(1) mice following exposure to ethylene oxide vapors at 50 and 100 ppm. In female mice, ethylene oxide caused additional malignant neoplasms of the uterus, mammary gland, and hematopoietic system (lymphoma).

NTP NATIONAL TOXICOLOGY PROGRAM
TT TOXICITY TESTING
75-21-8 ETHYLENE OXIDE

PB88-174313/XAB

Carcinogenesis Studies of Food Grade Geranyl Acetate (71% Geranyl Acetate, 29% Citronellyl Acetate) (CAS No. 105-87-3) in F344/N Rats and B6C3F1 Mice (Gavage Study) NTP, Research Triangle Park, NC
Oct 87, 152p, NTP-TR-252, PC A08/MF A01

Abstract: Carcinogenesis studies of food-grade geranyl acetate (containing 29% citronellyl acetate) were conducted by administering the test chemical in corn oil by gavage to groups of 50 male and 50 female F344/N rats at doses of 0, 1,000 or 2,000 mg/kg body weight and to groups of 50 male and 50 female B6C3F1 mice at doses of 0, 500 or 1,000 mg/kg. Doses were administered five times per week for 103 weeks. Under the conditions of these studies, geranyl acetate was not carcinogenic for F344/N rats or B6C3F1(1) mice of either sex; however, the reduced survival observed in high dose male rats, high dose male mice, and high and low dose female mice lowered the sensitivity of these studies for detecting neoplastic responses in these groups. In male rats the marginal increases of squamous cell papillomas of the skin and tubular cell adenomas of the kidney may have been related to administration of geranyl acetate.

NTP NATIONAL TOXICOLOGY PROGRAM
TT TOXICITY TESTING
105-87-3 GERANYL ACETATE
150-84-5 OCTEN-1-OL, 6-, 3,7-DIMETHYL-, ACETATE

PB88-202734/JAS

National Air Toxics Information Clearinghouse (NATICH) Database Users Guide for Data Entry and Editing EPA, Research Triangle Park, NC, OAQPS
Radian Corp.
S.A. Smith
Feb 88, 90p, EPA-4505-88-001, PC A05/MF A01

Abstract: The National Air Toxics Information Clearinghouse (NATICH) data base is a computerized data base which contains indexed information on toxic and potentially toxic air pollutants. The NATICH data base has been established by the U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, to support State and local programs in the control of non-criteria air pollutants. The data base is intended to facilitate information exchange among state and local agencies and between EPA and State and local agencies and to minimize duplication of effort. The NATICH data base contains two major categories of data: (1) data collected from State and local air pollution control agencies on their air toxics activities, and (2) citations and abstracts to published documents and ongoing research related to toxic air pollutants from EPA and other agencies and organizations.

CL-VARIOUS VARIOUS
EPA ENVIRONMENTAL PROTECTION AGENCY
RDG REGULATORY DEVELOPMENT GUIDANCE

WT011

PRELIMINARY RISK ANALYSIS OF ARSENIC EMISSIONS FROM A RECOVERY FACILITY
NY DEPT. OF ENV. QUALITY, AIR QUALITY DIV.
DAVID PATRICK
11/01/85, 25 pages

THIS DOCUMENT DESCRIBES A RISK ASSESSMENT FOR ARSENIC PERFORMED BY THE EPA, POLLUTANT ASSESSMENT BRANCH. THE SOURCE IS A SMALL ARSENIC ACID PRODUCTION FACILITY WHICH RECOVERS ARSENIC FROM LEAD SMELTER FLUE DUST. THE PLANT IS LOCATED NEAR A SMALL CITY OF APPROXIMATELY 30,000 PEOPLE.

EPA ENVIRONMENTAL PROTECTION AGENCY
RA RISK ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
28 CHEMICALS AND ALLIED PRODUCTS
287 AGRICULTURAL CHEMICALS
2879 AGRICULTURAL CHEMICALS, NEC
7440-38-2 ARSENIC AND COMPOUNDS AS AS

38 FR 15406 06-11-73

Standards of Performance for New Stationary Sources: Proposed
Standards for Seven Source Categories
EPA, Research Triangle Park, NC, ESED

Abstract: Proposed Rule. Pursuant to section 111 of the Clean Air Act, the Administrator proposes standards of performance for new and modified sources within seven categories of stationary sources: asphalt concrete plants, petroleum refineries, storage vessels for petroleum liquids, secondary lead smelters, secondary brass and bronze ingot production plants, iron and steel plants, and sewage treatment plants. Also proposed are amendments to the general provisions of 40 CFR, part 60, published on December 12, 1971 (36 FR 24876), and to its appendix, "Test Methods". In a separate publication, May 2, 1973 (38 FR 10820), proposed amendments to the general provisions prescribe procedures for dealing with emissions that exceed standards during start-ups, shutdown, or malfunctions. The general provisions apply to all standards of performance for new and modified sources, both those standards promulgated to date (36 FR 24876) and those to be promulgated in the future. As prescribed by Section 111, this proposal of seven categories of sources contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare and by his publication of a list of these categories of sources in this issue of the "Federal Register".

EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NSPS NEW SOURCE PERFORMANCE STANDARD
29 PETROLEUM AND COAL PRODUCTS
291 PETROLEUM REFINING
2911 PETROLEUM REFINING
33 PRIMARY METAL INDUSTRIES
332 IRON AND STEEL FOUNDRIES
334 SECONDARY NONFERROUS METALS
3341 SECONDARY NONFERROUS METALS
35 MACHINERY, EXCEPT ELECTRICAL
353 CONSTRUCTION AND RELATED MACHINERY
3531 CONSTRUCTION MACHINERY
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

45 FR 23374 04-04-80

Standards of Performance for New Stationary Sources; Petroleum
Liquid Storage Vessels
EPA, Research Triangle Park, NC, ESED

Abstract: Final rule. This regulation establishes equipment standards which limit emissions of volatile organic compounds (VOC) from new, modified, or reconstructed petroleum liquid storage vessels. The standards implement the Clean Air Act and are based on the Administrator's determination that emissions from petroleum liquid storage vessels contribute significantly to air pollution. The intended effect of this regulation is to require new, modified, or reconstructed petroleum liquid storage vessels to use the best demonstrated system of continuous emission reduction considering costs and nonair quality health, environmental, and energy impacts.

CL-VOC VOLATILE ORGANIC COMPOUNDS
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NSPS NEW SOURCE PERFORMANCE STANDARD
42 TRUCKING AND WAREHOUSING
422 PUBLIC WAREHOUSING
4226 SPECIAL WAREHOUSING AND STORAGE, NEC

49 FR 29698 07-23-84

Standards of Performance for New Stationary Sources, Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) Constructed after July 23, 1984
EPA, Research Triangle Park, NC, ESED

Abstract: Proposed rule and notice of public hearing. The proposed standards would limit emissions of volatile organic compounds (VOC) from new, modified and reconstructed storage vessels storing volatile organic liquids (VOL). The proposed standards implement section 111 of the Clean Air Act and are based on the Administrator's determination that emissions from the synthetic organic chemical manufacturing industry and volatile organic liquid storage vessels cause, or contribute significantly to, air pollution that may reasonably be anticipated to endanger public health or welfare. The intent is to require new, modified, and reconstructed VOL storage vessels to control emissions to the level achievable by the best demonstrated system of continuous emission reduction, considering costs, nonair quality health, and environmental and energy impacts. The facilities covered by these proposed standards include new petroleum liquid storage vessels of the types for which new source performance standards have already been promulgated. These proposed standards revise the requirements for petroleum liquid storage vessels.

CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NSPS NEW SOURCE PERFORMANCE STANDARD
28 CHEMICALS AND ALLIED PRODUCTS
286 INDUSTRIAL ORGANIC CHEMICALS
2869 INDUSTRIAL ORGANIC CHEMICALS, MEC
42 TRUCKING AND WAREHOUSING
422 PUBLIC WAREHOUSING
4226 SPECIAL WAREHOUSING AND STORAGE, NEC

51 FR 00854 01-08-86

Standards of Performance for New Stationary Sources Industrial Surface Coating; Plastic Parts for Business Machines
EPA, Research Triangle Park, NC, ESED

Abstract: Proposed rule. The proposed standards would limit emissions of volatile organic compounds (VOC's) from new, modified, and reconstructed facilities that surface coat plastic parts for business machines. The proposed standards implement section 111 of the Clean Air Act and are based on the Administrator's determination that emissions from facilities that coat plastic business machine parts cause or contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare. The intent is to require new, modified, and reconstructed facilities to control emissions to the level achievable by the best demonstrated system of continuous emission reduction, considering costs, nonair quality health, and environmental and energy impacts.

CL-VOC VOLATILE ORGANIC COMPOUNDS
CT CONTROL TECHNOLOGY DOCUMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NSPS NEW SOURCE PERFORMANCE STANDARD
35 MACHINERY, EXCEPT ELECTRICAL
357 OFFICE AND COMPUTING MACHINES
3579 OFFICE MACHINES, NEC

52 FR 05065 02-18-87

Standards of Performance for New Stationary Sources; Listing of Residential Wood Heaters for Development of New Source Performance Standards
EPA, Research Triangle Park, NC, SDB

Abstract: Listing, Notice of Public Hearing, and Request for Comments. This notice lists residential wood heaters as a new source category for regulation under section 111 of the Clean Air Act. This listing is based on the Administrator's determination that residential wood heaters cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health and welfare.

CL-WOOD WOOD SMOKE
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NSPS NEW SOURCE PERFORMANCE STANDARD

52 FR 08724 03-19-87

National Emission Standards for Hazardous Air Pollutants; Review and Revision of the Standards for Mercury
EPA, Research Triangle Park, NC, ESED

Abstract: Final Rule; Review. This action promulgates revisions to the national emission standards for the hazardous air pollutant mercury [Chemical Abstract Service (CAS) Registry Number 7439-97-6]. Revisions were proposed in the Federal Register on December 26, 1984. These revisions add monitoring, reporting, and one-time emission testing requirements to the standards for mercury-cell chlor-alkali plants and allow an owner or operator the option of developing and submitting for approval a plant-specific monitoring plan. The revisions also allow the owner or operator of any facility affected by 40 CFR Part 61, Subpart E, up to 15 days to verify the validity of source test data prior to reporting the results to the Administrator.

EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NESHAP NAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
10 METAL MINING
109 MISCELLANEOUS METAL ORES
1092 MERCURY ORES
28 CHEMICALS AND ALLIED PRODUCTS
281 INDUSTRIAL INORGANIC CHEMICALS
2819 INDUSTRIAL INORGANIC CHEMICALS, NEC
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS
7439-97-6 MERCURY

52 FR 11420 04-08-87

Standards of Performance for New Stationary Sources: Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)
EPA, Research Triangle Park, NC, ESED

Abstract: Final rule. Standards of performance for volatile organic liquid (VOL) storage vessels (including petroleum liquid storage vessels) were proposed in the Federal Register on July 23, 1984 (49 FR 29698). That notice included revisions to the priority list to include VOL storage vessels: revisions to the standards of performance for petroleum liquid storage vessels constructed after June 11, 1973, and prior to May 19, 1978 (38 FR 15406); and revisions to the standards of performance for petroleum liquid storage vessels constructed after May 18, 1978 (45 FR 23374), and prior to July 23, 1984. This action promulgates those revisions and the standards of performance for VOL storage vessels (including petroleum liquid storage vessels). These standards implement Section 111 of the Clean Air Act and are based on the Administrator's determination that synthetic organic chemical manufacturing industry and VOL storage vessels and handling equipment cause or contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare. The intended effect of these standards is to require all new, modified, and reconstructed VOL storage vessels to use the best demonstrated system of continuous emission reduction, considering costs, nonair quality health, and environmental and energy impacts.

CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NSPS NEW SOURCE PERFORMANCE STANDARD
28 CHEMICALS AND ALLIED PRODUCTS
286 INDUSTRIAL ORGANIC CHEMICALS
2869 INDUSTRIAL ORGANIC CHEMICALS, NEC

52 FR 13586 04-23-87

National Emission Standards for Hazardous Air Pollutants; Coke Oven Emissions from Wet-Coal Charged By-Product Coke Oven Batteries
EPA, Research Triangle Park, NC, ESED

Abstract: Proposed rule and notice of public hearing. The proposed standards would limit coke oven emissions from all new and existing wet-coal charged by-product coke oven batteries in the iron and steel industry. The proposed standards would implement section 112 of the Clean Air Act (CAA) and are based on the Administrator's listing of coke oven emissions, September 18, 1984 (49 FR 36560). New Test Method 109, "determination of Visible Emissions from Coke Oven Batteries," also is proposed. A public hearing will be held, if requested, to provide interested persons an opportunity for oral presentation of data, views, or arguments concerning the proposed standard for wet-coal charged by-product coke oven batteries or the listing of coke oven emissions under section 112.

CL-COE COKE OVEN EMISSIONS
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NESHAP
33 NAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
33 PRIMARY METAL INDUSTRIES
331 BLAST FURNACE AND BASIC STEEL PRODUCTS
332 IRON AND STEEL FOUNDRIES

52 FR 25399 07-07-87

Assessment of Municipal Waste Combustor Emissions Under the Clean Air Act
EPA, Research Triangle Park, NC, ESED

Abstract: Response to petition for rulemaking and advance notice of proposed rulemaking (ANPRM). This notice describes the results of EPA's preliminary assessment of air emissions from municipal waste combustors (MWC) and provides EPA's response to petitions filed August 5, 1986, by the Natural Resources Defense Council (NRDC) and the States of New York, Connecticut, and Rhode Island. Based on the assessment, the Administrator has judged that MWC emissions may reasonably be anticipated to contribute to the endangerment of public health and welfare. As a result, this action also constitutes advance notice of EPA's intent to propose regulation of MWC emissions from new or modified MWC under section 111(b) of the Clean Air Act (CAA).

CL-VARIOUS VARIOUS
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NSPS NEW SOURCE PERFORMANCE STANDARD
49 ELECTRIC, GAS, AND SANITARY SERVICES
495 SANITARY SERVICES
4953 REFUSE SYSTEMS

52 FR 28140 07-28-87

National Emission Standards for Hazardous Air Pollutants; Standard for Radionuclides
EPA, Washington, DC, ORP

Abstract: Technical amendment. Final rules for National Emission Standards for Hazardous Air Pollutants; Standards for Radionuclides were published in the Federal Register on February 6, 1985, 50 FR 5190. These included the following source categories: Department of Energy (DOE) facilities, Nuclear Regulatory Commission (NRC) licensed facilities and non-DOE Federal facilities, and elemental phosphorus plants. The action being accomplished today announces that the information collection requirements contained in 40 CFR Part 61, Subpart K regarding elemental phosphorus plants, which were under review by the Office of Management and Budget (OMB) at the time of promulgation, have now been approved.

CL-RAD RADIATION
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NESHAP NAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

52 FR 29548 08-10-87

Organic Solvent Cleaning (Degreasing); Initiation of Regulatory Investigation
EPA, Research Triangle Park, NC, CPO

Abstract: Notice requesting public participation in information gathering for organic solvent cleaning. The EPA is considering development of national emissions standards for hazardous air pollutants (HESHAP) for organic solvent cleaners under section 112 of the Clean Air Act. These standards would control emissions of trichloroethylene (TCE), perchloroethylene (PCE), and methylene chloride (MC) from both existing and new solvent cleaners. The EPA is also considering current development of new source performance standards (NSPS) under section 111 of the Clean Air Act for control of volatile organic compounds (VOC) emissions from solvent cleaners. The types of equipment that would be regulated include cold cleaners, parts washers, open top vapor degreasers, conveyorized degreasers, and other organic vapor generating devices used in cleaning or drying. The purpose of this notice is to advise the public that regulatory activities are being considered and to identify interested parties who would participate in the information gathering activities for standards development.

CL-SOLVENT SOLVENTS
CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
HESHAP NAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
NSPS NEW SOURCE PERFORMANCE STANDARD
127-18-4 TETRACHLOROETHYLENE
75-09-2 METHYLENE CHLORIDE
79-01-6 TRICHLOROETHYLENE

52 FR 31633 08-21-87

Proposed Extension to Innovative Technology Waiver for New Source Performance Standards for Kraft Pulp Mills
EPA, Research Triangle Park, NC, ESED

Abstract: Proposed rule and notice of public hearing. The EPA proposes to amend the standards of performance for kraft pulp mills by extending the time period granted for an innovative technology waiver for operation of a new batch digester at the OI Valdosta and Timber STS, Inc. (OI) kraft pulp mill in Valdosta, Georgia, pursuant to section 111(j) of the Clean Air Act, as amended, 42 U.S.C. 7411(j). This waiver extension would provide an opportunity to demonstrate the capability of a batch digesting displacement heating system to achieve equal or greater emission reductions than required by the existing standards of performance for digester systems at kraft pulp mills at lower costs. Considerable energy and environmental benefits would also be achieved with this technology. The purpose of this notice is to invite public comments and to offer an opportunity to request a public hearing on the proposed extension to the innovative technology waiver.

EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NSPS NEW SOURCE PERFORMANCE STANDARD
26 PAPER AND ALLIED PRODUCTS
261 PULP MILLS
2611 PULP MILLS

52 FR 32597 08-28-87

Assessment of Zinc and Zinc Oxide as Potentially Toxic Air Pollutants

EPA, Research Triangle Park, NC, SASD

Abstract: Notice of zinc and zinc oxide assessment (Zn/ZnO) results and solicitation of information. This notice announces the results of EPA's assessment of Zn/ZnO as candidates for regulation under the Clean Air Act (CAA). The Agency has concluded that the health date for Zn/ZnO is insufficient to determine their carcinogenic, mutagenic, or teratogenic potential following inhalation exposures. Adverse respiratory effects have been associated with inhalation exposure to Zn/ZnO fumes and dusts. Similarly, exposure to total particulate matter, which may contain Zn/ZnO, has been associated with adverse respiratory effects. Primary national ambient air quality standards (NAAQs) for particles having diameters of less than or equal to 10 microns (PM-10) have been established to protect the general public from such adverse respiratory effects. Therefore, no regulation under the CAA directed specifically at controlling emissions of Zn/ZnO is appropriate at this time. This finding has no effect on the regulation of Zn/ZnO as particulate matter to attain the NAAQS for particulate matter. In addition, this notice does not preclude any State or local air pollution control agency from specifically regulating emission sources of Zn/ZnO.

CL-PM

PARTICULATE MATTER

EPA ENVIRONMENTAL PROTECTION AGENCY

FR FEDERAL REGISTER NOTICES

MESNAP MAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

NSPS NEW SOURCE PERFORMANCE STANDARD

1314-13-2

ZINC OXIDE, FUME

28 CHEMICALS AND ALLIED PRODUCTS

281 INDUSTRIAL INORGANIC CHEMICALS

2816 INORGANIC PIGMENTS

33 PRIMARY METAL INDUSTRIES

333 PRIMARY NONFERROUS METALS

3333 PRIMARY ZINC

335 NONFERROUS ROLLING AND DRAWING

3356 NONFERROUS ROLLING AND DRAWING, NEC

7440-66-6

ZINC

52 FR 37617 10-08-87

National Emission Standards for Hazardous Air Pollutants; Amendments to General Provisions

EPA, Research Triangle Park, NC, OAQPS

Abstract: Final rule. The Environmental Protection Agency (EPA) amended Subpart A, the General Provisions for national emission standards for hazardous air pollutants (MESNAPS), on November 7, 1985 (50 FR 46284) and April 1, 1986 (51 FR 11021). The promulgated amendments included a list of substances for which EPA has published a notice that included consideration of the serious health effects, including cancer, from ambient air exposure to the substance. This notice amends this list to include additional substances: copper, nickel, phenol, zinc, and zinc oxide.

EPA

ENVIRONMENTAL PROTECTION AGENCY

FR FEDERAL REGISTER NOTICES

MESNAP MAT'L EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

108-95-2

PHENOL

1314-13-2

ZINC OXIDE, FUME

7440-02-2

NICKEL

7440-50-8

COPPER

7440-66-6

ZINC

52 FR 42434 11-05-87

Standards of Performance for New Stationary Sources; Grain Elevators and Stationary Gas Turbines; Correction

EPA, Research Triangle Park, NC, ESED

Abstract: Final rule; correction. This notice clarifies the applicability dates for the standards of performance for grain elevators (Subpart DD of 40 CFR Part 60, published in the Federal Register August 3, 1978), and stationary gas turbines (Subpart GG of 40 CFR Part 60, published in the Federal Register September 10, 1979). The applicability dates were inadvertently omitted from these subparts.

EPA

ENVIRONMENTAL PROTECTION AGENCY

FR FEDERAL REGISTER NOTICES

NSPS NEW SOURCE PERFORMANCE STANDARD

01 AGRICULTURAL PRODUCTION-CROPS

02 AGRICULTURAL PRODUCTION-LIVESTOCK

07 AGRICULTURAL SERVICES

42 TRUCKING AND WAREHOUSING

422 PUBLIC WAREHOUSING

4221 FARM PRODUCT WAREHOUSING AND STORAGE

51 WHOLESALE TRADE-NONDURABLE GOODS

515 FARM-PRODUCT RAW MATERIALS

5153 GRAIN

52 FR 47032 12-11-87

Standards of Performance for New Stationary Sources; Polypropylene, Polyethylene, Polystyrene, and Poly(ethylene terephthalate) Manufacturing Industry
EPA, Research Triangle Park, NC

Abstract: Extension of public comment period. The end of the public comment period has been extended 60 days for the proposed national emission standards for volatile organic compounds from certain polymer manufacturing plants in response to a request from the Chemical Manufacturers Association (CMA). This request expressed the need for additional time to analyze more fully the effect of the proposed standards on certain polymer manufacturing processes that CMA claims are not clearly represented by any one of the polymer categories for which regulations have been proposed.

CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NSPS NEW SOURCE PERFORMANCE STANDARD
25038-59-9 POLY (OXYETHYLENE OXYTEREPHTHALOYL)
25322-69-4 POLYPROPYLENE GLYCOL
30 RUBBER AND MISC. PLASTICS PRODUCTS
307 MISCELLANEOUS PLASTICS PRODUCTS
3079 MISCELLANEOUS PLASTICS PRODUCTS
9002-88-4 POLYETHYLENE
9003-53-6 STYRENE, POLYMERS

53 FR 02672 01-29-88

Standards of Performance for New Stationary Sources; Industrial Surface Coating; Plastic Parts for Business Machines
EPA, Research Triangle Park, NC, ESED

Abstract: Final rule. Standards of performance for new, modified, or reconstructed facilities that surface coat plastic parts for business machines were proposed in the Federal Register on January 8, 1986 (51 FR 854). This action promulgates the standards of performance for affected facilities that surface coat plastic parts for business machines. These standards implement section 111 of the Clean Air Act and are based on the Administrator's determination that emissions from facilities that surface coat plastic business machine parts cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare. The intended effect of these standards is to require all new, modified, and reconstructed facilities that surface coat plastic parts for business machines to control emissions of volatile organic compounds (VOC) to the level achievable by the best demonstrated system of continuous emission reduction, considering costs, nonair quality health, and environmental and energy impacts.

CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
FR FEDERAL REGISTER NOTICES
NSPS NEW SOURCE PERFORMANCE STANDARD
28 CHEMICALS AND ALLIED PRODUCTS

APPENDIX A

INDEX TO NATIONAL AIR TOXICS INFORMATION CLEARINGHOUSE
NEWSLETTER: DECEMBER 1983 THROUGH MARCH 1988

ABOUT THE NEWSLETTERS

The National Air Toxics Information Clearinghouse Newsletter is published by the Clearinghouse to inform interested persons of current activities related to toxic air pollutants. To be placed on the mailing list, contact the Clearinghouse staff at (919) 541-0850 or (FTS) 629-0850.

HOW TO USE THIS INDEX

Alphabetically arranged key word headings (in boldface type) are followed by a subheading describing the context in which the key word appears in the indexed Newsletter article. The title of the article itself is not given since, for example, an article on California's process of identifying and controlling toxic air pollutants might discuss at length, or, at the other end of the scale, briefly mention, a good many topics of interest to Newsletter readers. Both broad topics of discussion and brief mentions of an item are indexed for the sake of completeness.

The subentry is followed in turn by a locator consisting of the Newsletter month and year plus page number on which the information may be found. Subsequent references to the key word in other Newsletters are separated by semi-colons and have their own subentry phrases as necessary. Thus, the entry, Acetaldehyde, tells the reader that he may find that substance referred to in the context of California's air toxics identification and control process on page 5 of the December 1984 Newsletter. The second locator tells the reader that further information on acetaldehyde in the same context (in this case, California revised the list mentioned in the December 1984 article) may be found on page 6 of the May 1985 issue.

AALs: used in New York's research recovery stack emissions assessment program, Sept 1986, 8

Accidental releases: and Houston regional monitoring program, Mar 1988, 10; New Jersey proposes rule to cover, Mar 1988, 6-7; possible TDI releases studied by CTC, June 1987, 4-5; symposium held on, Dec 1986, 11; training course to prevent, Mar 1987, 5

Acetaldehyde: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Acetone: and Michigan's use of air stripping of VOCs, Dec 1985, 4

ACGIH: hazardous substances, workplace exposure guidelines for, Sept 1986, 3; and Massachusetts air toxics control program, Sept 1984, 5; and NESCAUM regional strategy to control perchloroethylene, Dec 1985, 6-7; TLV used in Mississippi permit review program, Dec 1986, 5

Acid gases: as products of resource recovery facilities, Mar 1986, 8-9

Acrolein: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Acrylic fibers: and EPA prototype scheme for handling, Sept 1984, 3

Acrylonitrile: and EPA report on locating and estimating emissions of, Dec 1985, 11; EPA-sponsored workshop on, June 1986, 11; regulatory status of under Clean Air Act, Dec 1985, 10; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; EPA prototype scheme for handling, Sept 1984, 3; EPA report on, July 1984, 6; Ohio evaluation of, Mar 1987, 2; State/local option to evaluate prior to regulation, Dec 1984, 8-9

Actionable levels: and drafting carcinogen policy, Dec 1983 (6)*

Acute Hazards List: and EPA's air toxics strategy, Aug 1985, 5-6

Air Pollution Control Association (APCA), annual meeting of: abstracts of papers, Sept 1984, 6-7; specialty conference on toxic air pollutants (announced), Aug 1985, 9; and new air toxics committee, Aug 1985, 9

Air pollutants, hazardous: See Air pollutants, toxic

Air pollutants, toxic: See also entries under individual States; and air stripping of VOCs during groundwater clean up, Dec 1985, 2-3; air toxics program development guidance available (report), Mar 1986, 6; and new APCA committee, Aug 1985, 9; benzene as, Feb 1984, 2, 3; rulemaking on benzene,

*The first issue of the Newsletter did not have page numbers. The numbers in parentheses are assigned by order as though pages had been numbered.

Air pollutants, toxic (continued): Sept 1984, 9; and CAA reauthorization, Apr 1984, 3-4; and California Air Resources Board list of, May 1985, 6; California agency program to reduce, Dec 1986, 3-4; California agency's study of in-car exposure described, June 1987, 3; California rule governing, Mar 1988, 2, 4-5; and cancer, Apr 1984, 6; May 1985, 2-3; and Chemical Emergency Preparedness Program (CEPP), June 1986, 2-4; Connecticut's regulation to control, Sept 1986, 4; list of chemicals and their regulatory status, Dec 1985, 10; defined, Dec 1983 (1)*; development of State and local control programs for, Dec 1983 (4)*; developing standards for, Dec 1983 (4-5)*; emissions data requested by EPA, Mar 1987, 11-12; and emissions inventory procedures, Mar 1986, 11; EPA/AEERL report on, Sept 1986, 11; EPA control technology center (CTC) instituted, Dec 1986, 2; and EPA prototype scheme for handling high individual risk/low national incidence, Sept 1984, 3; EPA reports on, Sept 1984, 2; Dec 1986, 10; Nov 1987, 8-9; EPA/OAQPS screening study to monitor, Dec 1986, 10; and EPA Six Months Study, Apr 1984, 4-5; and EPA strategy to control, Aug 1985, 3-5; Sept 1987, 8-9; and EPA strategy to control both routine and accidental releases, Aug 1985, 5-7; June 1986, 2-4; June 1986, 8-10; and Harvard School of Public Health project, May 1985, 7; hazardous air pollutant prioritization system (HAPPS), Feb 1984, 5; integrated approaches to control of, Dec 1983 (5)*; integrated approach to control of, Feb 1984, 4; and list of current projects on, May 1985, 2; and Maine air toxics inventory, Sept 1984, 4; Maryland agency divides into two classes, Sept 1987, 4; MYDP, permit review support evaluated by EPA, Mar 1987, 11; and Massachusetts program, Sept 1984, 5; nonaccidental releases of, Nov 1987, 10; North Carolina reviews list of for regulation, Mar 1987, 4; and ozone attainment, Nov 1987, 4-5; and proposed standards on radionuclides, Dec 1984, 7-8; NATICH report on State/local air toxics agency activities, Dec 1984, 1; and NESCAUM control policy guideline, Dec 1983 (6)*; and NESCAUM regional strategy for perchloroethylene, Dec 1985, 6-7; and New York toxic air contaminant stack assessment program, Aug 1985, 7-8; and OAQPS development of residential wood combustion NSPS, May 1985, 3-5; as products of resource recovery facilities, Mar 1986, 8-9; and Puget Sound asbestos regulation, Mar 1986, 8; and source sampling methods, Feb 1984, 6; RAPCA emissions data base described, June 1987, 10; Region 6 accidental release program, June 1986, 4-5; Rhode Island program to monitor solvents in ambient air, Mar 1987, 5-6; and State/local air pollution control agencies, Sept 1984, 3; June 1986, 8-10; STAPPA/ALAPCO conference on, Dec 1985, 8-9; Sept 1986, 10; STAPPA/ALAPCO policy on, Feb 1985, 4-5; STAPPA/ALAPCO nationwide survey on, Feb 1984, 6; State control programs for; Toxic Air Monitoring System (TAMS) set up by EPA, Apr 1984, 7; and TAMS data base, Mar 1986, 10; May 1985, 7; training course to prevent accidental releases of, Mar 1987, 5; vegetation damage from, Feb 1985, 4; and Virginia State Air Pollution Control Board rules, Dec 1984, 5-6; Washington State proposes regulation to limit woodstove emissions, June 1987, 6-7; Wisconsin program on, Sept 1986, 2-4

Air stripping: report on published by CTC, June 1987, 5; technical guidance for prepared by CTC, Mar 1988, 9; and VOCs during groundwater cleanup, Dec 1985, 2-3

Air toxics control: environmental group/industry views on, Dec 1983 (4)*; Federal/State/local role in, Dec 1983 (4)*; and federal grant support program for, Aug 1984, 4-5; and NATICH data base contents, June 1986, 1-2; and Region 6 inspection program, June 1986, 4-5

Air toxics control management: California agency proposes chromium rule, Mar 1988, 4-5; and EPA Strategy to control both routine and accidental releases, June 1986, 8-10; Maryland's department of the environment described, Sept 1987, 3-4; Monterey Bay agency described, Mar 1988, 2-4; new Mississippi permit review program outlined, Dec 1986, 5; Ohio Division of Air Pollution Control Management described, Mar 1987, 2; Ontario's assessment and, Mar 1988, 7; relation of ozone attainment policy to, Nov 1987, 4-5; South Coast Air Quality Management district described, June 1987, 2-3; South Dakota Department of Water and Natural Resources described, Nov 1987, 3; STAPPA/ALAPCO conference on, Sept 1986, 10; and State integration, July 1984, 2; 1983 workshop on, Feb 1984, 3-5; workshops for State and local agencies on, Dec 1986, 2

Air Toxics Information Clearinghouse: See NATICH

Air toxics programs: and MYDPs, Sept 1987, 13-14

Air toxics programs, "model" State: and EPA air toxics strategy, Aug 1985, 3

Air toxics regulatory process: overview of, Feb 1984, 5

Alaska: analyzes wood smoke, Nov 1987, 3-4

Alkenes: and IARC evaluation of wood smoke photo-oxidation products, June 1986, 5

Allyl chloride: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5

Ambient air: California agency's monitoring program for, June 1987, 3; characterization of, Feb 1984, 4; monitoring studies of, Feb 1984, 4; sampling of in Alaska, Nov 1987, 3-4; standards for and South Dakota air toxics program, Nov 1987, 3; State ambient air quality standards (AAQSs), Sept 1986, 4; TAC emissions limits for defined by California rule, Mar 1988, 3-4

Ambient levels, acceptable (AALs): and Massachusetts' air toxics control program, Sept 1984, 5; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; NATICH report on, May 1985, 2; NESCAUM control policy guideline, Dec 1983 (6)*; topic at STAPPA/ALAPCO conference, Dec 1984, 2; Wisconsin definitions of, Sept 1986, 3-4

Ambient monitoring: Florida seeking information on, Dec 1986, 11

American Conference of Government Industrial Hygienists: See ACGIH

Ammonium sulfate: measurement of in IACP project to identify airborne carcinogens, Mar 1986, 7

APCA: See Air Pollution Control Association

Aniline emissions: and damage to vegetation, Feb 1985, 4

Aromatics: and IARC evaluation of wood smoke photo-oxidation products, June 1986, 5

Arsenic: Dec 1986, 10; as contributor to air toxics problem, Sept 1984, 2-3; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; Ohio evaluation of, Mar 1987, 2

Arsenic, inorganic: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; and EPA rulemaking on, Sept 1984, 9

Asbestos: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; model inspection program nears completion, Mar 1987, 10-11; NESHAP enforcement in California, June 1987, 2-3; Ohio NESHAP enforcement, Mar 1987, 2; Puget Sound Air Pollution Control Agency regulation adopted on, Mar 1986, 8

Ash: as product of resource recovery facilities, Mar 1986, 8-9; sampled at city incinerator, Sept 1986, 9

Association of Local Air Pollution Control Officers (ALAPCO): See STAPPA/ALAPCO

Automated Woodstove Emissions Sampler (AWES): Dec 1986, 9

Averaging times: and NESCAUM control policy guideline, Dec 1983 (6)*

BACT: applied to municipal waste incinerators, Sept 1987, 9; and California's air toxics control program, Dec 1983, (7)*; California agency rule defines, Mar 1988, 3; and Michigan's air toxics control program, Feb 1984, 4; T-BACT required in California proposed rule, June 1987, 2; T-BACT required in Maryland's proposed air toxics regulations, Sept 1987, 3

Benzene: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; carcinogenicity of emissions, Feb 1984, 3; CAA Section 112 ruling on, Feb 1984, 2; as contributor to air toxics problem, Sept 1984, 2-3; and EPA/IEMD ambient monitoring program, Apr 1984, 5-6; EPA/OAQPS report on emissions of, Mar 1988, 11; and EPA rulemaking on three source categories, Sept 1984, 9; and Michigan's use of air stripping of VOCs, Dec 1985, 4; and fugitive emissions at petroleum refineries/chemical manufacturing plants, Feb 1984, 2; NESHAP specifications for, Sept 1987, 12

Benzene storage facilities as benzene emission source: EPA rulemaking on, Sept 1984, 9; and CAA rulemaking, Feb 1984, 2

Benzyl chloride: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Benzo(a)pyrene: Dec 1986, 10; as emission from residential wood combustion devices, May 1985, 3-5; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; study of, Sept 1984, 2

Beryllium: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; and New York's toxic air contaminant stack assessment program, Aug 1985, 7

Best available control technology. See BACT

Best Commercially Available Control Technology: and Wisconsin's hazardous air pollutant program, Sept 1986, 3

Bromine: listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5

Burden of proof: and drafting carcinogen policy, Dec 1983 (6)*

Butadiene, 1,3-: Sept 1987, 12; regulatory status of under Clean Air Act, Dec 1985, 10

Cadmium: Sept 1987, 8; Dec 1986, 10; as contributor to air toxics problem, Sept 1984, 2-3; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; regulatory status of under Clean Air Act, Dec 1985, 10; as product of resource recovery facilities, Mar 1986, 8-9

California: air toxics control program case study, Feb 1984, 4; air toxics control program, Dec 1983 (4)*; CAPCOA publishes manual on source assessment, Dec 1986, 4; cosponsors municipal waste combustion workshop, Mar 1987, 8; local agency program to reduce toxic air contamination risk, Dec 1986, 3-4; proposed carcinogen policy of, Dec 1983 (5)*; spotlight on Monterey Bay Unified Air Pollution Control District, Mar 1988, 2-4; spotlight on South Coast Air Quality Management District, June 1987, 2-3

California Air Resources Board: and prioritized list of potential toxic air contaminants, May 1985, 6; contaminant identification and control process, Dec 1984, 3-5

California Department of Health Services: California site mitigation (toxic clean up) document prepared by, Mar 1986, 6

Cancer, risk of: associated with urban air toxics, Sept 1987, 7; as basis for permit application review, Dec 1986, 5; how determined in Mississippi permit review program, Dec 1986, 5; mentioned in Maine radon study, June 1987, 7; and radon emissions from uranium in soil, Mar 1986, 3-5; reduced by control of PM and VOC, Nov 1987, 5; and relationship to toxic air pollutants, May 1985, 2-3

Carbon adsorption: as VOC control technology, Dec 1985, 3

Carbon dioxide (CO₂): and New York's toxic air contaminant stack assessment program, Aug 1985, 7; as product of resource recovery facilities, Mar 1986, 8-9

Carbon-14: as tracer for wood smoke, Mar 1986, 7

Carbon monoxide (CO): Dec 1986, 8; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; as emission from residential wood combustion devices, May 1985, 4-5; as product of resource recovery facilities, Mar 1986, 8-9; and wood heater NSPS, Dec 1986, 7

Carbon tetrachloride: Sept 1987, 12; as contributor to air toxics problem, Sept 1984, 2-3; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; and EPA/IEMD ambient monitoring program, Apr 1984, 5-6; EPA reports on, July 1984, 6; Dec 1985, 11; and Michigan's use of airstripping of VOCs, Dec 1985, 4; regulatory status of under Clean Air Act, Dec 1985, 10

Carcinogens: and air pollution, report on, Apr 1984, 6; and benzene emissions, Feb 1984, 3; California agency's proposed rule on new source review, June 1987, 2; and California Air Resources Board Contaminant Identification and Control Process, Dec 1984, 3-5; and California proposed policy on, Dec 1983 (5)*; considered in NESCAUM perchloroethylene document, Sept 1986, 11; and EPA air toxics strategy, Aug 1985, 3-5; and EPA air toxics strategy, June 1986, 8; and EPA emissions inventories, June 1986, 10; and EPA Six Months Study, Apr 1984, 4-5; epidemiological investigations encouraged by California agency's air toxics program, Dec 1986, 4; in halogenated solvents releases, Nov 1987, 7-8; hazardous air pollutants listed by ACGIH, Sept 1986, 3-4; how treated in Maryland air toxics regulations, Sept 1987, 4; how treated in Mississippi permit review program, Dec 1986, 5; incinerator emissions and, Sept 1986, 9; and IACP evaluation of wood smoke photo-oxidation products, June 1986, 5-6; inhaled gasoline vapor as, Sept 1984, 9; intervention defined with respect to control of, Dec 1983 (5-6)*; and International Agency for Research on Cancer (IARC) list of, Dec 1983 (6)*; and IACP field studies, Dec 1985, 5-6; IACP project to identify airborne, Mar 1986, 7; measured in IACP study of woodstoves, Dec 1986, 9-10; method to assess as toxic air pollutant, Mar 1987, 4; NATICH report on risk assessment for, Mar 1987, 1; PCD-dioxins as, Sept 1986, 8; and proposed standards on radionuclides, Dec 1984, 7-8; and results of Chicago emissions inventory, Mar 1987, 7; treated in California's rule on toxic air contaminants, Mar 1988, 3; and

Carcinogens (continued): STAPPA/ALAPCO policy on hazardous air pollutants, Feb 1985, 4-5; and toxic air pollutants, Sept 1984, 2-3; and toxic air pollutants, June 1986, 1; residential wood combustion emissions, Feb 1985, 3; May 1985, 3-5; Nov 1987, 3-4; and VOCs, Dec 1984, 3; Dec 1985, 3

Centers for Disease Control (CDC): Sept 1986, 9

CDDs/CDFs: in city incinerator ESP, Sept 1986, 9

Chemical Activities Status (CAS): report (1982), July 1984, 3

Chemical Coordination Publications List: abstracts from, July 1984, 2-4

Chemical designation: and statutes, July 1984, 3

Chemical Emergency Preparedness Program (CEPP): Dec 1985, 8-9; contents of, June 1986, 2-4; and hotline, Dec 1985, 11; June 1986, 3; related to SARA, Title III, Dec 1986, 6

Chemical industry: and hazardous organic NESHAP, Sept 1987, 12; New Jersey's chemical accident prevention legislation and, Sept 1986, 5-6; Mar 1988, 7; New Source Performance Standards (NSPS) for, Dec 1985, 8; and Region 6 accidental release inspection program, June 1986, 4-5; symposium held on accident prevention for, Dec 1986, 11

Chemical Information Resource Handbook: publication of by EPA, Feb 1984, 8

Chemical Manufacturers Association: Community Awareness and Emergency Program of (CAEP), June 1986, 3

Chemical manufacturing plants: benzene fugitive emissions from, Feb 1984, 2; as source of toxic air pollutants causing vegetation damage, Feb 1985, 4

Chemical selection methods: bibliography of, July 1984, 3

Chemicals, listed: and EPA air toxics strategy, Aug 1985, 5-7; Dec 1985, 11

Chemicals, toxic: directory of coordinating groups, July 1984, 3; list of included in Chemical Emergency Preparedness Program (CEPP), June 1986, 3

Chlorinated benzenes: regulatory status of under Clean Air Act, Dec 1985, 10

Chlorinated solvents: work group examines exposure to, Nov 1987, 7-8

Chlorine: listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5

Chlorobenzene: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; EPA draft source/emission factor report on, Dec 1984, 9; OAQPS publishes new document on, Dec 1986, 10

Chloroethane: and Michigan's use of air stripping of VOCs, Dec 1985, 4

Chloroform: Sept 1987, 12; as contributor to air toxics problem, Sept 1984, 2-3; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; and EPA/IEMD ambient monitoring program, Apr 1984, 5-6; EPA report on, July 1984, 6; Dec 1985, 11; and Michigan's use of air stripping of VOCs, Dec 1985, 4; regulatory status of under Clean Air Act, Dec 1985, 10

Chlorofluorocarbon 113: regulatory status of under Clean Air Act, Dec 1985, 10

Chloroprene: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; regulatory status of under Clean Air Act, Dec 1985, 10

Chrome plating: covered by California air toxics rule, Mar 1988, 5

Chromium: Sept 1987, 8; Dec 1986, 10; as contributor to air toxics problem, Sept 1984, 2-3; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; EPA report on locating and estimating emissions of, Dec 1985, 11; as product of resource recovery facilities, Mar 1986, 8-9; EPA source/emission factor report on, Dec 1984, 9; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; regulatory status of under Clean Air Act, Dec 1985, 10; rule proposed by California agency, Mar 1988, 4-5

Chrysenes: and New York's toxic air contaminant stack assessment program, Aug 1985, 7

Clean Air Act (CAA): effectiveness of, according to House/Senate committee members, Dec 1983 (5)*; and EPA decisions on trichloroethylene and perchloroethylene, Mar 1986, 9; and EPA air toxics strategy, Aug 1985, 3-5; and EPA arsenic rulemaking, Sept 1984, 9; and benzene rulemaking, Feb 1984, 2; Sept 1984, 9; and EPA prototype scheme for handling toxic air pollutants, Sept 1984, 3-4; and EPA report assessing toxic air pollutants, Sept 1984, 2-3; and proposed standards on radionuclides, Dec 1984, 7-8; reauthorization of, Apr 1984, 3-4; Section 110 and NAAQS attainment, Nov 1987, 4-5; Section 111 invoked in regulation of municipal waste combustion emissions, Sept 1987, 9; Section 112, and intent-to-list, June 1986, 1; and Six Months Study, Apr 1984, 4-5; and STAPPA/ALAPCO conference on air toxics, Dec 1985, 8-9; and STAPPA/ALAPCO policy on hazardous air pollutants, Feb 1985, 4-5; and list of toxic air pollutants and their regulatory status, Dec 1985, 10; Wisconsin's new definition of "hazardous air contaminant" augments CAA definition of, Sept 1986, 3-4

Cleanups, toxic: California "decision tree" document on, Mar 1986, 6

Closed system engineering: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 4

Coke oven emissions: regulatory status of under Clean Air Act, Dec 1985, 10

Coke by-product recovery plants: and benzene, Feb 1984, 2

Combustion: EPA report on hospital incinerators, Nov 1987, 5-6; IARC study of woodstove emissions described, June 1987, 10; of municipal waste, workshop on, Mar 1987, 8

Combustion, incomplete: and EPA air toxics strategy, Aug 1985, 3-5

Combustion, residential wood-fired: and emission of carcinogens from, May 1985, 2-3; and IACP field studies, Dec 1985, 5-7; and OAQPS development of NSPS on, May 1985, 3-5; Aspen, CO, regulation on, June 1986, 7-8

Combustion sources: National Tier 4 dioxin study and, Nov 1987, 8

Community Right-to-Know provisions: under SARA Title III. See Superfund

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): Apr 1984, 3; Reportable Quantity Provisions in, June 1986, 3; Region 6 inspection program and, June 1986, 5

CONEG: conducts woodstove study, Dec 1986, 8

Connecticut: air toxics control program, Dec 1983 (7)*; develops MWC test protocol, Mar 1988, 9; regulation to control toxic air pollutants described, Sept 1986, 4-5

Consent decree: issued in Philadelphia incinerator testing, Sept 1986, 9

Contingency Preparedness Plans: and EPA air toxics strategy, Aug 1985, 6

Control technology: AEERL research on, Feb 1985, 2-3; California agency rule defines, Mar 1988, 3; carbon adsorption as, Dec 1985, 3; for chrome plating industry, Mar 1988, 5; cost of, Dec 1985, 3; under hazardous organic NESHAP, Sept 1987, 12; for hospital incinerators, Nov 1987, 6; and indoor radon levels, Mar 1986, 3-5; workshop on, Mar 1988, 11

Control Technology Center (CTC): described, Dec 1986, 2-3; June 1987, 4-5; Mar 1988, 8-9

Copper smelters, primary: as inorganic arsenic emissions sources, Sept 1984, 9

Cotton gins: as inorganic arsenic emissions sources, Sept 1984, 9

Cresol: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Criteria pollutants: Florida seeking information on ambient monitoring of, Dec 1986, 11; defined, Dec 1983 (1)*; included in Connecticut air toxics regulation, Sept 1986, 4

Data LOG'rTM: Dec 1986, 9

Degreasing: Rhode Island regulation of, Mar 1987, 6; work group examines solvent exposure on, Nov 1987, 7-8

Dialkyl nitrosamines: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Dibenzofurans: and hospital incinerators, Nov 1987, 5-6

Dichlorobenzene, p-: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Dichloroethane, 1,1-: and Michigan's use of air stripping of VOCs, Dec 1985, 4

Dichloroethane, 1,2-: See also Ethylene dichloride; and EPA/IEMD ambient monitoring program, Apr 1984, 5-6; and Michigan's use of air stripping of VOCs, Dec 1985, 4

Dichlorodifluoromethane: and Michigan's use of air stripping of VOCs, Dec 1985, 4

Dichloromethane: See also Methylene chloride; and EPA/IEMD ambient monitoring program, Apr 1984, 5-6

Dichloropropane, 1,2-: and EPA/IEMD ambient monitoring program, Apr 1984, 5-6

Diethylether: and Michigan's use of airstripping of VOCs, Dec 1985, 4

Dioxane, 1,4-: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Dioxin, emissions of: Sept 1987, 9; and combustion source study, July 1984, 7; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; EPA national strategy on, Apr 1984, 2-3; and hospital incinerators, Nov 1987, 5-6; National Tier 4 study results, Nov 1987, 8; regulatory status of under Clean Air Act, Dec 1985, 10; testing for at incinerator, Sept 1986, 8-9

Diphenylthiourea (DPT), emissions of: and damage to vegetation, Feb 1985, 4

Dispersion calculations: used in study of emissions from chemical plant, Feb 1985, 4

Dispersion models: evaluation of performance of, Apr 1984, 5; and risk assessment/management, Feb 1984, 2; role in Wisconsin air toxics program, Sept 1986, 3-4; used in Ontario, Mar 1988, 7; used in New York's calculations of PCD-dioxin levels, Sept 1986, 8

Dry cleaning: Florida regulation of facilities described, Mar 1987, 3; work group examines solvent exposure in, Nov 1987, 7-8

Emergency response programs: California agency's emergency response team described, June 1987, 2-3; and Chemical Emergency Preparedness Program (CEPP), June 1986, 2-4; National Governors' Association report on, Sept 1987, 14; and SARA Title III, Dec 1986, 5-6; South Carolina agency program described, Sept 1987, 5

Emission control requirements: and NESCAUM control policy guideline, Dec 1983 (6)*

Emissions, air: licenses for, Dec 1983 (7)*

Emissions, fugitive: and California agency rule, Mar 1988, 2

Emissions, hospital incinerator: Nov 1987, 5-6

Emissions estimation: covered in CAPCOA source assessment manual, Dec 1986, 5

Emissions inventories: California agency's compilation of described, Mar 1987, 3; conducted in South Dakota to begin air toxics program development, Nov 1987, 3; conducted in urban air toxics programs, Sept 1987, 7; EPA compilation of, Mar 1987, 11-12; June 1986, 10; EPA surveys Chicago area, Nov 1987, 6-7; EPA/OAQPS publishes document on, Dec 1986, 10; and NATICH data base contents, June 1986, 1-2; prepared by Ontario, Mar 1988, 7; prepared under SARA Title III reporting requirements, Sept 1987, 11-12; procedures manual on preparation of, Mar 1986, 11; topic at STAPPA/ALAPCO conference, Dec 1984, 2; techniques, Feb 1984, 4; waferboard plant assessed by CTC, June 1987, 4-5

Emissions, toxic: and landfill excavation rule adopted by South Coast, July 1984, 1-2

Emission limitations: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 4; EPA/OAQPS documents on, Nov 1987, 8-9; as specified under the hazardous organic NESHAP, Sept 1987, 12; topic at STAPPA/ALAPCO conference, Dec 1984, 2

Environmental Protection Agency (EPA): acrylonitrile sources, prototype scheme for handling, Sept 1984, 3; AEERL hazardous air pollutant report, Sept 1986, 11; AEERL, functions of, Feb 1985, 2-3; and Agency Prevention Work Group, June 1986, 4; IEMD ambient monitoring program on chlorinated organics and aromatics, Apr 1984, 5-6; arsenic Section 112 rulemaking, Sept 1984, 9; benzene storage facilities as benzene emission source, rulemaking on, Sept 1984, 9; carcinogens, airborne, IACP project identifying, Mar 1986, 7; Chemical Activity Status Report (EPA CASR), defined, Feb 1984, 3; Chemical Emergency Preparedness Program (CEPP), Dec 1985, 8-9; Control Programs Development Division (CPDD), State/local air toxics control agencies, June 1986, 9-10; CTC current activities outlined, Mar 1988, 8-9; Control Technology Center (CTC) described, June 1987, 4-5; develops hazardous organic NESHAP, Sept 1987, 12; develops IRIS, Mar 1987, 8-9; Sept 1987, 14; dioxin emissions, national strategy on, Apr 1984, 2-3; dioxin/furan incinerator testing conducted by Region III, Sept 1986, 8-9; examines ozone attainment, Nov 1987, 4-5; and hazardous waste TSDF, Apr 1984, 5; hotline for, Dec 1985, 11; IEMP Phase I completed in Maryland, Sept 1987, 3; national air toxics strategy section on urban toxics, Mar 1987, 9-10; NSPS on residential wood-fired combustion, OAQPS development of, May 1985, 3-5; OAQPS conducts screening study to monitor toxic air pollutants, Dec 1986, 10; OAQPS cosponsors air toxics workshop with STAPPA/ALAPCO, Dec 1986, 2; OAQPS performance of cancer risk assessment for incinerator, Sept 1986, 9; OAQPS releases national dioxin study results, Nov 1987, 8; OAQPS report on benzene, Mar 1988, 11; OAR, ORD institute air toxics control technology center, Dec 1986, 2-3; and OTS emissions inventories conducted under SARA Title III, Sept 1987, 11-12; plans regulation of municipal waste disposal, Sept 1987, 8-9; prepares indoor air quality plan for Congress, Sept 1987, 7-8; prepares permit review support, Mar 1987, 11; Region V conducts air toxics inventory (Chicago), Nov 1987, 6-7; Region X VOC/risk assessment completed, Sept 1987, 5-6; report on hospital incinerators, Nov 1987, 5-6; reviews multiyear development plan progress, Mar 1987, 11; strategy to control toxic air pollutants, Dec 1986, 2; Six Months Study, Apr 1985, 3-5, 5-7; Dec 1985, 11; strategy to control toxic air pollutants, Aug 1985, 3-5, 5-7; Dec 1985, 11; Sept 1987, 8-9; Nov 1987, 4; Strategy to control both routine and accidental releases, June 1986, 8-10; Toxic Air Monitoring System (TAMS), Apr 1984, 7; and technical support for multiyear development plan (MYDP), June 1986, 9; toxic air pollutants, prototype scheme for handling, Sept 1984, 3-4; trichloroethylene and perchloroethylene, decisions on, Mar 1986, 9; urban air toxics progress in all regions described, Sept 1987, 6-7

Epichlorohydrin: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; and EPA report on locating and estimating emissions of, Dec 1985, 11; EPA draft source/emission factor report on, Dec 1984, 9; regulatory status of under Clean Air Act, Dec 1985, 10

Epigenetic mechanisms: and drafting carcinogen policy, Dec 1983 (6)*

ERC: required by SARA Title III, Dec 1986, 6

Ethylbenzene: and EPA/IEMD ambient monitoring program, Apr 1984, 5-6; and Michigan's use of air stripping of VOCs, Dec 1985, 4

Ethylbenzene/styrene: plants as benzene emissions source (EPA rulemaking on), Sept 1984, 9; process vents and CAA rulemaking, Feb 1984, 2

Ethylene dibromide: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Ethylene dichloride: See also Dichloroethane, 1,2-; Sept 1987, 12; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; EPA reports on, July 1984, 6; Dec 1985, 11; regulatory status of under Clean Air Act, Dec 1985, 10

Ethylene oxide: Sept 1987, 12; as contributor to air toxics problem, Sept 1984, 2-3; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; OAQPS publishes new document on, Dec 1986, 10; regulatory status of under Clean Air Act, Dec 1985, 10

Exposure assessment: covered in CAPCOA source assessment manual, Dec 1986, 5

Exposure modeling: used to detect halogenated solvents, Nov 1987, 7-8

Extraction processes: as sources of radionuclide emissions, Dec 1984, 7

Fees: for permit emissions levied by State governments, June 1987, 11

Florida: agency seeking information on ambient monitoring, Dec 1986, 11; dry cleaning facility regulations described, Mar 1987, 3

Formaldehyde: Dec 1986, 10; as contributor to air toxics problem, Sept 1984, 2-3; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; EPA reports on, July 1984, 6; Dec 1985, 11; and New York's toxic air contaminant stack assessment program, Aug 1985, 7

Fuel, waste-derived: New Jersey rule on, Apr 1984, 2

Gasoline marketing industry sources as benzene emissions sources: EPA rulemaking on, Sept 1984, 9

Georgia Environmental Protection Division: and control of vegetation damage from toxic air pollutants, Feb 1985, 4

Glass manufacturing plants: as inorganic arsenic emissions sources, Sept 1984, 9

Great Lakes Agreement: Mar 1987, 2

Groundwater: report on air strippers for, June 1987, 5

Halogenated solvents: Nov 1987, 7

Hazardous Air Pollutant Prioritization System (HAPPS): Feb 1984, 5

Hazardous air pollutants: See Air pollutants, hazardous

Hazardous material: burning of for fuel, Apr 1984, 2; emergency planning guide prepared, Nov 1987, 10

Hazardous organics: EPA develops NESHAP, Sept 1987, 12

Hazardous waste disposal: California agency's enforcement of regulations, June 1987, 3; and EPA Six Months Study, Apr 1984, 4

Hazardous Waste Treatment, Storage and Disposal Facilities (TSDF): and EPA emissions inventory of carcinogens, June 1986, 10; responsibility for developing regulations transferred, Apr 1984, 5

Health effects: as basis for chemical-specific air toxics guidelines, Dec 1983 (4-5)*; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 4; and chemicals in the work place, Dec 1983 (6)*; and EPA air toxics strategy, Aug 1985, 6; and Massachusetts air toxics control program, Dec 1983 (7)*; and NESCAUM control policy guideline, Dec 1983 (6)*; STAPPA/ALAPCO conducts survey of, Nov 1987, 10; and radon emissions from uranium in soil, Mar 1986, 3; and VOCs, Dec 1985, 3

Health risks: (toxics-related), and cost, July 1984, 2-3; and dioxin, Apr 1984, 2-3

Heavy metal particles: as products of resource recovery facilities, Mar 1986, 8-9

Hexachlorocyclopentadiene: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; regulatory status of under Clean Air Act, Dec 1985, 10

Hospital waste incinerators: and CTC, Mar 1988, 9; required by California program to submit risk assessments, Dec 1986, 4; workshop on, Mar 1988, 11

Hydrocarbons: and IARC evaluation of wood smoke photo-oxidation products, June 1986, 5

Hydrochloric acid: as product of resource recovery facilities, Mar 1986, 8-9

Hydrogen chloride: and hospital incinerators, Nov 1987, 5-6; listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5; and New York's toxic air contaminant stack assessment program, Aug 1985, 7

Human exposure data: and Michigan's air toxics control program, Feb 1984, 4

Hydrogen cyanide: listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5

Hydrogen fluoride: listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5

Hydrogen sulfide: listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5

Integrated Air Cancer Project (IACP): reports woodstove emissions measurements, Dec 1986, 9-10; samples from identified by GC/MI-R, Sept 1987, 13; woodstove emission study described, June 1987, 9

Integrated Environmental Management Project (IEMP): Maryland completes Phase I of, Sept 1987, 3

International Agency for Research on Cancer (IARC): list of hazardous air pollutants and carcinogens compiled by, Sept 1986, 3-4

Incinerators: dioxin/furan testing for, Sept 1986, 8-9

Incinerators, hospital: and CTC, Mar 1988, 9; EPA report on, Nov 1987, 5-6; workshop on, Mar 1988, 11

Incineration at sea: and hazardous wastes, Feb 1984, 6

Indoor air, quality of: and Indoor Air Quality Research Act of 1985, Dec 1985, 9; as research area for AEERL, Feb 1985, 2-3; and radon emissions from uranium in soil, Mar 1986, 3-5

Indoor air pollution: EPA prepares plan on, Sept 1987, 7-8; in-car air toxics study described, June 1987, 3; and Indoor Air Source Emissions Data Base (IASB) (source characterization) data base, June 1986, 11; topic at STAPPA/ALAPCO conference, Dec 1984, 2

Industry Assistance Office: See TSCA Assistance Office

Industry File Index (IFIS): defined, Feb 1984, 3; overview of, July 1984, 4

Integrated Air Cancer Project (IACP): project to identify airborne carcinogens, Mar 1986, 7; description of, May 1985, 2-3; field studies conducted by, Dec 1985, 5-6; and project to evaluate mutagenic activity of wood smoke photo-oxidation products, June 1986, 5-6; and support from AEERL, Feb 1985, 2-3

Integrated Risk Information System (IRIS): described, Mar 1987, 8-9;
Sept 1987, 14

Intent-to-list: and EPA decisions on trichloroethylene and perchloroethylene, Mar 1986, 9; and Section 112, Clean Air Act, June 1986, 1; and STAPPA/ALAPCO conference on air toxics, Dec 1985, 8

International Agency for Research on Cancer (IARC): and list of carcinogens, Dec 1983 (6)*

Intervention: defined with respect to carcinogen control, Dec 1983 (5-6)*

Landfills: alternatives to, Aug 1985, 7-8; California agency's hazardous waste enforcement efforts at, June 1987, 3; excavation of and South Coast rule governing toxic emissions from, July 1984, 1-2; information on disposal facilities sought, Sept 1987, 15; and NYDEC research recovery stack emissions assessment program, Sept 1986, 8

Lead: Dec 1986, 10; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; as product of resource recovery facilities, Mar 1986, 8-9

Lead, inorganic: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Lead smelters, primary and secondary: as inorganic arsenic emissions sources, Sept 1984, 9

Letter of intent: See Memorandum of Understanding

Listed pollutants, emission limits for: and STAPPA/ALAPCO policy on hazardous air pollutants, Feb 1985, 4-5

Louisiana: and special study identifying toxic air pollutants, Feb 1984, 6

Maine: air toxics control program, Dec 1983 (7)*; and air toxics inventory, Sept 1984, 4; Bureau of Health conducts wood smoke assessment, Dec 1986, 7-8; State agency studies radon in air and groundwater, June 1987, 7-8

Maleic anhydride plants as benzene emissions source: EPA rulemaking on, Sept 1984, 9; and California Air Resources Identification and Control Process, Dec 1984, 5; May 1985, 6; and CAA rulemaking on process vents, Feb 1984, 2

Manganese: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; and EPA report on locating and estimating emissions of, Dec 1985, 11; EPA draft source/emission factor report on, Dec 1984, 9; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; regulatory status of under Clean Air Act, Dec 1985, 10

Maryland: spotlight on Department of the Environment, Sept 1987, 3-4

Massachusetts, Commonwealth of: and air toxics control program, Dec 1983 (4-5, 7)*; Sept 1984, 5

Media relations: used in incinerator dioxin testing program, Sept 1986, 8-9

Medical, research, and training facilities: as sources of radionuclide emissions, Dec 1984, 7

Memorandum of Understanding (MOU): and EPA prototype scheme for handling toxic air pollutants, Sept 1984, 3; and State/local option to evaluate acrylonitrile, Dec 1984, 9

Mercury: Sept 1987, 9; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; as product of resource recovery facilities, Mar 1986, 8-9

Methane: as emission from residential wood combustion devices, May 1985, 4-5

Methyl bromide: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Methyl chloroform: See also Trichloroethane, 1,1,1-; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; regulatory status of under Clean Air Act, Dec 1985, 10

Methylene chloride: See also Dichloromethane; Sept 1987, 12; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; regulatory status of under Clean Air Act, Dec 1985, 10; and Michigan's use of air stripping of VOCs, Dec 1985, 4

Methyl isocyanate: listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5

Michigan Air Pollution Control Commission: and air stripping of volatile organic compounds, Dec 1985, 2-3

Michigan: air toxics control program, Dec 1983 (4)*, Feb 1984, 4

Mississippi: announces air toxics permit review program, Dec 1986, 5

Mobile sources: and air pollution/cancer report, Apr 1984, 6; and EPA Six Months Study, Apr 1984, 5; and emission of carcinogens from, May 1985, 2-3; and IACP project identifying airborne carcinogens, Mar 1986, 7; and IACP field studies, Dec 1985, 5-6; new regulations for, Dec 1985, 8

Modacrylic fibers: and EPA prototype scheme for handling, Sept 1984, 3

Modeling: California agency's use of in compiling emissions inventory, June 1987, 3; examples of, Feb 1984, 4; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; numerical, Apr 1984, 2; performed at incinerator, Sept 1986, 9; receptor and IACP project identifying airborne carcinogens, Mar 1986, 7; workshop on, Mar 1988, 11

Monitoring, air toxics: California agency's programs for ambient air, June 1987, 3; and Connecticut air toxics regulation, Sept 1986, 5; considerations of, Dec 1983 (6)*; Houston program described, Mar 1988, 10; Indoor Air Source Emissions Data Base update, June 1986, 11; program conducted by EPA, Apr 1984, 5; program for urban air toxics described, Sept 1987, 7; for RCRA VOC/risk assessment program, Sept 1987, 5-6; study of, Sept 1984, 2; used in study of emissions from chemical plant, Feb 1985, 4; and New Hampshire's air toxics control program, Dec 1983 (7)*; and New Jersey's air toxics control program, Dec 1983 (7-8)*; and Toxic Air Monitoring System (TAMS), May 1985, 7; topic at STAPPA/ALAPCO conference, Dec 1984, 2; used in Dayton, Ohio, PM network, Mar 1988, 8

Most Appropriate Occupational Level (MAOL): and Massachusetts' air toxics control program, Sept 1984, 5; and NESCAUM regional air toxics strategy for perchloroethylene, Dec 1985, 6-7

Multiyear development plan (MYDP): and EPA air toxics strategy, June 1986, 8-9; and EPA urban air toxics programs, Sept 1987, 7; progress reviewed, Mar 1987, 11; summary of development, Sept 1987, 13-14

Municipal waste combustion: study conducted by CTC/NESCAUM, June 1987, 5; test protocol for development by CTC/NESCAUM, Mar 1988, 9

Municipal waste disposal: EPA plans regulation of, Sept 1987, 8-9; and EPA Six Months Study, Apr 1984, 4; NESCAUM sponsors workshop on, Mar 1987, 8

Mutagens: and IACP evaluation of wood smoke photo-oxidation products, June 1986, 5-6

National Air Toxics Information Clearinghouse (NATICH): announces working group members, Nov 1987, 1-2; charter adopted by Working Group, Dec 1983 (1-2)*; "report card" results described, Sept 1987, 1-2; Working Group meets to review activities and plan future, Sept 1986, 1

NATICH data base: capabilities of, Mar 1986, 2; changes in programs and log on procedures, June 1987, 1-2; contents of, May 1985, 1-2; June 1986, 1-2; fees for use of, Dec 1985, 2; function of Newsletter in, Dec 1983 (2)*; final development plan for, Dec 1983 (2)*; how to access, Feb 1985, 1-2; Aug 1985, 1-2; Mar 1986, 2-3; June 1986, 2; Nov 1987, 2; inception of, Dec 1983 (1)*; information dissemination tools, Dec 1983 (2)*; material covered in, Dec 1985, 1; on-line data entry and editing systems initiated, Dec 1986, 1-2; permit records in, June 1986, 2; reasons for accessing on-line, Sept 1987, 1-2; security system for, Sept 1986, 1; who can use, Dec 1985, 1;

NATICH reports: carcinogen risk assessment is topic of, Mar 1987, 1; how to obtain, Dec 1985, 2; list of current, Sept 1987, 2; ordering procedures for, Mar 1986, 3; Sept 1986, 2; price list for, Nov 1987, 2; purposes of, Dec 1983 (1)*; and State/local air agency needs, Dec 1983 (2)*; risk communication report to be published, Mar 1988, 2; State/local air toxics agency activities, Dec 1984, 1; titles prepared for, Sept 1986, 1-2

National Ambient Air Quality Standards (NAAQS): U.S. attainment of, Nov 1987, 4

National Contingency Plan, The: June 1986, 3; and EPA air toxics strategy, Aug 1985, 5

National Dioxin Strategy (EPA): Apr 1984, 2-3

National Emissions Data System (NEDS): used in Chicago emissions inventory, Nov 1987, 6-7

National Response Team (NRT), The: and EPA air toxics strategy, Aug 1985, 5; Regional Response Team, June 1986, 3

National Toxicology Program (NTP): carcinogens and hazardous air pollutants identified by, Sept 1986, 3-4

New Hampshire: air toxics control program, Dec 1983 (7)*

New Jersey: air toxics control program, Dec 1983 (7-8)*; passes first chemical accident prevention legislation, Sept 1986, 5-6; proposes rule to cover accidental releases, Mar 1988, 6-7; and waste oil as fuel regulation, Apr 1984, 2

NESCAUM: See Northeast States for Coordinated Air Use Management

NESHAP: asbestos inspection program, Mar 1987, 10-11; enforcement and EPA air toxics strategy, Aug 1985, 3-5; enforcement of standards on asbestos in California, June 1987, 3; and EPA air toxics strategy, June 1986, 9; EPA report on, Sept 1984, 3; hazardous organic NESHAP under development, Sept 1987, 12

New York: air toxics control program, Dec 1983 (4, 8)*, Feb 1984, 4; NYDEC's resource recovery stack emissions assessment program, Sept 1986, 7-8; NYSERDA conducts woodstove study, Dec 1986, 8; and toxic air contaminant stack assessment program, Aug 1985, 7-8

Nickel: as contributor to air toxics problem, Sept 1984, 2-3; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; EPA reports on, July 1984, 6; Dec 1985, 11; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; regulatory status of under Clean Air Act, Dec 1985, 10

Nitrile rubber: and EPA prototype scheme for handling, Sept 1984, 3

Nitrobenzene: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Nitrosamines: and Wisconsin's air toxics program, Sept 1986, 3

Nitrosomorpholine: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Nitrous oxides (NO_x): as emissions from residential wood combustion devices, May 1985, 4-5; and IACP evaluation of wood stove photo-oxidation products, June 1986, 5-6; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; as product of resource recovery facilities, Mar 1986, 8-9

Noncarcinogenic effects of air toxics: Dec 1984, 2

Noncriteria pollutants: See Air pollutants, toxic

No Observable Effect Level (NOEL): used in regulating air toxics, Mar 1987, 4

North Carolina: reviews list of toxic air pollutants for regulation, Mar 1987, 4

Northeast States for Coordinated Air Use Management (NESCAUM): develops MWC test protocol with CTC, Mar 1988, 9; and move to certify resource recovery facility operators, Mar 1986, 8-9; and noncriteria pollutant control policy guideline, Dec 1983 (6)*; perchloroethylene health evaluation document and, Sept 1986, 11; publishes newsletter, Nov 1987, 9; regional air toxics strategy for perchloroethylene, Dec 1985, 6-7; resource recovery workshop coordinated by, Sept 1986, 10; sponsors municipal waste combustion workshop, Mar 1987, 8; sponsors training course to prevent accidental releases, Mar 1987, 5; studies municipal waste combustion, June 1987, 5; and waste oil combustion presentation, Sept 1984, 8

Nuclear power reactors: as sources of radionuclide emissions, Dec 1984, 7

Office of Air and Radiation (OAR): and TSDf regulations, Apr 1984, 5

Office of Solid Waste (OSW): and TSDf regulations, Apr 1984, 5

Office of Solid Waste and Emergency Response (OSWER): and National Dioxin Strategy, Apr 1984, 3

Office of Water (OW): and National Dioxin Strategy, Apr 1984, 3

Ohio: radon levels in dwellings measured, Sept 1986, 6-7; RAPCA compiles PM network data, Mar 1988, 7-8; spotlight on Division of Air Pollution Control, Mar 1987, 2

Ontario, Canada: initiates air toxics assessment, Mar 1988, 7

Operation and maintenance conditions: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 4

Organic compounds: as products of resource recovery facilities, Mar 1986, 8-9

Organic gases, toxic: audit cylinders for, Aug 1985, 8

Ozone: attainment policy for, Nov 1987, 4-5; and EPA air toxics strategy, Aug 1985, 3; and IACP evaluation of wood stove photo-oxidation products, June 1986, 5-6

Particulate matter: Dec 1986, 8; Nov 1987, 6; and Colorado laws governing restaurants and street sanding, June 1986, 8; and IACP project identifying airborne carcinogens, Mar 1986, 7; in indoor air and uranium decay, Mar 1986, 3; and Harvard School of Public Health project, May 1985, 7; limited by wood heater NSPS, Dec 1986, 7; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; Ohio agency compiles network data on, Mar 1988, 7-8; from residential wood combustion (OAQPS development of RWC NSPS to control), May 1985, 3-5; sampling of in Alaska, Nov 1987, 3-4; TSDF report covers emissions of, Dec 1986, 11

Particulate speciation: EPA/OAQPS report on, Nov 1987, 9

PAH: Sept 1987, 9; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; covered in Ontario air toxics assessment, Mar 1988, 7; and New York's toxic air contaminant stack assessment program, Aug 1985, 7; ratio of studied in woodstove tracers, June 1987, 9-10; use of in GC/MI-R, Sept 1987, 13

PCBs: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; EPA/OAQPS reports on, Nov 1987, 8-9; and New York's toxic air contaminant stack assessment program, Aug 1985, 7

PCD-Dioxins: Sept 1987, 8; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; and New York resource recovery stack emissions assessment program, Sept 1986, 7-8; and New York's toxic air contaminant stack assessment program, Aug 1985, 7

Pennsylvania: local agency regulation to control waste-derived liquid fuels, Dec 1986, 3

Pentachlorophenol (PCP): emission information requested, Apr 1984, 8

Perchloroethylene: Sept 1987, 12; as contributor to air toxics problem, Sept 1984, 2-3; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; EPA decision on, Mar 1986, 9; and EPA/IEMD ambient monitoring program, Apr 1984, 5-6; NESCAUM health document on, Sept 1986, 11; and NESCAUM regional strategy to control, Dec 1985, 6-7; regulated by Florida dry cleaning facility regulation, Mar 1987, 3; regulatory status of under Clean Air Act, Dec 1985, 10

Permissible Exposure Limits (PELs): developed by California for air toxics rule, Mar 1988, 3

Permit application review: California proposed rule on, June 1987, 2-3; CAPCOA source assessment manual designed to assist, Dec 1986, 4-5; and Connecticut's air toxics control regulation, Sept 1986, 4-5; and CTC, Mar 1988, 9; Maryland process described, Sept 1987, 3-4; and Monterey Bay (CA) agency rule, Mar 1988, 2; new Mississippi program on, Dec 1986, 5; and New York/Michigan's air toxics control programs, Feb 1984, 4; report on agency fees for, June 1987, 11; workshop on, Mar 1988, 11

Permits, building: and Aspen, Colorado, regulation on woodburning, June 1986, 8

Pesticides: dioxin contamination of, Apr 1984, 3

Petroleum refineries: benzene fugitive emissions from, Feb 1984, 2

Phenol: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; regulatory status of under Clean Air Act, Dec 1985, 10

Philadelphia, City of: air toxics control program, Dec 1983 (4)*; testing for dioxins at incinerator, Sept 1986, 8-9

Phosgene: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; EPA report on locating and estimating emissions of, Dec 1985, 11; EPA draft source/emission factor report on, Dec 1984, 9; listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5

Phosphorus plants, elemental: as sources of radionuclide emissions, Dec 1984, 7

Phosphorus trichloride: listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5

Point sources, industrial: and STAPPA/ALAPCO policy on hazardous air pollutants, Feb 1985, 4-5

Pollutants, organic: measured by Toxic Air Monitoring System (TAMS), Apr 1984, 7; as emission from residential wood combustion devices, May 1985, 3-5; regulatory status of under Clean Air Act, Dec 1985, 10

Polycyclic organic matter (POM): Dec 1986, 8; EPA/OAQPS reports on, Nov 1987, 8-9; and wood heater NSPS, Dec 1986, 7; and IACP woodstove emission measurement, Dec 1986, 9-10

Prevention of Significant Deterioration (PSD): permit remand in California, Mar 1987, 11

Prioritization: California Air Resources Board use of for potential toxic air contaminants, May 1985, 6; and drafting carcinogen policy, Dec 1983 (6)*; and New York air toxics control program, Dec 1983 (8)*; and toxic air pollutants, Feb 1984, 5

Propanol, 2-: and Michigan's use of air stripping of VOCs, Dec 1985, 4

Propylene: and IARC evaluation of wood smoke photo-oxidation products, June 1986, 5

Propylene oxide: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Publicly Owned Treatment Works (POTW): as contributor to air toxics problem, Sept 1984, 2

Puget Sound Air Pollution Control Agency: asbestos regulation adopted by, Mar 1986, 8; urban air toxics study described, June 1987, 7; and waste-derived fuel regulation, Dec 1985, 4-5

Radionuclides: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; and withdrawal of EPA proposed standards for, Dec 1984, 7

Radium facility wastes: and radon emissions from, Mar 1986, 3

Radon, emissions of: and indoor air, Mar 1986, 3-5; measured in Ohio, Sept 1986, 6-7; and proposed standards on radionuclides, Dec 1984, 8; RAPCA's study results described, Mar 1987, 6-8; studied in Maine, June 1987, 7-8

Reference matrix isolation infrared spectral library: Sept 1987, 13

Refineries: wastes from, July 1984, 2

Regional Air Pollution Control Agency (RAPCA): compiles PM network data, Mar 1988, 7-8; measures Ohio radon levels, Sept 1986, 6-7; results of radon study described, Mar 1987, 6-8; toxic emissions data base described, June 1987, 10

Regional Response Team (RRT): and EPA air toxics strategy, Aug 1985, 5

"Reg Neg": used to draft wood heater NSPS, Dec 1986, 7

Removal efficiency: and airstripping of VOCs, Dec 1985, 3

Resource Conservation and Recovery Act (RCRA): and Chicago emissions inventory, Mar 1987, 7; facilities assessment completed in Idaho, Sept 1987, 5-6; and TSDF regulations, Apr 1984, 5

Resource recovery facility: certification of operators of, Mar 1986, 8-9; facilities required by California program to submit risk assessments, Dec 1986, 4; NESCAUM coordinates workshop on, Sept 1986, 10; New York program on stack emissions, Sept 1986, 7-8; and New York's toxic air contaminant stack assessment program, Aug 1985, 7-8

Resource Recovery Facility Emission Characterization (RRFECS): See New York State Department of Environmental Conservation (NYDEC)

Rhode Island: program to monitor solvents in ambient air, Mar 1987, 5-6

Right-to-know amendments: and Chemical Emergency Preparedness Program (CEPP), June 1986, 4; and Superfund, Dec 1985, 9; and workers with respect to chemical health effects, Dec 1983 (6)*

Risk appraisal: and toxic cleanups, Mar 1986, 6

Risk assessment: and air toxics, Feb 1984, 2; as basis for Connecticut toxic air pollutant regulation, Sept 1986, 4; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 4-5; and Clean Air Act, Dec 1983 (5)*; conducted for MWCs, Sept 1987, 9; conducted in urban air toxics programs, Sept 1987, 7; EPA's integrated risk information system described, Mar 1987, 8-9; EPA Region X study described, Sept 1987, 5-6; five basic concepts of, Feb 1984, 4; IRIS data base information on, Sept 1987, 14; Maine conducts assessment of wood smoke, Dec 1986, 8; and NATICH data base, June 1986, 1-2; NATICH report on carcinogens, Mar 1987, 1; and NESCAUM regional strategy to control perchloroethylene, Dec 1985, 6-7; relation to air toxics programs stressed by California agency, Dec 1986, 4; requested in incinerator testing, Sept 1986, 9; and risk management, Dec 1983 (5-6)*; Feb 1984, 2; topic at STAPPA/ALAPCO conference, Dec 1984, 2; used in New Jersey chemical accident prevention legislation, Sept 1986, 5; (carcinogen) used in North Carolina regulation, Mar 1987, 4; used by work group in examining solvent exposure, Nov 1987, 7; and waste oil handling and disposal, Feb 1984, 5

Risk communication: EPA program on described, June 1987, 5-6; hotline for, Nov 1987, 10; NATICH report on planned, Mar 1988, 2

Risk estimates: role of in benzene rulemaking, Feb 1984, 3

Risk management: and air toxics, Feb 1984, 2; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 4-5; EPA's integrated risk information system (IRIS) described, Mar 1987, 8-9; IRIS data base information on, Sept 1987, 14; and Maryland's proposed air toxics regulations, Sept 1987, 3-4; and New Jersey chemical accident prevention rule, Mar 1988, 6-7; and risk assessment, Feb 1984, 2; topic at STAPPA/ALAPCO conference, Dec 1984, 2; used in New Jersey to prevent chemical accidents, Sept 1986, 5

Sampling/analysis techniques: dual sorbent system applied to, Feb 1984, 5; and IACP project identifying airborne carcinogens, Mar 1986, 7; and Toxic Air Monitoring System (TAMS), May 1985, 7; used in Alaska particulate matter study, Nov 1987, 4

Sampling, soil: EPA/ESED report on TSDF covers, Dec 1986, 11

SARA Title III: See Superfund

Science review panel: and drafting carcinogen policy, Dec 1983 (6)*

Sewage treatment plants: and EPA Six Month Study, Apr 1984, 5

Site investigation: and toxic cleanups, Mar 1986, 6

Six Month Study, EPA: and Agency's air toxics strategy, Apr 1984, 4-5; Aug 1985, 3-5

Solvents: Rhode Island program to monitor ambient levels of, Mar 1987, 5-6

Source assessment: CAPCOA publishes manual on, Dec 1986, 4

Source sampling methods: and toxic air pollutants, Feb 1984, 6

South Carolina: county agency community awareness and emergency response program, Sept 1987, 5

South Coast Air Quality Management District (SCAQMD): and rule governing toxic emissions from landfills, July 1984, 1-2

South Dakota: spotlight on Department of Water and Natural Resources, Nov 1987, 3

Stack sampling: emissions from chemical plant studied, Feb 1985, 4; New York resource recovery operation program, Sept 1986, 7-8; New York's toxic air contaminant assessment program on, Aug 1985, 7-8; performed at city incinerator, Sept 1986, 9; and resource recovery facilities, Mar 1986, 8-9; used in Connecticut air toxics regulation, Sept 1986, 5

State Implementation Plan (SIP): and EPA's national air toxics strategy, Nov 1987, 4

State/local air toxics control agencies: technical assistance for, Dec 1984, 2; partnership with Federal agencies, Aug 1985, 3-4; July 1984, 2, 4; Dec 1985, 8

State and Territorial Air Pollution Program Administrators (STAPPA): and appointment of air toxics policy work group, Feb 1984, 6; conducts noncancer survey, Nov 1987, 10; conference on air toxics control, Sept 1986, 10; and EPA air toxics strategy, Aug 1985, 3-5; conferences of, Dec 1983 (3-4)*; July 1984, 6; Sept 1984, 8; Dec 1984, 2-3; members of

State and Territorial Air Pollution Program Administrators (STAPPA)

(continued): NATICH working group meet, Sept 1986, 1; and NATICH, Dec 1983 (1)*; and NATICH data base, Dec 1985, 1-2; national air toxics workshops sponsored by, June 1987, 8; and policy on hazardous air pollutants, Feb 1985, 4-5; prepares report on air permit and emissions fees, June 1987, 11; and EPA Six Months Study, Apr 1984, 5-6; survey of toxic air pollutants, Feb 1984, 6

Stationary sources: Sept 1987, 8; and Air Pollution/Cancer report, Apr 1984, 6; audit cylinders available for, Aug 1985, 8; PM emissions from woodstoves limited by NSPS, Dec 1986, 7

Styrene: and EPA prototype scheme for handling, Sept 1984, 3

Substitute compounds: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 4

Sulfur dioxide (SO₂): and New York's toxic air contaminant stack assessment program, Aug 1985, 7; as refinery waste site contaminant, July 1984, 2; as product of resource recovery facilities, Mar 1986, 8-9

Sulfur oxides (SO_x): as emissions from residential wood combustion devices, May 1985, 4-5

Superfund: and community right-to-know amendment, Dec 1985, 9; and EPA air toxics strategy, Aug 1985, 6-7; and EPA Six Months Study, Apr 1984, 4; requirements of, Dec 1986, 5-6; SARA Title III reporting requirements, Sept 1987, 11-12; Title III workshops conducted on, June 1987, 11

Systems Applications Human Exposure and Dosage (SHED): Feb 1984, 4

Systems Applications Human Exposure and Risk (SHEAR): Feb 1984, 4

T-BACT: See BACT

(TCDD) Tetrachlorodibenzo-p-dioxin, 2,3,7,8-(2378-TCDD): in city incinerator ESP, Sept 1986, 8; and dioxin combustion source study, July 1984, 7; and New York's toxic air contaminant stack assessment program, Aug 1985, 8; Sept 1986, 8

Tetrachloroethylene: detected in Rhode Island ambient air, Mar 1987, 6

Tetrahydrothiophenes: as refinery waste site contaminant, July 1984, 2

Texas: air toxics control program, Dec 1983 (4)*; Houston Regional Monitoring Program described, Mar 1988, 10; and special study identifying toxic air pollutants, Feb 1984, 6

Texas Air Control Board: formation of research division and functions of, July 1984, 5

Threshold Limit Values^R: See TLV

Tiers 1-7: See Dioxin, EPA National Strategy on

TLV: and Maine's air toxics control program, Dec 1983 (7)*; and Ohio interim air toxics policy, Mar 1987, 3; use of factored TLV in regulating air toxics, Mar 1987, 4; used in Mississippi permit review program, Dec 1986, 5; and Wisconsin's air toxics program, Sept 1986, 3; and Virginia Air Pollution Control Board rules, Dec 1984, 5-6

Toluene: regulatory status of under Clean Air Act, Dec 1985, 10; and EPA/IEMD ambient monitoring program, Apr 1984, 5-6; and Michigan's use of air stripping of VOCs, Dec 1985, 4

Toluene-2,4-diisocyanate: listed as Extraordinarily Hazardous Substance in New Jersey, Sept 1986, 5; possible accidental releases studied by CTC, June 1987, 4-5

Total Suspended Particulate (TSP): Dec 1986, 8; and EPA emissions inventory of carcinogens, June 1986, 10

Toxic Air Monitoring System (TAMS): data currently available described, June 1987, 9; established by EPA, Apr 1984, 7; functions defined, Mar 1986, 10; three monitoring sites established for, May 1985, 7

Toxic air pollutants: See Air pollutants, toxic

Toxic Catastrophe Prevention Act: passed by New Jersey, Sept 1986, 5

Toxic hot spots: treatment of by California agency, Mar 1988, 5

Toxic Substances Control Act (TSCA): and EPA prototype scheme for handling toxic air pollutants, Sept 1984, 3-4; and Chemical Emergency Preparedness Program (CEPP), June 1986, 3; Federal activities in, July 1984, 4; grants to States, analysis of, July 1984, 4; information collection record keeping requirements of, and EPA air toxics strategy, Aug 1985, 6-7; inventory of chemicals in commerce, July 1984, 4; status report for existing chemicals, July 1984, 3

Toxicity model: and Michigan's air toxics control program, Feb 1984, 4

Trace metals: trends in Dayton, Ohio, monitoring of, Mar 1988, 8

Tribromomethane: and Michigan's use of air stripping of VOCs, Dec 1985, 4

Trichloroethane, 1,1,1-: detected in Rhode Island ambient air, Mar 1987, 6; and EPA/IEMD ambient monitoring program, Apr 1984, 5-6; and Michigan's use of air stripping of VOCs, Dec 1985, 4

Tetrachloroethane, 1,1,2,2-: and Michigan's use of air stripping of VOCs, Dec 1985, 4

Trichloroethylene: Sept 1987, 12; regulatory status of under Clean Air Act, Dec 1985, 10; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; as contributor to air toxics problem, Sept 1984, 2-3; detected in Rhode Island ambient air, Mar 1987, 6; and EPA/IEMD ambient monitoring program, Apr 1984, 5-6; EPA decision on, Mar 1986, 9; and Michigan's use of air stripping of VOCs, Dec 1985, 4

Trichlorofluoromethane: and Michigan's use of air stripping of VOCs, Dec 1985, 4

TSCA Assistance Office (TAO): functions of, Apr 1984, 7

TSDF: as contributor to air toxics problem, Sept 1984, 2; emissions inventory of in Chicago, Nov 1987, 6-7; EPA/ESED report on soil sampling, Dec 1986, 11

Unit risk factors: used in Dayton, Ohio, monitoring, Mar 1988, 8

Uranium: radon emissions from and indoor air, Mar 1986, 3-5; Uranium Mill Tailing Radiation Control Act, Mar 1986, 3; mines as sources of radionuclide emissions, Dec 1984, 8

Urban aerosols: and Harvard School of Public Health project, May 1985, 7

Urban soup: EPA high risk program on, Mar 1987, 6; Ohio programs on, Mar 1987, 2; round-up on EPA's activities in all regions, Sept 1987, 6-7; treated in EPA's national air toxics strategy, Mar 1987, 9-10; Washington agency conducts study of, June 1987, 7

Users Network for Applied Modeling of Air Pollutants (UNAMAP): Mar 1988, 2

Vanadium: and New York's toxic air contaminant stack assessment program, Aug 1985, 7

Variance (for air toxics source): defined by Wisconsin, Sept 1986, 3

Vinyl chloride: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6

Vinylidene chloride: regulatory status of under Clean Air Act, Dec 1985, 10; and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; EPA draft source/emission factor report on, Dec 1984, 9; and EPA report on locating and estimating emissions of, Dec 1985, 11

Volatile Organic Compounds (VOCs): Nov 1987, 6; and air stripping, Dec 1985, 2-3; and cancer, Dec 1984, 3; and EPA air toxics monitoring data base, June 1986, 11; and EPA emissions inventory of carcinogens, June 1986, 10; EPA/OAQPS report on, Nov 1987, 9; EPA Region X completes study of, Sept 1987, 5-6; Houston monitoring program, Mar 1988, 10; Ontario air toxics assessment, Mar 1988, 7

Volatile Organic Sampling Train (VOST): procedures for, Aug 1985, 8

Virginia State Air Pollution Control Board: noncriteria pollutant control rules adopted, Dec 1984, 5-6

Waferboard: plant studied by CTC, June 1987, 4

Washington: agency conducts urban air toxics study, June 1987, 7; State proposes wood smoke legislation, June 1987, 6-7

Waste-derived fuel: Allegheny County (PA) regulation to control burning of, Dec 1986, 3; combustion and marketing of, Dec 1985, 4-5; New Jersey rule on, Apr 1984, 2

Wastes, hazardous: and incineration at sea, Feb 1984, 6; and Puget Sound waste-derived fuel regulation, Dec 1985, 5

Waste incineration: and New York's toxic air contaminant stack assessment program, Aug 1985, 7-8; solid waste disposal options discussed, Sept 1986, 10

Waste oil combustion: NESCAUM presentation on, Sept 1984, 8; and toxic emissions, Dec 1984, 2

Waste oil handling and disposal: as risk assessment case study, Feb 1984, 5

Wastewater treatment facilities: emissions inventory of in Chicago, Nov 1987, 6-7; and EPA emissions inventory of carcinogens, June 1986, 10; and New Jersey chemical accident prevention rule, Mar 1988, 7

Water: use of air strippers for, Mar 1988, 9

Water quality analysis: conducted at incinerator ash pile, Sept 1986, 9

Water treatment plants: and New Jersey chemical accident prevention rule, Mar 1988, 7

Wisconsin: program on hazardous air pollutants, Sept 1986, 2-4

Wood combustion, residential: and IACP field studies, Dec 1985, 5-7

Woodstoves: See also Combustion, residential wood-fired; and catalytic combustors, May 1985, 4-5; emissions from analyzed by GC/MI-R, Sept 1987, 13; emissions from and conference on, Feb 1985, 6; emissions measured by IACP, Dec 1986, 9-10; and EPA Six Months Study, Apr 1984, 5; field study of conducted in Vermont and New York, Dec 1986, 8; included in Maine's wood smoke assessment, Dec 1986, 7-8; operating characteristics and relation to smoke tracers, June 1987, 9; "reg neg" used in drafting NSPS covering, Dec 1986, 7; as research area for AEERL, Feb 1985, 2-3; Washington State proposes legislation to control emissions from, June 1987, 6

Wood preservatives: bibliography of, Dec 1985, 9

Wood smoke: and Aspen, Colorado, regulation on woodburning, June 1986, 7-8; and IARC evaluation of mutagenic activities of photo-oxidation products, June 1986, 5-6; Maine conducts assessment of, Dec 1986, 7-8; measurement of in IACP project to identify airborne carcinogens, Mar 1986, 7; State of Washington proposes legislation on, June 1987, 6-7; tracers studied, June 1987, 9

Working group, NATICH: appointment of, Dec 1983 (1, 3)*; approves NATICH objectives and guidelines, Feb 1984, 1

Workplace exposure guidelines: Wisconsin recommendations for, Sept 1986, 3

Xylene: and California Air Resources Contaminant Identification and Control Process, Dec 1984, 5; May 1985, 6; detected in Rhode Island ambient air, Mar 1987, 6; and EPA/IEMD ambient monitoring program, Apr 1984, 5-6; and Michigan's use of air stripping of VOCs, Dec 1985, 4

Zinc: and New York's toxic air contaminant stack assessment program, Aug 1985, 7

Zinc oxide plants: as inorganic arsenic emissions sources, Sept 1984, 9

Zinc smelters, primary: as inorganic arsenic emissions sources, Sept 1984, 9

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