



NTIS/PS-78/0893

Polychlorinated Biphenyls in the Environment

A Bibliography with Abstracts

Search period covered

1964 - July 1978

NTIS

U.S. DEPARTMENT OF COMMERCE

National Technical Information Service
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| 16. Abstract: The environmental aspects of polychlorinated biphenyls (PCBs) are cited in this bibliography. Most of the studies are concerned with the toxicity, ecology, and abundance of PCBs in water and air. (This updated bibliography contains 210 abstracts, 74 of which are new entries to the previous edition.) | | | |
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|--|--|--------------------------------|
| _____ | | Title |
| Compilation of State Data for Eight Selected Toxic Substances, Volume I | | |
| _____ | | Corporate Author |
| Mitre Corp., McLean, VA. *Environmental Protection Agency, Washington, D.C. Office of Toxic Substances. (402-364) | | Sponsoring Agency |
| Final rept. | | |
| AUTHOR: Roberts, Elizabeth, Spewak, R., Stryker, S., Tracey, S. | | |
| C5945F4 FLD: 06T 06F 57Y*, 57H, 68* | | NTIS Subject Categories |
| USGRDR7606 Sep 75 165p* | | Pages in Report |
| _____ | | Report Date |
| REPT NO: MITRE-75-52-Vol-I | | |
| CONTRACT: EPA-68-01 2933 | | |
| MONITOR: EPA/560/7-75/001-1 | | |
| Paper copy also available in set of 5 reports as PB-248 649-SET, PCS36.00 | | |
| ABSTRACT: In June 1974, toxic substances data in the U.S. were collected and analyzed in 20 key states. This report describes that effort and discusses the amount, type and usefulness of the data and toxic substances monitoring capabilities of the state agencies contracted. | | |
| DESCRIPTORS: *Environmental surveys, States (United States), Monitors, Toxicology, Arsenic, Beryllium, Cadmium, Cyanides, Lead (Metal), Mercury (Metal), Chlorine aromatic compounds, Data acquisition, Data processing, Water pollution, Air pollution, Chemical compounds | | |
| IDENTIFIERS: *Toxic agents, Biphenyl/chloro, State agencies, NTISEPOATS | | Order Number |
| PB-248 660/3ST NTIS Prices: PC A08/MF A01 | | Microfiche Price Code |
| _____ | | Paper Copy Price code |
| Keywords | | |

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Polychlorinated Biphenyls (Aroclor 1242): Effects of Uptake on E. coli Growth

Medical Univ. of South Carolina, Charleston. (092 550)

AUTHOR: Keil, Julian E.; Graber, Charles D.; Priester, Lamar E.; Sandifer, Samuel H.

F1471L2 Fld: 6T, 6M, 57Y, 57K, 68G, 68E GRAI7815

1972 3p

Monitor: 18

Pub. in Environmental Health Perspectives, n1 p175-177, Apr 72.

Included in the report, Journal Articles on Toxicology. Group 8, PB-279 739.

Abstract: Experiments were performed to study the effects of PCBs in vitro on a facultative organism, Escherichia coli, common to human intestinal flora. This bacterium was also selected because it is the prime indicator of fecal contamination.

Descriptors: *Pesticides, *Toxicology, Metabolism, Bacteria, Escherichia coli, Chlorine organic compounds, Growth, In vitro analysis, Tables(Data), Experimental data, Microorganisms, Concentration(Composition), DDT

Identifiers: Reprints, *Polychlorinated biphenyls, *Aroclor 1242, *Toxic substances, NTISEPAL

PB-279 750/4ST NTIS Prices: (Order as PB-279 739, MF A01)

DDT and Polychlorinated Biphenyl (Aroclor 1242(Trade Name)) Effects of Uptake on E. Coli Growth

Medical Univ. of South Carolina, Charleston. (405 442)

AUTHOR: Keil, J. E.; Sandifer, S. H.

E1471H2 Fld: 6F, 6T, 6M, 57K, 57Y, 68E, 57H GRAC7815

1 Feb 72 7p

Monitor: 18

Pub. in Water Research, v6 p837-841 1972.

Included in the report, Journal Articles on Toxicology. Group 7, PB-279 709.

Abstract: DDT at 0.01 and PCB at 0.01 and 0.1 ppm consistently stimulated Escherichia coli growth in vitro. Differences between treatments and controls at the conclusion of 24 hours incubation although increased uridine uptake was noted in all DDT and PCB cultures after 5 h of incubation.

Descriptors: *DDT, *Pesticides, Biodeterioration, Growth, Bacteria, Escherichia coli, In vitro analysis, Tables(Data), Insecticides, Residues, Nucleic acids, Uridine, Concentration (Composition), Experimental data, Metabolism, Chlorine organic compounds

Identifiers: Reprints, *Polychlorinated biphenyls, DDT insecticide, DDE insecticide, Pesticide residues, Aroclor 1242, Arochlors, NTISEPAL

PB-279 713/2ST NTIS Prices: (Order as PB-279 709, MF A01)

Bioassay of Aroclor (Trademark) 1254 for Possible Carcinogenicity. CAS No. 27323-18-8

National Cancer Inst., Bethesda, Md. Carcinogenesis Program.

Technical rept.

E1465E3 Fld: 6T, 6E, 57Y*, 57E, 68G* GRAI7815

Oct 77 69p*

Rept No: NCI-CG-TR-38, DHEW/PUB/NIH-78-838

Monitor: 18

Abstract: A bioassay of Aroclor 1254 for possible carcinogenicity was conducted by administering the test chemical in feed to Fischer 344 rats. Groups of 24 rats of each sex were administered Aroclor 1254 at one of three doses, either 25, 50, or 100 ppm, for 104-105 weeks. Matched controls consisted of groups of 24 untreated rats of each sex. Survival among males, but not among females, showed a significant dose-related trend. Adequate numbers of animals of both sexes survived for meaningful statistical analyses of the incidences of tumors. The combined incidences of lymphomas and leukemias showed a significant dose-related trend in males. However, the direct comparisons of each treated group with those of the matched controls were not significant, and the tumors cannot clearly be related to treatment with Aroclor 1254. Hepatocellular adenomas and carcinomas were found in the treated groups, but not in the controls. Although the incidences of tumors were not significant, the occurrence of the hyperplastic nodules appeared to be related to treatment. It is concluded that under the conditions of this bioassay, Aroclor 1254 was not carcinogenic in Fischer 344 rats; however, a high incidence of a spectrum of proliferative lesions of the liver in both male and female rats was related to treatment. In addition, the carcinomas of the gastrointestinal tract may be associated with treatment in both males and females.

Descriptors: *Pesticides, *Toxicology, *Bioassay, Gastrointestinal system, Liver, Chlorine organic compounds, Rats, Laboratory animals, Tables(Data), Adenomas, Males, Females, Ingestion(Biology), Diet, Dosage, Dose rate, Malignant neoplasms, Lymphomas, Leukemias

Identifiers: *Aroclor 1254, *Biphenyl/chloro, *Carcinogenesis, NTISNIHCCC

PB-279 624/1ST NTIS Prices: PC A04/MF A01

A Modified Perchlorination Procedure for the Determination of Polychlorinated Biphenyls

Wisconsin Univ., Madison. Water Resources Center.*Office of Water Research and Technology, Washington, D.C.

Technical completion rept.

AUTHOR: Burkhard, L. P.; Armstrong, D. E.

E1465C4 Fld: 7D, 68E, 68D, 99A GRAI7815

1978 25

Rept No: WIS-WPC-78-01

Contract: DI-14-34-0001-6052, DI-14-34-0001-7106

Project: OWRT-A-067-WIS

Monitor: OWRT-A-067-WIS (1)

Abstract: Accurate quantitative measurement of polychlorinated biphenyls in environmental samples poses a difficult analytical problem. This difficulty arises in part from the complexity of the commercial PCB mixture (Aroclors) which are the main source of PCBs in the environment. In theory, chlorination of biphenyl can produce 210 different compounds. Consequently, the Aroclors, produced by chlorination of biphenyl to a certain weight percentage of chlorine, contain more than 50 individual PCB compounds. The purpose of this investigation was to develop a perchlorination technique which would provide quantitative measurements of total PCB and biphenyl concentrations in extracts from environmental samples. The technique should give quantitative recovery of PCBs containing low (e.g., Aroclor 1221) or high (e.g., Aroclor 1254) numbers of chlorine atoms substituted on the biphenyl molecule. Furthermore, since biphenyl may be present in environmental samples and is converted to decachlorobiphenyl by the perchlorination reaction, a method giving quantitative recovery of biphenyl is also needed. Perchlorination of Aroclor 1254, Aroclor 1221, and biphenyl standards using the stepwise increase in reaction temperature resulted in complete recovery of Aroclors 1254 and 1221. However, recovery of biphenyl was low. In summary, an improved perchlorination procedure has been developed which gives quantitative recovery of PCBs in various Aroclor standards, but biphenyl is somewhat low.

Descriptors: *Water analysis, *Pesticides, Chlorine organic compounds, Chemical analysis, Concentration (Composition), Water pollution, Chlorination

Identifiers: *polychlorinated biphenyls, *Aroclors, *Water pollution detection, Aroclor 1221, Aroclor 1254, NTISDIOWRT

PB-279 610/OST NTIS Prices: PC A02/MF A01

Organic Analyses in Water Quality Control Programs. Training Manual

National Training and Operational Technology Center, Cincinnati, Ohio.

E1464F2 Fld: 7D, 68D*, 99A*, 68E GRAI7815

Dec 77 193p*

Rept No: EPA/430/1-77/014

Monitor: 18

Supersedes PB-261 260, PB-261 318, PB-224 212 and PB-238 893.

Abstract: A lecture/laboratory manual deals with the analysis of selected organic pollutants. It is intended for use by those having little or no experience in the field, but having one year (or equivalent) of college organic chemistry, and having basic laboratory skills (volumetric glassware, titration assemblies, analytical and trip balances). Topics include dissolved oxygen, biochemical oxygen demand, ammonia, nitrates, nitrites, carbon analysis, chemical oxygen demand, surfactants, oil and grease phenolics, gas chromatography, and polychlorinated biphenyls.

Descriptors: *Water analysis, *Manuals, *Organic compounds, Chemical analysis, Dissolved gases, Oxygen, Biochemical oxygen demand, Ammonia, Organic nitrates, Carbon, Surfactants, Phenols, Oils, Greases, Gas chromatography, Chlorine organic compounds, Concentration (Composition), Nitrogen organic compounds, Nitrites, Photometry, Pesticides, Quality assurance, Numerical analysis

Identifiers: Chemical oxygen demand, Polychlorinated biphenyls, *Water pollution detection, Winkler test, Kjeldahl method, *Water quality, NTISEPAOWP

PB-279 547/4ST NTIS Prices: PC A09/MF A01

The Toxicity of Polychlorinated Polycyclic Compounds and Related Chemicals

Center for Disease Control, Atlanta, Ga.

AUTHOR: Kimbrough, Renate D.

E1363F4 Fld: 6T, 57Y, 68E, 68G GRAI7714

1974 54p

Monitor: 18

Pub. in the Toxicity of Polychlorinated Polycyclic Compounds and Related Chemicals, Critical Reviews Toxicology, v2 p445-498 1974. Included in the report, Journal Articles on Toxicology. Group 4, PB-279 272.

Abstract: The present review is an attempt to correlate various toxic effects produced by the chemicals in order to better understand and appreciate their behavior. The subjects covered in this article have lately enjoyed great interest and a rapidly growing number of scientific reports are available. Since a number of the chemicals discussed produce similar or related effects, their toxicology is discussed together rather than listing each compound separately, which would have led to a great deal of repetition. A detailed discussion of the various chemical reactions, analytical methods for the determination of the compounds, is not given. The review has been written with the toxic effects of the various compounds as the focal point and the literature cited serves to illustrate these points. No attempt has been made to present a complete review of the literature in this area.

Descriptors: *Toxicology, *Pesticides, Chemical compounds, Chlorine organic compounds, Experimental data, Toxicity, Laboratory animals, Biochemistry

Identifiers: *Toxic substances, Reprints, Pesticide residues, Polychlorinated biphenyls, Aroclors, Aroclor 1254, Aroclor 1260, T2-4-S herbicide, NTISEPAL

PB-279 280/2ST NTIS Prices: (Order as PB-279 272, MF A01)

The Effect of Polychlorinated Biphenyls on Rat Reproduction

Environmental Protection Agency, Chamblee, Ga. Chamblee Toxicology Lab.

AUTHOR: Linder, P. E.; Gaines, T. B.; Kimbrough, R. D.

E1362I3 Fld: 6T, 57Y, 68E, 68G GRAI7814

15 Aug 73 16p

Monitor: 18

Pub. in Fd Cosmet. Toxicol., v12 p63-77 1974.

Included in the report, Journal Articles on Toxicology. Group 5, PB-279 175.

Abstract: The present investigation was initiated in 1970 to study the effects on reproduction and pathology produced by two American-made PCB mixtures sold under the trade-names Aroclor 1254 and Aroclor 1260. Aroclor 1254 contains 54% (w/w) chlorine and is composed of 11% tetra-, 49% penta-, 34% hexa- and 6% heptachlorobiphenyls; Aroclor 1260 has 60% (w/w) chlorine, with a composition of 12% penta-, 38% hexa-, 41% septa-, 8% octa- and 1% nonochlorobiphenyls. The present communication is an account of reproduction studies in rats. Also included are acute toxicity values from preliminary studies and comments on pathology and haematology in animals from the reproduction experiments.

Descriptors: *Toxicology, *Pesticides, Bioassay, Exposure, Laboratory animals, Experimental data, Rats, Chlorine organic compounds, Tables(Data), Reproduction(Biology), Pathology, Dosage, Diets, Mortality, Liver, Histology, Lethal dosage, Physiological effects

Identifiers: *Aroclor 1254, Reprints, *Polychlorinated biphenyls, *Aroclor 1260, Biphenyl/hexachloro, Biphenyl/chloro, *Toxic substances, NTISEPAL

PB-279 186/1ST NTIS Prices: (Order as PB-279 175, MF A01)

Toxicological Assessment of Hexachlorobiphenyl Isomers and 2,3,7,8-Tetrachlorodibenzofuran in Chicks. II. Effects on Drug Metabolism and Porphyrin Accumulation

National Environmental Research Center, Research Triangle Park, N.C. **National Inst. of Environmental Health Sciences, Research Triangle Park, N.C.

AUTHOR: Goldstein, Joyce A.; McKinney, James D.; Lucier, George W.; Hickman, Patricia; Bergman, Hinda

E1362G3 Fld: 6T, 57Y, 68E, 68G GRAI7814

6 Nov 75 12p

Monitor: 18

Pub. in Toxicology and Applied Pharmacology 36, p81-92 1976. Prepared in cooperation with National Inst. of Environmental Health Sciences, Research Triangle Park, N.C.

Included in the report, Journal Articles on Toxicology. Group 5, PB-279 175.

Abstract: Pure hexachlorobiphenyl (HCB) isomers induce a number of changes in parameters of drug metabolism in the chick including changes in cytochrome P-450, liver weight, and p-nitrophenol glucuronyl transferase, but not in testosterone glucuronyl transferase activity. The most active inducers of drug metabolism were 2,3,4,2',3',4'-HCB and 2,4,6,2',4',6'-HCB, while 2,4,5,2',4',5'-HCB produced intermediate effects and 2,3,6,2',3',6'-HCB was a poor inducer. All HCBs caused uroporphyrin accumulation and increased delta-aminolevulinic acid (ALA) synthetase activity, but only 3,4,5,3',4',5'-HCB, 2,3,4,2',3',4'-HCB, and 2,4,5,2',4',5'-HCB produced gross accumulation of hepatic porphyrins. Tissue HCB concentrations correlated well with hepatic effects. 2,3,7,8-Tetrachlorodibenzofuran (TCDF), a contaminant of commercial polychlorinated biphenyl (PCB) mixtures, had no effects on hepatic ALA synthetase activity, porphyrin accumulation, or glucuronyl transferase. TCDF did produce a slight increase in cytochrome P-450, but the increase was smaller than that produced by HCBs.

Descriptors: *Toxicology, *Pesticides, Metabolism, Chlorine organic compounds, Furans, Chickens, Laboratory animals, Experimental data, Tables(Data), Physiological effects, Drugs, Porphyrins, Liver, Cytochromes, Tissues(Biology), Enzymes, Body weight

Identifiers: *Biphenyl/hexachloro, Reprints, *Furan/dibenzo-tetrachloro, *Polychlorinated biphenyls, *Toxic substances, Bioaccumulation, NTISFPAL

PB-279 178/8ST NTIS Prices: (Order as PB-279 175, MF A01)

Laboratory Evaluation of High-Temperature Destruction of Polychlorinated Biphenyls and Related Compounds

Dayton Univ., Ohio. Research Inst.*Municipal Environmental Research Lab., Cincinnati, Ohio.

AUTHOR: Duvall, D. S.; Rubey, W. A.

E1362D3 Fld: 14B, 6F, 57P, 99A GRAT7814

Dec 77 74p

Grant: EPA-R-803540

Monitor: EPA/600/2-77/228

Abstract: A specialized laboratory technique incorporating a two-stage quartz system was used for determining the thermal destruction properties of PCB's and related compounds. With this system, a small sample was first converted to the gas phase, then exposed to high-temperature destruction conditions. Critical parameters of temperature and residence time were accurately measured. When PCB's were exposed for one second to a series of high-temperature air environments, it was found that initial decomposition occurred at approximately 640C; greater than 95% molecular destruction was obtained at 740C; and 99.995% molecular destruction was found at 1000C. Also, it was determined that PCB's (and certain related compounds) thermally decompose to low molecular weight products, as yet unidentified.

Descriptors: *Pesticides, *Chlorine organic compounds, Laboratory equipment, Experiments, Degradation, Stability, Pyrolysis, Gas chromatography, Design criteria, Chemical analysis

Identifiers: *Polychlorinated biphenyls, Quartz tube apparatus, Procedures, High temperature, NTISEPAORD

PB-279 139/OST NTIS Prices: PC A04/MF A01

Industrial Hygiene Survey of Aerovox Industries, Inc., New Bedford, Massachusetts

National Inst. for Occupational Safety and Health, Cincinnati, Ohio.
Industrywide Studies Branch.

AUTHOR: Phillips, Bob; Smith, Larry; Jones, Mark

E1355A4 Fld: 6J, 6T, 57U, 57Y, 94D, 68G GPAI7814

29 Nov 77 20p

Monitor: 18

Abstract: An industrial hygiene survey was conducted by NIOSH at Aerovox Industries, New Bedford, Massachusetts, on March 21-28, 1977, to determine the level of exposure to polychlorinated biphenyls during the manufacture of capacitors. Air samples were collected in the plant for evaluating exposure to Aroclor 1016, trichloroethylene, lead, tin, and zinc. Based on observations made during the survey and the results of the air samples, conclusions are drawn and recommendations for improvements made.

Descriptors: *Environmental surveys, *Industrial hygiene, *Electrical industry, Chlorine organic compounds, Lead poisoning, Tin, Zinc, Air pollution, Industrial atmospheres, Toxicology, Concentration (Composition), Standards, Physiological effects, Recommendations, Tables (Data), Massachusetts

Identifiers: Indoor air pollution, *Polychlorinated biphenyls, Aroclor 1016, Ethylene/trichloro, *Occupational safety and health, Aerovox Industries Incorporated, New Bedford (Massachusetts), *Toxic substances, Air sampling, Maximum permissible exposure level, Threshold limit values, NTISHEWOSH

DB-278 962/6ST NTIS Prices: PC A02/MF A01

Industrial Hygiene Survey of Westinghouse Electric Corporation,
Bloomington, Indiana

National Inst. for Occupational Safety and Health, Cincinnati, Ohio.
Div. of Surveillance, Hazard Evaluation and Field Studies.

AUTHOR: Jones, Mark

E135314 Fld: 6J, 57U, 94D, 68G, 68A, 68E GRAI7814

1 Dec 77 23p

Monitor: 18

Abstract: An industrial hygiene survey was conducted by NIOSH at Westinghouse Electric Corporation, Bloomington, Indiana, on April 19-22, 1977, to determine the level of exposure to polychlorinated biphenyls during the manufacture of capacitors. Approximately 58 air samples were collected for evaluation of polychlorinated biphenyls exposures. In addition, air samples were collected to evaluate exposures to solvents, soldering fumes, welding fumes and ozone. The polychlorinated biphenyl currently used is Aroclor 1016. Based on observations made during the survey and the results of the air samples, conclusions are drawn and recommendations for improvements made. The use of polychlorinated biphenyls is being phased out, but the recommendations will limit exposure no matter what fluid is used.

Descriptors: *Industrial hygiene, *Environmental surveys, *Chemical industry, Pesticides, Chlorine organic compounds, Air pollution, Industrial plants, Concentration(Composition), Industrial atmospheres, Hazards, Personnel, Health, Indiana, Solvents, Fumes, Ozone, Preventive medicine, Safety engineering, Standards

Identifiers: *Occupational safety and health, Indoor air pollution, Air sampling, Environmental health, *Toxic substances, Westinghouse Electric Corporation, Bloomington(Indiana), *Polychlorinated biphenyls, Threshold limit values, Maximum permissible exposure level, *Aroclor 1016, NIOSH

PB-278 803/2ST NTIS Prices: PC A02/MF A01

Simplified Micro Perchlorination Method for Polychlorinated Biphenyls in Biological Samples

Health Effects Research Lab., Research Triangle Park, N.C.
Environmental Toxicology Div.

Journal article

AUTHOR: Crist, Howard L.; Moseman, Robert F.

F1352C1 Fld: 7D, 6T, 99A, 57Y, 68G GRAI7814

25 Mar 77 7p

Rept No: EPA/600/J-77/102

Monitor: 18

Pub. in the Jnl. of the Association of Official Analytical Chemists,
v60 n6 p1277-1281 1977.

Abstract: A simplified methodology is presented for the micro determination of polychlorinated biphenyls (PCBs) in biological samples, by conversion to the decachlorobiphenyl (DCB) derivative. Beef adipose tissue and human milk extracts were fortified with PCB standards at 0.1-5.0 ppm, and perchlorinated with antimony pentachloride (SbCl₅). Several Aroclors representing various degrees of chlorine content were investigated to assess the efficiency of conversion to DCB. Samples were cleaned up on a Florisil mini column and the PCBs were quantitated by electron capture GLC. Several chlorinated pesticides which were subjected to the perchlorination procedure did not interfere. As little as 0.1 ppm PCBs in 500 mg tissue extract can be recovered at 79-99%. The background DCB content of several brands of SbCl₅ was determined. The levels of PCBs in human milk obtained by perchlorination technique are compared with data acquired by electron capture gas-liquid chromatography in which the individual chlorobiphenyls in the sample are measured.

Descriptors: *Chemical analysis, *Tissues(Biology), *Milk, Humans, Quantitative analysis, Contaminants, Toxicology, Environments

Identifiers: Reprints, Analytical methods, *Biphenyl/caloro, Adipose tissue, Microanalysis, Analytical methods, *Toxic substances, NTISEPACRD

PB-278 379/3ST NTIS Prices: PC A02/MF A01

Destroying Chemical Wastes in Commercial Scale Incinerators

TPW Defense and Space Systems Group, Redondo Beach, Calif.*Environmental Protection Agency, Washington, D.C. Office of Solid Waste Management Programs. (409 637)

Final rept. on Phase 2

AUTHOR: Ackerman, D.; Clausen, J.; Grant, A.; Johnson, R.; Shih, C.

E1214D1 Fld: 7A, 68C, 68A, 99B, 68E GRAI7813

1978 130p

Contract: EPA-68-01-2966

Monitor: EPA/530/SW-155c

See also report dated Dec 76, PB-267 987.

Abstract: The report summarizes the results of a Phase II test program demonstrating the effectiveness of thermal destruction of industrial wastes in commercial scale facilities. Phase I was a study effort to select and match suitable wastes and destruction facilities, and to develop a set of detailed facility test plans. Phase II evaluated the environmental, technical, and economic feasibility of thermally destroying fourteen selected industrial wastes in seven different existing commercial scale processing facilities. Results indicated that each of the wastes tested can be thermally destroyed at high efficiencies. Separate detailed reports published for each facility test series conducted and the two-volume Phase I report are listed in the references.

Descriptors: *Incinerators, *Industrial wastes, *Chemical compounds, *Solid waste disposal, Performance evaluation, Environmental surveys, Field tests, Sampling, Chemical analysis, Economics, Air pollution control, Fluidized bed processing, Thermal decomposition, Performance evaluation, Ethylene, Chlorine organic compounds, Pyrolysis, Styrene, Elastomers, Cement, Phenols, Coking, Oxidation, Polyvinyl chloride, Capacitors, Herbicides

Identifiers: Land disposal, Cyclopentadiene/hexachloro, Methyl methacrylate, Polychlorinated biphenyls, Benzene/nitro-benzene, Amiben, Wet method, NTIS*PASW

PB-278 816/4ST NTIS Prices: PC A07/*F A01

Experimental Hepatic Porphyrria Induced by Polychlorinated Biphenyls

Environmental Protection Agency, Chamblee, Ga. Chamblee Toxicology Lab.

AUTHOR: Goldstein, Joyce A.; Hickman, Patricia; Jue, Danny L.

E1203A4 Fld: 6T, 57Y, 68G GPAI7813

30 Aug 73 12p

Monitor: 18

Pub. in Toxicology and Applied Pharmacology 27, p437-448 1974.

Included in the report, Journal Articles on Toxicology. Group 2, PB-278 094.

Abstract: Aroclor 1254, which consists of a mixture of polychlorinated biphenyls (PCBs) containing 54% chlorine, produced an experimental hepatic porphyria in rats resembling hexachlorobenzene poisoning and human porphyria cutanea tarda. The PCB-induced porphyria is characterized by delayed development, increased excretion of urinary uroporphyrins, accumulation of 8- and 7-carboxyporphyrins in the liver and increased drug-metabolizing capacity of the liver. Cytochrome P-450 and microsomal heme were increased maximally at 1 week, in the absence of an increase in the rate-limiting enzyme in heme synthesis, delta-aminolevulinic acid (ALA) synthetase. Induction of ALA synthetase and porphyria occurred later, after 2-7 months' exposure to PCBs. No induction of ALA synthetase could be demonstrated prior to the onset of porphyria. Marked induction of ALA synthetase occurred 5 hr after large single doses of Aroclor 1254; however, the doses required were larger than those used to produce porphyria when administered chronically, and induction appeared to be related to the marked increase in cytochrome P-450 seen 24 hr after administration of the drug.

Descriptors: *Toxicology, *Liver, *Porphyria, Enzymes, Chlorine aromatic compounds, Metabolic diseases, Porphyrins, Hemoglobins, Metabolism, Organic compounds, Contaminants, Rats, Laboratory animals, Bioassay, Ingestion(Biology), Dosage, Dose rate

Identifiers: *Biphenyl/chloro, Toxic substances, Reprints, NTISEPAL

PB-278 101/1ST NTIS Prices: (Order as PB-278 094, MF A01)

Polychlorinated Biphenyls: Evidence of Transplacental Passage in the Sherman Rat

Environmental Protection Agency, Chamblee, Ga. Chamblee Toxicology Lab.

AUTHCP: Curley, August; Burse, V. W.; Grim, Mary E.

E1202J1 Fld: 6T, 57Y, 68E, 68G GRAI7813

21 Oct 72 6p

Monitor: 18

Pub. in Fd Cosmet. Toxicol., v11 p471-476 1973.

Included in the report, Journal Articles on Toxicology. Group 3, PB-278 081.

Abstract: The polychlorinated biphenyl (PCB), Aroclor 1254, was given orally in peanut oil to pregnant Sherman rats once daily from day 7 to day 15 of organogenesis. Dose levels were 0, 10 and 50 mg/kg/day. No statistical difference was found between control and dosed groups with respect to the total weight of litters, the percentage of pups born dead or the survival rate to weaning. Residue levels of PCB-derived material were measured in the fetuses, in the milk ingested by sucklings and in tissues of weanlings by electron-capture gas-liquid chromatography. Liver enlargement was observed in weanlings from dosed rats, but not in those from controls. There was a significant increase in the relative liver weights of weanlings from dosed rats compared with those from controls and the livers of most of the exposed weanlings contained enlarged hepatocytes, accompanied, in some cases, by cytoplasmic vacuolization and bile-duct proliferation, particularly in the group given the higher dosage.

Descriptors: *Pesticides, *Toxicology, Rats, Dosage, Laboratory animals, Experimental data, Tissues(Biology), Tables(Data), Placenta, Pregnancy, Infants, Liver, Pathology, Bioassay

Identifiers: Reprints, *Polychlorinated biphenyls, Pesticide residues, Biphenyl/chloro, Chlorine organic compounds, *Aroclor 1254, Fetuses, *Toxic substances, NTISEPAL

PB-278 086/4ST NTIS Prices: (Order as PB-278 081, MF A01)

Evaluation of Polyurethane Foam for Sampling of Pesticides,
Polychlorinated Biphenyls and Polychlorinated Naphthalenes in Ambient
Air

Health Effects Research Lab., Research Triangle Park, N.C.
Environmental Toxicology Div.

Journal article

AUTHOR: Lewis, Robert G.; Brown, Alan R.; Jackson, Merrill D.

E1102A4 Fld: 14B, 68A, 99A GRAI7812

11 Jul 77 7p

Rept No: EPA/600/J-77/106

Monitor: 18

Presented at the National Meeting of the American Chemical Society
(173rd), New Orleans, La. 25 Mar 77. (Paper no. 78, Div. of Pesticide
Chemistry).

Pub. in Analytical Chemistry, v49 n12 p1668-1672 1977.

Abstract: Polyurethane foam has been evaluated for use in a
high-volume air sampler to collect a broad spectrum of pesticides,
polychlorinated biphenyls (PCBs) and polychlorinated naphthalenes
(PCNs). The sampler draws air through a glass module equipped with a
particulate filter and a polyurethane foam vapor trap at flow rates
which can be controlled from 100 to 250 L/min. Up to 300 cu m of air
can be sampled in a 24-hour day, providing theoretical detection
limits of less than 0.1 ng/cu m for some individual compounds.
Extraction and clean-up methodology for gas chromatographic analysis
are uncomplicated. Collection efficiencies have been determined for
several organochlorine and organophosphate pesticides, PCBs and PCNs.
(Copyright (c) 1977 by the American Chemical Society.)

Descriptors: *Polyurethane resins, *Foam, *Samplers, *pesticides,
Particles, Filtration, Chlorine organic compounds, Air pollution,
Extraction, Laboratory equipment, Gas chromatography, Chemical
analysis

Identifiers: Reprints, *Air pollution detection, Polychlorinated
biphenyls, Polychlorinated naphthalenes, NTISEPAOPD

PB-278 382/75T NTIS Prices: Not available NTIS

Light Microscopy and Ultrastructure of Liver of Rats Fed Polychlorinated Biphenyls

Environmental Protection Agency, Chamblee, Ga. Office of Pesticides Programs.

AUTHOR: Kimbrough, Penate D.; Linder, Ralph E.; Gaines, Thomas E.
E1084J4 Fld: 6T, 57Y GRAI7812

1972 1p

Monitor: 18

Pub. in Toxicology and Applied Pharmacology 22(2) p315-316, Jun 72.
Included in the report, Journal Articles on Toxicology. Group 1,
PB-277 586.

Abstract: Polychlorinated biphenyls (PCB) are widely distributed in the environment. Two PCB were fed to groups of 10 male and 10 female weanling Sherman strain rats in their diet at levels of 0, 20, 100, and 500 ppm Aroclor 1254 and 0, 20, 100, 500, and 1000 ppm Aroclor 1260 for 8 mo. The livers of all rats exposed to the Aroclors weighed more than those of the controls. This difference was significant for all exposed male rats ($p = 0.025$) and for the females fed 500 ppm of either compound.

Descriptors: *Hazardous materials, *Liver, *Toxicology, *Chlorine organic compounds, Diets, Rats, Chlorine organic compounds, Ingestion(Biology), Laboratory animals, Experimental data, Dosage, Bioassay, Sex, Toxicity

Identifiers: Paprints, *Polychlorinated biphenyls, *Toxic substances, Aroclor 1254, Aroclor 1260, Biphenyl/hexachloro, Biphenyl/chloro, NTISEPAL

PB-277 597/1ST NTIS Prices: (Order as PB-277 586, MF A01)

Inputs of Organic Matter to the Ocean

Rhode Island Univ., Kingston. Graduate School of Oceanography. **Delta Inst. of Hydrobiological Research, Yerseke (Netherlands). *National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration. (406 099)

AUTHOR: Duce, Robert A.; Duursma, Egbert K.

E1024D2 Fld: 13B, 8A, 68D, 47D GPAI7811

11 May 77 22p

Grant: NSF-GX-33777, NSF-OCE76-16833

Monitor: NSF/IDOE-78/3

Prepared in cooperation with Delta Inst. of Hydrobiological Research, Yerseke (Netherlands).

Pub. in Marine Chemistry, v5 p319-339 1977.

Abstract: The first objective of this introductory paper is to summarize present understanding of the quantities of total organic carbon produced in the ocean by photosynthesis and non-biotic photochemical reactions, and the amount entering the ocean from rivers, the atmosphere, and the sediments. The second objective of this paper is to emphasize the need to understand the mechanisms involved in these other input processes and the necessity of developing field programs and mathematical models to evaluate the input of specific organic compounds via these pathways. Polychlorinated biphenyls are used as examples of how necessary it is to understand these other input routes in order to evaluate the cycling of pollutant substances in the ocean.

Descriptors: *Ocean environments, *Primary biological productivity, *Water pollution, Photosynthesis, Carbon, Biphenyl, Chlorine organic compounds, Concentration(Composition), Surface waters, Photochemical reactions

Identifiers: Reprints, International Decade of Ocean Exploration, Polychlorinated biphenyls, NTISIDOE

PB-277 474/3ST NTIS Prices: Not available NTIS

Department of the Army Pesticide Monitoring Program, Evaluation of
Environmental Samples Collected in Calendar Year 1975

Army Environmental Hygiene Agency Aberdeen Proving Ground Md (038150
)

Annual rept. Jan-Dec 75

AUTHOR: Roan, Clifford C.; Olds, Kenneth L.; Vinopal, J. Howard

E0971K1 Fld: 6F, 13B, 68E, 57P GRA17811

Feb 77 67p

Rept No: USAEHA-44-0100-78

Monitor: 18

Abstract: Data results of the 1975 Dep of the Army Pesticide Monitoring Program indicate that the three soil groups based on land use are significantly different. The areas having the greatest pesticide burden are the pesticide shop and storage areas. The area having the lowest pesticide burden is soil group III. The golf courses exhibit significantly higher pesticide residues than the other sites in soil group II. The four functional sediment stratifications show significantly different pesticide residues. The two functional stratifications of fish appear to be good indicators of the aquatic environment. The limited amount of bird samples places severe limitations on all conclusions from these data. The bird data do suggest that birds possess high metabolic activity. Recommendations are made with reference to sample collection and the pesticides for which analysis is done.

Descriptors: *Pesticides, *Soils, *Monitoring, Sediments, Residues, Statistical analysis, Land use, Aquatic organisms, Fishes, Birds, Metabolism, Environmental management, Military facilities, Army, Biphenyl, DDT, Metabolites

Identifiers: Environmental impacts, Polychlorinated biphenyls, Pesticide residues, Chlorine organic compounds, NTISDODXA

AD-A050 880/4ST NTIS Prices: PC A04/MF A01

Organic Contaminants - Lake Huron

Environmental Research Lab.-Duluth, Minn.

AUTHOR: Glass, G. E.; Strachan, W. M. I.; Willford, W. A.; Armstrong, F. A. I.; Kaiser, K. L. E.

E0905A3 Fld: 13B, 68D, 68E GRAI7810

1977 20p

Rept No: EPA/600/J-77/063

Monitor: 18

Pub. in The Waters of Lake Huron and Lake Superior, v2 PtB, Lake Huron, Georgian Bay, and the North Channel; ch6.4 p577-590, 667-670 1977. Report to the International Joint Commission-United States and Canada, Windsor (Ontario) by Upper Lakes Reference Group of Working Group C.

Abstract: The report discusses the following topics: Review of Potential Problems; Specific Contaminants--(Polychlorinated Biphenyls, DDT and its Metabolites, Aldrin plus Dieldrin, Hexachlorobenzene, Lindane, Chlordane, Methoxychlor, Polynuclear Aromatic Hydrocarbons, Chlorobenzene Compounds, Phenols, Phthalate Esters, Chloronorborene, Octachlorostyrene, Methylbenzothiophene, Biphenyl, Endosulfan, Cyanide, Heptachlor Epoxide, and Other Organic Constituents); Discussion--Persistent Organic Contaminants, Taste and Odour Compounds.

Descriptors: *Organic compounds, *Lake Huron, Chlorobenzenes, Aromatic polycyclic hydrocarbons, Phenols, Water pollution, Water analysis, Chemical analysis, Odors, Chlorine organic compounds, Cyanides, Chlordane, Dieldrin, Aldrin, Pesticides, DDT, Concentration(Composition), Sediments, Limnology, Sources, Phthalates, Norbornenes, Biphenyls, Bromine organic compounds, Fishes

Identifiers: Reprints, *Water pollution detection, Polychlorinated biphenyls, DDD insecticide, DDE insecticide, Biphenyl/hexabromo, Endosulfan, Heptachlor epoxide, Benzene/hexachloro, Lindane, Methoxychlor, Styrene/octachloro, Benzothiophene/methyl, Water pollution effect (Animals), NTISEPAORD

PB-277 149/1ST NTIS Prices: PC A02/MF A01

Evaluation of a New Microvolume 3HSc Electron Capture Detector and Ancillary Data System for Pesticide Residue Analysis

Health Effects Research Lab., Research Triangle Park, N.C. Analytical Chemistry Branch.

AUTHOR: Hanisch, Robert C.; Lewis, Robert G.

E0812D2 Fld: 14B, 99A, 68E GRAI7809

Feb 78 35p

Rept No: EPA/600/2-78/010

Monitor: 18

Abstract: The performance of a linearized 3HSc electron capture detector (ECD) and its ancillary data system was evaluated for use in the analysis of pesticide residues. Serial dilutions of pesticide standards were used to determine the maximum linear range and sensitivity of the detector. This detector was found to have a significantly greater linear range for the test compounds than a linearized 63Ni electron capture detector evaluated. The sensitivity was only marginally better than the 63Ni ECD.

Descriptors: *Pesticides, *Chemical analysis, Performance evaluation, Sensitivity, Residues, Electron capture, Chlorine organic compounds, Organic phosphates, Naphthalenes

Identifiers: *Electron capture detectors, Polychlorinated biphenyls, Nickel 63, NTISEPAORD

PB-276 990/9ST NTIS Prices: PC A03/MF A01

Criteria for a Recommended Standard....Occupational Exposure to Polychlorinated Biphenyls (PCBs)

National Inst. for Occupational Safety and Health, Cincinnati, Ohio.
(390 766)

E0805L1 Fld: 6J, 6T, 57U, 57Y, 94D, 68G GRA17809

Sep 77 234p

Rept No: DHEW/PUB/NIOSH-77/225

Monitor: 18

Abstract: According to the recommended standard compiled by NIOSH, occupational exposure to polychlorinated biphenyls, or PCB's, shall be controlled so that no worker is exposed to PCBs at a concentration greater than 1.0 microgram per cubic meter of air, determined as a time-weighted average concentration, for up to a 10-hour workday, 40-hour workweek. This recommended level of exposure was determined to be the lowest reliably detectable limit by the sampling and analytical methods recommended in the document. Criteria are outlined for the medical examination of all employees subject to occupational exposure to PCBs, labeling and posting, personal protective equipment and clothing, employee information, work practices and engineering controls, sanitation practices, monitoring and recordkeeping.

Descriptors: *Industrial hygiene, Air pollution, Industrial atmospheres, Chlorine organic compounds, Criteria, Standards, Recommendations, Concentration(Composition), Physiological effects, Preventive medicine, Safety engineering, Medical examination, Monitors, Records management, Protection, Personnel, Toxicology, Laboratory animals, Bioassay, Environmental surveys

Identifiers: Occupational Safety and Health Act of 1970, *Polychlorinated biphenyls, *Biphenyl/chloro, Threshold limit values, Maximum permissible exposure level, Carcinogenesis, Mutagenesis, Teratogenesis, Air sampling, *Toxic substances, Biological effects, NTISHEWOSH

PB-276 849/7ST NTIS Prices: PC A11/MF A01

Methods for Determining the Polychlorinated Biphenyl Emissions from Incineration and Capacitor and Transformer Filling Plants

Midwest Research Inst., Kansas City, Mo.*Environmental Monitoring and Support Lab., Research Triangle Park, N.C. (230 350)

Final rept.

AUTHOR: Haile, Clarence L.; Baladi, Emile

E0804E4 Fld: 14B, 68A, 99A GRAI7809

Nov 77 94p

Contract: EPA-68-02-1780

Monitor: EPA/600/4-77/048

Abstract: Described are methods to measure the polychlorinated biphenyl (PCB) emissions from the stacks of municipal waste, industrial waste, and sewage sludge incinerators and from capacitor and transformer filling plants. The PCB emissions from the incineration plants are collected by impingement in water and adsorption on Florisil. The samples are extracted with hexane, concentrated through evaporation of the solvent, perchlorinated, and the polychlorinated biphenyl content measured as the decachlorinated isomer using a gas chromatograph equipped with a flame ionization detector. The PCB emissions from the capacitor and transformer filling plants are collected directly on Florisil, extracted with hexane and quantified against the appropriate Aroclor using a gas chromatograph. The methods were developed from laboratory studies and field tested at nine incineration plants and two transformer filling plants.

Descriptors: *Gas detectors, *Incinerators, Chlorine organic compounds, Air pollution, Transformers, Capacitors, Industrial wastes, Gas chromatography, Extraction, Combustion products, Performance evaluation, Laboratory equipment, Sampling

Identifiers: *Polychlorinated biphenyls, *Air pollution detection, *Flame ionization detectors, Sewage sludges, NTISEPAORD

PB-276 745/7ST NTIS Prices: PC A05/MF A01

Hydrocarbons in Sediments and Benthic Organisms from a Dredge Spoil Disposal Site in RI Sound

Rhode Island Univ., Kingston. Graduate School of Oceanography.*Environmental Research Lab., Narragansett, R.I.

Final rept.

AUTHOR: Boehm, Paul D.; Quinn, James G.

E0804C3 Fld: 8J, 7D, 68C, 68, 99A, 47C GRAI7809

Nov 77 49p

Grant: EPA-R-803415

Monitor: EPA/600/3-77/092

Abstract: It is the purpose of this study to investigate the spatial distribution of hydrocarbons both in upper Rhode Island Sound surface sediments and in the commercially important shellfish from the area, the ocean quahog (*Acartia islandica*). In doing so, an attempt is made to distinguish the regular hydrocarbon geochemistry of Rhode Island Sound, defined by background hydrocarbon distributions and inputs from Narragansett Bay and adjacent coastal areas, from the input due to mobilization of hydrocarbons from the deposited dredge spoil during the five years since the disposal activity has ceased.

Descriptors: *Hydrocarbons, *Solid waste disposal, *Chemical analysis, Spatial distribution, Sediments, Geochemistry, Shellfish, Environmental surveys, Extractions, Thin layer chromatography, Rhode Island Sound, Marine atmospheres, Carbon, Gas chromatography, Mass spectrometry, Nuclear magnetic resonance, Infrared spectroscopy, Chlorine organic compounds

Identifiers: Bioaccumulation, Dredge spoil, Polychlorinated biphenyls, NTISEPAORD

PB-276 732/5ST NTIS Prices: PC A03/MF A01

Organochlorine Pesticide Residues in Human Adipose Tissue

Environmental Protection Agency, Washington, D.C. (390 139)

AUTHOR: Kutz, F. W.; Yobs, A. R.; Strassman, S. C.

E0701J3 Fld: 6F, 6T, 68G, 68E, 57Y GPAI7808

1976 3p

Monitor: 18

Pub. in the Bulletin of the Society of Pharmacological and Environmental Pathologists, v4 n1 p17-19, Mar 76.

Included in the report, Journal Articles on Pesticide Content in Food and Man, PB-276 326.

Abstract: The article presents findings of selected organochlorine residues for surveys conducted on human adipose tissue during fiscal years 1970, 1971, and 1972. The residues selected for presentation in this paper were beta-benzene hexachloride, total DDT equivalent, dieldrin, heptachlor epoxide, oxychlordane, and polychlorinated biphenyls. All, except polychlorinated biphenyls, are representative of exposure to organochlorine insecticides; residues of polychlorinated biphenyls are indicative of exposure to that industrial contaminant.

Descriptors: *Pesticides, *Body fat, *Chlorine organic compounds, Tissues (Biology), Surveys, Insecticides, Sampling, Chemical analysis, Pathology, Tables (Data), Heptachlor, Concentration (Composition), DDT, Dieldrin, Chlorine organic compounds

Identifiers: *Pesticide residues, Reprints, *Adipose tissue, Polychlorinated biphenyls, Benzene/hexachloro, Oxychlordane, *Toxic substances, NTISEPAL

PB-276 333/2ST NTIS Prices: (Order as PB-276 326, MF A01)

Residues of Polychlorinated Biphenyls in the General Population of the United States

Environmental Protection Agency, Washington, D.C. (390 139)

AUTHOR: Kutz, Frederick W.; Strassman, S. C.

E0701J1 Fld: 6F, 6E, 6T, 68G, 68E, 57Y, 57H GPAT7808

1973 5p

Monitor: 18

Pub. in unidentified Jnl.

Included in the report, Journal Articles on Pesticide Content in Food and Man, PB-276 326.

Abstract: Residues of polychlorinated biphenyls have been found in human tissue and in milk collected from the general population of the United States. In a national survey of human adipose tissue during fiscal years 1973 and 1974, 35.1 and 40.3 percent, respectively, of the tissue collected contained levels of 1ppm or more of polychlorinated biphenyls on a wet-weight basis. Electron capture-gas chromatographic analysis of this tissue revealed that the compounds found in adipose tissue were most comparable to those prevalent in Aroclor 1254 and Aroclor 1260. Additionally, semi-quantitative estimation of these residues was accomplished by thin-layer chromatography. Evidence from gas-liquid chromatography-mass spectrometry indicated that the most frequently encountered polychlorinated biphenyl residues were penta-, hexa-, and heptachloro-biphenyl compounds.

Descriptors: *Body fat, *Pesticides, *Milk, United States, Chlorine organic compounds, Tables(Data), Chromatographic analysis, Humans, Surveys, Sampling, Chemical analysis, Tissues(Biology), Histology

Identifiers: *Pesticide residues, Reprints, *Polychlorinated biphenyls, Biphenyl/chloro, Aroclor 1254, Aroclor 1260, Biphenyl/hexachloro, Adipose tissue, *Toxic substances, NTISEPAL

PB-276 331/6ST NTIS Prices: (Order as PB-276 326, MF A01)

Levels of Polychlorinated Biphenyls in Adipose Tissue of the General Population of the Nation

Environmental Protection Agency, Chamblee, Ga.

AUTHOR: Yobs, Anne R.

E070114 Fld: 6F, 6T, 68G, 68E, 57Y GPAI7808

Apr 72 3p

Monitor: 18

Pub. in Environmental Health Perspectives, n1 p79-81, Apr 72.

Included in the report, Journal Articles on Pesticide Content in Food and Man, PB-276 326.

Abstract: Polychlorinated biphenyls have been found in measurable amounts in 31.1% of 637 samples of human adipose tissue collected from the general population as a part of the Human Monitoring Survey. Sample collection involved 18 States and the District of Columbia. Positive samples were obtained from every State sampled.

Descriptors: *Body fat, *Pesticides, Tissues(Biology), Chlorine organic compounds, Humans, Sampling, Detection, Tables(Data), Concentration(Composition), Surveys, Monitors, Mass spectroscopy, Pathology, United States

Identifiers: *Pesticide residues, Adipose tissue, *Polychlorinated biphenyls, Reprints, Toxic substances, NTISEPAL

PB-276 330/85T NTIS Prices: (Order as PB-276 326, MF A01)

PCB's in Agricultural and Urban Soil

Environmental Protection Agency, Washington, D.C. (390 139)

AUTHOR: Carey, A. E.; Gowen, J. A.

E0701F2 Fld: 6F, 8M, 2C, 57H, 48E, 98C, 68E GRAI7808

1972 4p

Monitor: 18

Pub. in unidentified Jnl.

Included in the report, Journal Articles on Pesticide Residues in the Environment. Group 2, PB-276 312.

Abstract: Polychlorinated biphenyls in soil have been monitored since 1972 as part of the National Soils Monitoring Program, originally established to measure pesticide residue levels in agricultural soils, raw agricultural commodities, and urban soils across the Nation. The PCB's are monitored as part of this program because of their chemical similarity to certain chlorinated pesticides. The PCB's have rarely been detected in agricultural soils of the United States. Only 0.1 percent of the soil samples collected in the National Soils Monitoring Program for 1972 contained detectable PCB levels. However, detectable levels of PCB's occur more frequently in urban soils. Of the 19 metropolitan areas sampled since 1971, 12 of the cities, or 63 percent showed detectable PCB levels. The most commonly encountered PCB was Aroclor 1254, which was identified in approximately 40 percent of the positive samples, while Aroclor 1260 was prevalent in about 20 percent of the positive samples.

Descriptors: *Residues, *Biphenyls, *Pesticides, Monitoring, Soils, Farm crops, Urban areas, Chlorine organic compounds, Agriculture, United States

Identifiers: *Pesticide residues, *Polychlorinated biphenyls, Aroclor 1254, Aroclor 1260, Biphenyl/chloro, NTISEPAL

PB-276 315/9ST NTIS Prices: (Order as PB-276 312, MF A01)

Polychlorinated Biphenyls in the Surface Waters and Bottom Sediments
of the Major Drainage Basins of the United States

Environmental Protection Agency, Washington, D.C. Office of Pesticide
Programs.

AUTHOR: Dennis, D. Steve

E0701E4 Fld: 6F, 13B, 57H, 68E GRAI7808

1974 12p

Monitor: 18

Pub. in unidentified Jnl.

Included in the report, Journal Articles on Pesticide Residues in the
Environment. Group 2, PB-276 312.

Abstract: Data gathered from monitoring activities indicate the
widespread occurrence of PCB's in surface waters and bottom sediments
of the major drainage basins of the United States. A preliminary
assessment of PCB levels shows median residue levels of the positive
detections for the years 1971 to 1974 ranging between 0.1 to 3.0
micrograms/l for unfiltered water samples and from 1.2 to 160.0
micrograms/kg for bottom sediments. The highest levels were found in
basins east of the Mississippi and bottom sediments may contain
concentrations of PCB's many times higher than those in the overlying
water.

Descriptors: *Residues, *Biphenyls, *Pesticides, Monitoring, Chlorine
organic compounds, Surface waters, Sediments, Concentration (Compositi-
on), Hazards, Rivers, Streams, Watersheds, United States, Puerto Rico

Identifiers: *Polychlorinated biphenyls, Biphenyl/chloro, *Pesticide
residues, NTISEPAL

PB-276 313/4ST NTIS Prices: (Order as PB-276 312, MF A01)

Baseline Concentrations of Polychlorinated Biphenyls and DDT in Lake Michigan Fish, 1971

National Water Quality Lab., Duluth, Minn.

AUTHOR: Veith, Gilman D.

E0693C2 Fld: 6F, 68F, 68D, 57Z, 57H GPA17808

1975 9p

Monitor: 18

Pub. in Pesticides Monitoring Jnl., v9 n1 p21-29, Jun 75.

Included in the report, Journal Articles on Pesticide Residues in the Environment, Group 1, PB-275 989.

Abstract: Responding to the recommendations of the Lake Michigan Interstate Pesticide Committee, the author aimed to establish baseline data on polychlorinated biphenyls (PCB's) and DDT in Lake Michigan fish in 1971. Because the past 2 years had witnessed unprecedented legislative action to protect food resources and other aquatic species near the top of the food chain from persistent hazardous chemicals, the author also attempted to gauge the impact of cooperative legislative action on the quality of large lakes.

Descriptors: *Fishes, *Biphenyls, *DDT, *Lake Michigan, *Pesticides, Chlorine organic compounds, Aromatic compounds, Hazards, Monitoring, Concentration(Composition), Trout, Salmon, Fresh water fishes, Tolerances(Physiology), Water quality, Residues

Identifiers: Reprints, *Polychlorinated biphenyls, Biphenyl/chloro, *Pesticide residues, NTISFPAI

PB-275 994/2ST NTIS Prices: (Order as PB-275 989, MF A01)

Ambient Concentrations of PCBs in the Southeast from STORET Data and Selected EPA Studies

Environmental Protection Agency, Athens, Ga. Surveillance and Analysis Div.

Final rept.

AUTHOR: Bruner, R. J. III; Hill, David W.

E0612G4 Fld: 6F, 68E, 68D, 57H GRAI7807

Oct 77 28p

Rept No: EPA/904/9-77/032

Monitor: 18

Abstract: The PCB problem in the southeast came to light in 1976 with the discovery of high concentration of PCBs in fish tissues collected from Lakes Weiss and Hartwell. Tissue, sediment and water data from these lakes are reported and analyzed. Big Cypress Swamp data are presented and analyzed to determine background concentrations of PCBs in areas remote from human activities. STORET data for the states of NC, SC, GA, FL, AL, MS, TN and KY were analyzed and all stations having one or more concentrations greater than 100 micrograms/kg PCBs in sediments and 0.1 microgram/liter in whole water are reported and potential problem areas are defined. The extent of the PCB problem is evaluated and recommendations are made regarding future sampling needs.

Descriptors: *Fishes, *Chemical analysis, Aquatic animals, Tissues (Biology), Concentration (Composition), Water pollution, Water analysis, Lake Weiss, Lake Hartwell, Residues, Sediments, Samples, Monitoring, Pesticides, North Carolina, South Carolina, Alabama, Tennessee, Kentucky, Mississippi, Georgia, Florida, Big Cypress Swamp

Identifiers: *Polychlorinated biphenyls, *Water quality, *Water pollution detection, Bioaccumulation, *Pesticide residues, Southeast region (United States), NTISEPAL

PB-276 042/95T NTIS Prices: PC A03/MF A01

A Note on Polychlorinated Biphenyls in Air

Environmental Protection Agency, Washington, D.C. (390 139)

AUTHOR: Kutz, Frederick W.; Yang, Henry S. C.

E0611L4 Fld: 7D, 6F, 68E, 57P, 99A GPAI7807

1972 1p

Monitor: 18

Pub. in unidentified Jnl.

Included in the report, Journal Articles on Pesticide Chemical Analysis. Group 3, PB-275 978.

Abstract: Samples of ambient air were collected using an ethylene-glycol impinger sampler, and analyzed for selected pesticides and polychlorinated biphenyls in suburban locations in Florida, Mississippi, and Colorado. Preliminary results for samples taken in April, May, and June of 1975 show that PCB's were present at all locations.

Descriptors: *Pesticides, *Chemical analysis, Chlorine organic compounds, Florida, Mississippi, Colorado, Gas chromatography, Electron capture

Identifiers: Reprints, *Polychlorinated biphenyls, Electron capture gas chromatography, NTISEPAL

PB-275 987/6ST NTIS Prices: (Order as PB-275 978, MF A01)

Availability and Concentration of Pollutants from American Falls Reservoir Sediments to Forage and Predaceous Fishes

Idaho Univ., Moscow. Water Resources Research Inst.**Idaho State Univ., Pocatello.*Office of Water Research and Technology, Washington, D.C.

Technical completion rept. Jul 74-Jul 75

AUTHOR: Johnson, Donald W.; Kent, James C.; Campbell, Donald K.

E060112 Fld: 13B, 6F, 68E, 57H GRAI7807

Mar 77 103p

Contract: DI-14-34-0001-6013

Project: OWRT-A-043-IDA

Monitor: OWRT-A-043-IDA (2)

Prepared by Idaho State Univ., Pocatello.

Abstract: This publication reports on the predominant chlorinated hydrocarbons and heavy metal residues in American Falls Reservoir sediments, water and dominate 'rough' and 'game' fish. Chlorinated hydrocarbon residues (DDT metabolites, dieldrin, and PCB's) were found to vary with fish species and age. The mean value for PCB's in large suckers was 671/micrograms/kg in contrasted to the EPA recommendation that it be no greater than 500 micrograms/kg. Mercury and cadmium were found in all species analyzed for those particular metals. Results indicate that the Food and Drug Administration's standard of 0.5 mg/kg may be exceeded in crappie, suckers, and large rainbow trout. The mean value for mercury in water was 0.9 micrograms/l. The maximum concentration of cadmium in the water was seven times the value given by the National Academy of Sciences, considered to be an environmental threat. Arsenic was found only in the sediments and water. It was not detected in any of the fishes sampled.

Descriptors: *Metals, *Reservoirs, *Fishes, *Pesticides, *Water pollution, Chlorine organic compounds, Chlorohydrocarbons, Residues, Dieldrin, DDT, Biphenyl, Mercury(Metal), Cadmium, Trout, Fresh water fishes, Marine microorganisms, Concentration (Composition), Environmental impacts, Arsenic, Halohydrocarbons, Idaho

Identifiers: *American Falls Reservoir, Biphenyl/chloro, Polychlorinated biphenyls, NTISDIOWRT

PB-275 564/3ST NTIS Prices: PC A06/MF A01

Demilitarization of DM. Part I. Thermal Disposal of DM

Army Armament Research and Development Command Aberdeen Proving Ground
Md Chemical Systems Lab (410170)

Technical rept. Jan-Sep 73

AUTHOR: Brooks, Marguerite E.; Davis, Paul M.

E0575L2 Fld: 15B, 68A, 74D GRAI7807

Oct 77 13p

Rept No: ARCSL-TR-77064

Project: 1L762718AD10

Task: 02

Monitor: AD-E400-043

Abstract: Thermal degradation of DM in air was studied over the 750 C to 900 C range. The effects of temperature, residence time, and oxygen ratio on the chemistry of the effluent gases were determined. DM was 99.9995+% destroyed by incineration at 850 C using 150% of the theoretical oxygen to yield minimal quantities of hydrogen cyanide (HCN) and nitrogen oxides in the effluent gases. Arsenic was recovered from the aerosol effluent on a filter system primarily as the arsenious oxide (As_2O_3). (Author)

Descriptors: *Chemical warfare agents, *Demilitarization, *Pyrolysis, *Incinerators, Phenylamines, Arsines, Chlorine compounds, Disposal, Thermal degradation, Air, Oxygen, Air pollution, Scrubbers, Differential thermal analysis, Hydrogen cyanide, Hydrogen chloride, Nitrogen oxides, Arsenic compounds, Oxides, Thermogravimetric analysis

Identifiers: Incineration, Diphenylamine chlorarsine, *DM agents, Arsine/diphenylamino-chloro, *Air pollution, NTISDODXA

AD-A048 755/3ST NTIS Prices: PC A02/MF A01

Evaluation of Collection Media for Low Levels of Airborne Pesticides

Southwest Research Inst., San Antonio, Tex.*Health Effects Research
Lab., Research Triangle Park, N.C. (328 200)

AUTHOR: Rhoades, John W.; Johnson, Donald E.

E0513K1 Fld: 14B, 68A, 99A GRAI7806

Oct 77 140p

Contract: EPA-68-02-2235

Monitor: EPA/600/1-77/050

See also report dated May 72, PB-214 008.

Abstract: Polyurethane foam plugs, Chromosorb 102, and Tenax GC have all been found to be better sorbents than cottonseed oil for high volume collection of airborne chlorinated and organophosphate pesticides and polychlorinated biphenyls. None of these were satisfactory for the recovery of carbofuran or carbaryl. A new high volume collecting module concept capable of use with polyurethane foam, porous polymer beads, liquid coated glass beads, or other solids was developed. The entire collector is Soxhlet extracted and no disassembly is required. The collector-extractor is ready for reuse as soon as residual solvent is removed.

Descriptors: *Pesticides, *Gas analysis, *Gas detectors, Concentration(Composition), Tables(Data), Gas chromatography, Chemical analysis, Concentration(Composition), Sampling, Performance evaluation, Design criteria, Foam, Polyurethane resins, Sorbents, Air pollution, Chlorine organic compounds, Organic phosphates, Carbamates, Samplers

Identifiers: *Air pollution detection, *Air pollution sampling, Polychlorinated biphenyls, Chromosorb 102, Tenax-GC resins, NTISEPAORD

PB-275 668/2ST NTIS Prices: PC A07/MF A01

Inputs and Distributions of Chlorinated Hydrocarbons in Three Southern California Harbors

Southern California Coastal Water Research Project, El Segundo.

Technical rept. 1972-74

AUTHOR: Young, David R.; Heesen, Theodore C.

E0505K1 Fld: 13B, 8A, 6F, 68E*, 47D*, 57H, 68D GRAI7806

Jun 74 31p*

Rept No: SCCWRP-TM214-74

Monitor: 18

Abstract: Input rates of total DDT and PCB 1254 were surveyed in Los Angeles/Long Beach, Newport, and San Diego harbors. The routes investigated were municipal and industrial wastewaters, surface runoff, dry aerial fallout, and vessel antifouling paints. Highest DDT and PCB inputs were in Los Angeles/Long Beach harbor via direct industrial discharges (20 and 50 kg/yr) and surface runoff (100 and 100 kg/yr). Present usage of vessel paints contribute less than 1 kg/yr of these chlorinated hydrocarbons. However, high PCB concentrations (up to 10% dry weight) were measured in scrapings of old antifouling paints, suggesting that, in the past, thousands of kilograms of PCB may have been applied annually to vessel bottoms in southern California harbors. DDT residues (discharged via Los Angeles County municipal outfalls) in mussels from the Los Angeles/Long Beach harbor region (1 mg/wet kg) were 30 times those in and around San Diego harbor. In contrast, mussels from all three harbors had similar PCB 1254 levels. Values ranged up to about 1 mg/wet kg near vessel repair yards.

Descriptors: *Chlorohydrocarbons, *DDT, *Water pollution, *Harbors, Waste water, Industries, Municipalities, Antifouling coatings, Biphenyls, Runoff, Merchant ships, Residues, Chlorine organic compounds, Halohydrocarbons, Concentration (Composition), Mussels, Animal ecology, Distribution (Property), California

Identifiers: Los Angeles Harbor, Long Beach Harbor, Newport Harbor, San Diego Harbor, *Polychlorinated biphenyls, Biphenyl/chloro, NTISSOLC

PB-275 413/3ST NTIS Prices: PC A03/MF A01

Marine Inputs of Polychlorinated Biphenyls and Copper from Vessel Antifouling Paints

Southern California Coastal Water Research Project, El Segundo.

AUTHOR: Young, David R.; Heesen, Theodore C.; McDermott, Deirdre J.; Smokler, Paul F.

E0505J4 Fld: 13B, 8A, 6F, 68E*, 47D*, 57H, 68D GRAI7806

May 74 23p*

Rept No: SCCWRP-TM212-74

Monitor: 18

Abstract: During 1973 an estimated 37,000 recreational vessels (5-21 m long) were docked within 14 major marinas in southern California. Detailed surveys of major brands and quantities of antifouling paint applied to such craft and to commercial and naval vessels in Los Angeles/Long Beach and San Diego harbors were conducted. These studies revealed that approximately 300,000 liters of antifouling paint are applied annually to vessels in southern California. Only 7 of the 28 paints most commonly used yielded detectable PCB levels. Median concentrations of mixtures resembling Aroclor 1242 and 1254 were less than 0.3 and 0.7 mg/l, respectively, and the maximum PCB concentration measured was 40/mg/l. However, the median copper concentration in these paints was estimated to be 600 g/l, corresponding to an annual copper application rate of about 180 metric tons. This copper, which is designed to be available and toxic to marine organisms, may have a larger environmental impact than the 600 metric tons of copper discharged annually via municipal wastewaters.

Descriptors: *Antifouling coatings, *Water pollution, *Marinas, *Copper, Chlorine organic compounds, Merchant ships, Concentration(Composition), Marine microorganisms, Ecology, Harbors, Mixtures, Environmental impacts, Harbors, California, Biphenyls

Identifiers: *Polychlorinated biphenyls, San Diego Harbor, Aroclor 1242, Long Beach Harbor, Los Angeles Harbor, Aroclor 1254, Biphenyl/chloro, NTISSOLO

PB-275 412/5ST NTIS Prices: PC A02/MF A01

Monitoring of Trace Constituents During PCB Recovery Dredging
Operations: Duwamish Waterway

Environmental Protection Agency, Seattle, Wash. Surveillance and
Analysis Div.

AUTHOR: Blazeovich, Joseph N.; Gahler, Arnold R.; Vasconcelos, George
J.; Fieck, Robert H.; Pope, Stephen V. W.

E0503L3 Fld: 13B, 8H, 68D, 50B, 48G GFAI7806

Aug 77 156p

Rept No: EPA/910/9-77/039

Monitor: 18

Abstract: This report describes the monitoring program conducted after a spill of 255 gallons of transformer fluid, Aroclor 1242, occurred in the Duwamish River in Seattle, Washington. A detailed evaluation is presented of data acquired prior to, during, and after recovery operations. An initial recovery effort conducted by EPA resulted in a 30 percent removal of the PCB. The Dept. of Defense, acting through the Corps of Engineers, removed the remaining Aroclor using a Pneuma dredge. This removal operation increased the total PCB recovered to approximately 92 percent. The release of pollutants from sediments during dredging could be only partially predicted by use of the elutriate test and evaluation of the interstitial water.

Descriptors: *Biphenyls, *Water pollution, *Monitoring, *Duwamish River, Dredging, Chlorine organic compounds, Trace elements, Concentration(Composition), Recovery, Sediments, Spoil, pH, Metals, Conductivity, Performance evaluation, Transformers, Coliform bacteria, Nitrogen, Oxygen, Inorganic phosphates, Inorganic sulfides, Washington(State)

Identifiers: *Polychlorinated biphenyls, Pneuma dredges, Seattle(Washington), *Aroclor 1242, NTISEPAL

PB-275 282/2ST NTIS Prices: PC A08/MF A01

Chemical Market Input/Output Analysis of Selected Chemical Substances
to Assess Sources of Environmental Contamination: Task II. Biphenyl
and Diphenyl Oxide

Syracuse Research Corp., N.Y. Center for Chemical Hazard
Assessment.*Environmental Protection Agency, Washington, D.C. Office
of Toxic Substances.

Final rept.

AUTHOR: Meylan, William M.; Howard, Philip H.
E0423I4 Fld: 7A, 7C, 68*, 99B*, 99D GRAI7805

Oct 76 120p*

Rept No: TR-76-599

Contract: EPA-68-01-3224

Monitor: EPA/560/6-77/003

See also report dated Mar 76, PB-271 018.

Abstract: This report considers the sources of environmental contamination from biphenyl and diphenyl oxide. Biphenyl is manufactured in commercial quantities for use in dye carriers, heat transfer fluids, derivatives such as PCB's and alkylated biphenyls, and fruit fungicides. Diphenyl oxide is manufactured in commercial quantities for use in dye carriers, heat transfer fluids, derivatives such as butylchlorodiphenyl oxide, decabromodiphenyl oxide, surfactants, and perfumes and soaps. Thus, this report concentrates on the commercial production and use of biphenyl and diphenyl oxide. Standards established by the Occupational Safety and Health Administration have controlled the occupational exposure to biphenyl and diphenyl oxide; however, large quantities of these chemicals are released to the external environment, particularly to waste treatment facilities which may utilize chlorine disinfection. Laboratory studies indicate that the biphenyl nucleus can undergo chlorination to various chlorobiphenyl isomers during treatment chlorine disinfection.

Descriptors: *Chemical industry, *Environmental surveys, *Biphenyl, *Industrial wastes, Manufacturing, Dyes, Surfactants, Soaps, Fungicides, Marketing, Technology, Economics, Process charting, Benzene, Toluene, Byproducts, Phenols, Management planning, Bromine organic compounds, Chlorine organic compounds, Industrial hygiene, Physical properties

Identifiers: *Phenyl ether, Perfumes, Heat transfer fluids, Benzene/chloro, Polychlorinated biphenyl, Polybrominated biphenyl, NTISEPAOTS

PB-275 097/4ST NTIS Prices: PC A06/MF A01

Baseline Concentrations of Polychlorinated Biphenyls and DDT in Lake Michigan Fish, 1971

National Water Quality Lab., Duluth, Minn.*Wisconsin Univ., Madison.
Dept. of Civil and Environmental Engineering.

AUTHOR: Veith, Gilman D.

E0414E4 Fld: 13B, 6F, 6C, 68E, 57H, 98F, 57Z GRAI7305

1975 9p

Monitor: 18

Pub. in Pesticides Monitoring Jnl., v9 n1 Jun 75. Sponsored in part by Wisconsin Univ., Madison. Dept. of Civil and Environmental Engineering.

Included in the report, Journal Articles on Pesticide Residues in Animals, PB-274 846.

Abstract: Responding to the recommendations of the Lake Michigan Interstate Pesticide Committee, the author aimed to establish baseline data on polychlorinated biphenyls (PCB's) and DDT in Lake Michigan fish in 1971. Thirteen species of fish taken from 14 regions of Lake Michigan in the fall of 1971 were analyzed for PCB's and DDT analogs. Mean wet-weight concentrations of PCB's similar to Aroclor 1254 ranged from 2.7 ppm in rainbow smelt to 15 ppm in lake trout. Most trout and salmon longer than 12 inches contained PCB's at concentrations greater than the tolerance level of 5 ppm established by the Food and Drug Administration, U.S. Department of Health, Education, and Welfare.

Descriptors: *Fresh water fishes, *Residues, *DDT, *Lake Michigan, Biphenyls, Chlorine organic compounds, Concentration (Composition), Trout, Flatfishes, Weight (Mass/volume), Chlorohydrocarbons, Halohydrocarbons, Salmon, Toxic tolerances, Gas chromatography, Mass spectroscopy

Identifiers: *Pesticide residues, Reprints, *Polychlorinated biphenyls, Biphenyl/chloro, *Baseline studies, Bioaccumulation, NTISEPAL

PB-274 850/75T NTIS Prices: (Order as PB-274 846, MF A01)

Organochlorine Residues in Starlings, 1972

Environmental Protection Agency, Washington, D.C. Criteria and Evaluation Div. **Fish and Wildlife Service, Washington, D.C. Div. of Technical Assistance.

AUTHOR: Nickerson, Paul R.; Barbehenn, Kyle P.

E0414E3 Fld: 13B, 6F, 6C, 68E, 57H, 57Z GRA17805

1975 8p

Monitor: 18

Pub. in Pesticides Monitoring Jnl., v8 n4 p247-254 Mar 75. Prepared in cooperation with Fish and Wildlife Service, Washington, D.C. Div. of Technical Assistance.

Included in the report, Journal Articles on Pesticide Residues in Animals, PB-274 846.

Abstract: During the fall of 1972 starlings were collected from 130 sites in conjunction with the National Pesticide Monitoring Program. They were analyzed for DDT and its metabolites, dieldrin, heptachlor eposide, benzene hexachloride polychlorinated biphenyls and, for the first time in the series, oxychlordane and HCB. Mean DDT and dieldrin residue levels have declined significantly since 1967 and a regression analysis suggests that levels of DDT and its metabolites should fall below a mean of 0.1 ppm for the 1974 starling collection.

Descriptors: *Birds, *Residues, *Chlorine organic compounds, *Insecticides, Concentration(Composition), DDT, Dieldrin, Chlorine aliphatic compounds, Epoxy compounds, Chlorine aromatic compounds, Biphenyls, Chlordane, By products, States(United States), Sampling, Tables(Data)

Identifiers: *Pesticide residues, Reprints, Indenes, Methanoindenes, Methanoindene/heptachloro-tetrahydro, Benzene/hexachloro, Biphenyl/chloro, Polychlorinated biphenyls, Chlordane/oxy, Bioaccumulation, NTIS EPAL

PB-274 849/9ST NTIS Prices: (Order as PB-274 846, MF A01)

Coastal Water Research Project Annual Report 1974

Southern California Coastal Water Research Project, Fl Segundo.

Interim rept. Jul 73-Jun 74.

E0405C1 Fld: 13B, 6F, 8A, 6PD, 57H, 47D GPAI7805

Sep 74 181p

Rept No: SCCWRP-AP1-74

Monitor: 18

Abstract: On-going studies of the effects of man's activities on the marine environment off southern California are reported in 29 articles. Studies summarized include surveys of trace metals and DDT and PCB in municipal wastewaters, aerial fallout, marine sediments, and benthic animals; an examination of the historical levels of DDT and PCB in marine sediments near and away from known sources; a survey of the importance of harbors and vessel-related activities in the input and distribution of chlorinated hydrocarbons; a survey of diseases in fish; a cluster analysis of invertebrate populations; an analysis of fish community structure based on feeding roles; an investigation into the relationship between metals concentrations on wastewater solids and particulate size. Programs aimed at standardizing trawl sampling procedures and the identification of invertebrate species are described, as is a model to predict the distribution of wastewater particulates near an outfall.

Descriptors: *Marine biology, *Ecology, *Water pollution, *Coasts, Environmental impacts, Surveys, Metals, Waste water, DDT, Sediments, Sewage disposal, Biphenyl, Chlorohydrocarbons, Concentration(Composition), Harbors, North Pacific Ocean, Benthos, Merchant ships, Fishes, Animal diseases, Invertebrates, Outfall sewers, California

Identifiers: *Ocean waste disposal, *Biphenyl/chloro, Polychlorinated biphenyls, Trace metals, NTISSOLO

PE-274 468/8ST NTIS Prices: PC A09/MF A01

Coastal Water Research Project Annual Report 1975

Southern California Coastal Water Research Project, El Segundo.

Interim rept. Jul 74-Jun 75.

E0405B4 Fld: 13B, 6F, 8A, 68D, 57H, 47D GPA17805

Sep 75 200p

Rept No: SCCWRP-AF2-75

Monitor: 18

Abstract: On-going studies of the effects of man's activities on the ecology of southern California nearshore waters are reported in 32 articles. Investigations described include studies of bacteria and viruses in the marine environment; trawl surveys and laboratory experiments involving disease Dover sole; chromium toxicity tests; surveys of benthic animals near and away from municipal wastewater outfalls; a comparison of sediment grab sampling devices; a comparison of indices of the diversity of marine communities; surveys of trace metals and DDT and PCB in municipal wastewaters, aerial fallout, seawater, and animal tissues. An offshore monitoring system involving caged animals is also described; the effects of ocean disposal of sewage sludge are examined, a model of the dispersion of wastewater constituents is outlined; and the properties of nearshore currents are described.

Descriptors: *Marine biology, *Ecology, *Water pollution, *Coasts, Surveys, Environmental impacts, Bacteria, Viruses, Marine fishes, Animal diseases, Flatfishes, Chromium, Toxicity, Benthos, Outfall sewers, Samplers, Ocean currents, DDT, Biphenyl, Air pollution, Animals, Tissues(Biology), Sludge disposal, Mathematical models, California, North Pacific Ocean

Identifiers: *Ocean waste disposal, Species diversity, Trace metals, Biphenyl/chloro, Polychlorinated biphenyls, NTISSOLO

PB-274 467/OST NTIS Prices: PC A09/MF A01

polychlorinated Biphenyl Inputs to the Southern California Bight
Southern California Coastal Water Research Project, El Segundo.

Summary rept. 1971-75

AUTHOR: Young, David B.; McDermott, Deirdre J.; Heesen, Theodore C.

FO405B3 Fld: 13B, 6F, 68D, 57F GPA17805

Nov 75 54p

Rept No: SCCWPP-TM224-75

Monitor: 18

Abstract: Fates of polychlorinated biphenyl (PCB) transport via several routes to the coastal waters off southern California have been quantified. Submarine discharge of municipal wastewater was the single largest source, contributing 5,400 kg of these synthetic organics in 1974. However, inputs via this route appear to be decreasing, as the corresponding estimate for 1971 exceeded 19,000 kg. One result of this continuing discharge is that bottom sediments around the largest outfalls contain up to 10 ppm PCB. Aerial fallout also appears to be an important source; the estimated deposition rate of 1254 PCB onto the coastal waters during 1973-74 was 1,800 kg/yr--highest inputs were measured off Los Angeles. This region also contributed the most PCB in surface runoff, although less than 800 kg were discharged annually during 1972-73 via storm and dry-weather flow. Direct industrial discharges to San Pedro and San Diego Harbors did not appear to be a major PCB source, totaling less than 250 kg/yr. Although antifouling paints may have been an important source in the past, present inputs are negligible.

Descriptors: *Biphenyls, *Coasts, *Water pollution, *California Bight, Chlorine organic compounds, Waste water, Submarines, Outfall sewers, Sediments, Sources, Surface water runoff, Hydrocarbons, Fallout, Industrial waste disposal, Harbors, Antifouling coatings, California, Drainage

Identifiers: *Polychlorinated biphenyls, *Biphenyl/chloro, Los Angeles (California), San Pedro Harbor, San Diego Harbor, NTISSOLO

PB-274 466/2ST NTIS Prices: PC A04/MF A01

Polychlorinated Biphenyls in Marine Organisms Off Southern California
Southern California Coastal Water Research Project, El Segundo.

Summary rept. 1971-75

AUTHCF: McDermott, Deirdre J.; Young, David P.; Heesen, Theodore C.
E0405B2 Fld: 8A, 6F, 57H, 47D, 68D GPAI7805

Nov 75 49p

Rept No: SCCWRP-TM223-75

Monitor: 18

Abstract: Polychlorinated biphenyl (PCB) residues resembling Aroclor 1242 and 1254 are widely distributed in the marine ecosystem off southern California. Total PCB levels in muscle tissue from flatfish (*Microstomus pacificus*) collected during 1971-72 around major municipal wastewater outfalls ranged from 0.6 to 8.3 mg/wet kg (ppm); median values were 1.5 and 1.9 ppm, respectively. No significant decrease was detected during a 1974-75 resurvey. Highest 1974 concentrations (median: 2 ppm) were measured in fish afflicted with fin erosion disease. Muscle tissue values for yellow rock crabs (*Cancer anthonyi*) ranged from 0.1 to 4.9 ppm; levels in outfall specimens were 10-100 times those in controls. Intertidal mussels (*Mytilus californianus*) collected from coastal and island sites in 1971 ranged from 0.01 ppm at control stations to 0.52 ppm near the Los Angeles County outfalls. Values typically decreased by a factor of 2 between 1971 and 1974. Harbor mussels (*M. edulis*) collected near vessel repair yards and docks in 1974 contained up to 20 times as much total PCB (1.3 ppm) as those from nearby coastal sites.

Descriptors: *Water pollution, *Chlorine organic compounds, Aquatic animals, Concentration(Composition), California, Tissues(Biology), Ocean environments, Marine biology, Accumulation, Flatfishes, Crabs, Mussels

Identifiers: *polychlorinated biphenyls, Water pollution detection, Aroclors, Biphenyl/chloro, *Bioaccumulation, *Toxic substances, Fin necrosis, *Marine ecology, NTISSOLO

PB-274 464/7ST NTIS Prices: PC A03/MF A01

Microfilm

Pesticide Runoff Losses from Small Watersheds in Great Lakes Basin

Michigan State Univ., East Lansing.*Environmental Research Lab.,
Athens, Ga. (228 500)

AUTHOR: Ellis, B. G.; Erickson, A. E.; Wolcott, A. R.; Zabik, M.;
Leavitt, R.

E0404F1 Fld: 13B, 6F, 68E, 57P GRAI7805

Oct 77 90p

Grant: EPA-R-800483

Monitor: EPA/600/3-77/112

Abstract: An assessment is made of sources of variation in pesticide analyses for soil cores taken during the period May 1973 through September 1974 from two watersheds. A number of relationships to methodology, chemical species, topography, soil conditions, and weather are identified. Criteria are given for assessing down-slope movement within and between sampling segments and movement within the profile. A detailed description is given of weather and watershed conditions associated with wintertime runoff events on the larger watershed and with major spring and summer events on both watersheds in 1975. Emphasis is placed on characterizing boundary conditions at the beginning of each event in relation to weather sequences that preceded it. Only portions of the pesticide data set, stored at the Environmental Research Laboratory, Athens, GA, were used in these evaluations. However, important features of soil, topography, management and weather are identified in relation to useful variation in the data. The described relationships should be helpful in interpreting and modelling data from these watersheds for both pesticides and nutrients.

Descriptors: *Pesticides, *Runoff, *Watersheds, *Great Lakes Basin, Sedimentation, Losses, Sources, Concentration(Composition), Topography, Soil properties, Weather, Chlorine organic compounds, Nitrogen heterocyclic compounds, Fluorine organic compounds, Acetic acids, Winter, Seasonal variations, Nitro compounds, Mathematical models, Assessments, Tables(Data)

Identifiers: *Atrazine herbicide, Nonpoint sources, Path of pollutants, *Paraquat herbicide, Acetic acid/mercaptophenyl, *Trifluralin herbicide, Toluidine/dinitro-dipropyl-trifluoro, Bipyridium compounds, *Diphenamid herbicide, Acetamide/diphenyl-N-N-dimethyl, NTISEPAORD

PB-274 084/3ST NTIS Prices: PC A05/MF A01

High Sensitivity Fourier Transform NMR. Intermolecular Interactions
between Environmental Toxic Substances and Biological Macromolecules

Florida State Univ., Tallahassee. Dept. of Chemistry.*Health Effects
Research Lab., Research Triangle Park, N.C. (400 494)

Rept. for 2 Oct 74-1 Oct 76

AUTHOR: Levy, George C.

E0323H4 Fld: 6A, 6T, 14B, 99A, 68, 57B, 57Y GRAI7804

Sep 77 96p

Grant: EPA-803095

Monitor: EPA/600/1-77/045

Abstract: This project explored the feasibility of developing new techniques for evaluation of the effects of environmental toxic materials on complex biopolymer systems using high sensitivity Fourier transform nuclear magnetic resonance (nmr) spectroscopy. Commercial instrumentation available in 1974-75 did not possess adequate sensitivity, and thus one goal of this project was to increase spectral sensitivity, especially for the ^{13}C and other nuclides having low magnetogyric ratios. Initially, modifications to an existing Bruker HX-270 spectrometer provided moderate improvement in sensitivity for ^{13}C and substantial sensitivity increase for ^{15}N observation. During the second (last) year of this grant, a new instrument design was initiated. Several studies were begun to elucidate the nature of chlorophenol interactions in liquids, and when incorporated into lecithin bilayer membrane models. Variable frequency ^{13}C spin lattice relaxation time measurements were used to probe cooperativity of molecular chain dynamics in some simple molecules and in two complex synthetic polymers. A new theoretical modification involving a non-exponential autocorrelation function and also allowing for multiple independent internal rotations, allowed effective analysis of a large experimental set.

Descriptors: *Nuclear magnetic resonance, *Environmental surveys, Toxicology, Feasibility, Design criteria, Fourier analysis, Performance evaluation, Revisions, Samples, Molecular relaxation, Chemical bonds, Chlorine organic compounds, Complex compounds, Carbon 13, Isotopic labeling, Chemical analysis

Identifiers: *Toxic substances, Polychlorinated biphenyls, *Molecular biology, NTISEPAORD

PB-274 011/6ST NTIS Prices: PC A05/MF A01

Measurement of Polycyclic Organic Materials and Other Hazardous Organic Compounds in Stack Gases - State of the Art

Battelle Columbus Labs., Ohio.*Environmental Sciences Research Lab.,
Research Triangle Park, N.C. (407 080)

Interim rept. Oct 76-Jan 77

AUTHOR: Jones, Peter W.; Wilkinson, JoAnn E.; Strup, Paul E.

E0253H4 Fld: 7D, 68A*, 99B* GRAI7803

Oct 77 71p*

Contract: EPA-68-02-2547

Monitor: EPA/600/2-77/202

Abstract: This report documents and reviews state-of-the-art methods for the measurement of polycyclic organic matter (POM) and other hazardous organic materials which are present in industrial stack emissions. Measurement methods for many hazardous compounds, such as POM and nitrosamines, are presented and, where specific methods have not been previously reported, the sections dealing with recommended methods provide useful guidance. Individual chapters are devoted to analytical methodology and stationary source sampling methodology, although an effective measurement strategy demands input from each protocol. An attempt is made to present a unified approach to hazardous organic emission measurement so that future studies may benefit through more realistic intercomparisons and more precise and accurate measurements.

Descriptors: *Organic compounds, *Polycyclic compounds, *Reviews, Flue gases, Nitros compounds, Amines, Air pollution, Industrial wastes, Combustion products, Gas analysis, Chemical analysis, Sampling

Identifiers: *Air pollution detection, Air pollution sampling, Polychlorinated biphenyls, Polychlorinated naphthalenes, NTISEPAORD

PB-274 013/2ST NTIS Prices: PC A04/MF A01

Effects of Ocean Dumping Activity, Mid-Atlantic Bight - 1976

Environmental Protection Agency, Philadelphia, Pa. Region III.

Interim rept.

AUTHOR: Lear, Donald W.; O'Malley, Marria L.; Smith, Susan K.

E025113 Fld: 13B, 8A, 68D, 47D GPAI7803

Jul 77 186p

Rept No: EPA/903/9-77/029

Monitor: 18

Abstract: Significantly high concentrations of metals present in the City of Philadelphia sewage sludge can be found on occasion at points in the sediments in and near the sludge release site. Several bands with high concentrations of metals, in association with high organic carbon, have been partially identified and have persisted for at least 14 months in and adjacent to the southern part of the site. Ambient concentrations of the metals in question have been derived by statistical comparisons over a 3 year period. Polychlorinated biphenyls (PCB's) were widely distributed in concentrations that may be inimical to marine organisms with indicated cyclical inputs, possibly from the coastal zone. Mortalities of the mahogany clam, *Arctica islandica*, were indicated at loci in and near the ocean dumping activity. Detailed bathymetry of the impacted area south of the site indicates geomorphic features may affect the aggregation of dumped materials. Statistically significant changes of the benthic infaunal communities are occurring in the impacted area south of the sewage sludge release site. Mollusks in the vicinity of the site appear to harbor bacteria of sanitary significance.

Descriptors: *Sewage sludge, Sampling, Concentration (Composition), Metals, Organic compounds, Carbon, Chlorine organic compounds, Mid-Atlantic Bight, North Atlantic Ocean, Sediments, Trends, Halogen organic compounds, Bacteria, Clams

Identifiers: *Solid waste disposal, *Ocean waste disposal, *Water pollution sampling, Polychlorinated biphenyls, *Arctica islandica*, Arochlor 1254, Water pollution effects (Animals), NTISEPAL

PB-273 878/9ST NTIS Prices: PC A09/MF A01

Treatment and Stabilization of Polychlorinated Biphenyls (PCBs)
Contaminated Water and Waste Oil. A Case Study. Whitehouse, Florida

Environmental Protection Agency, Atlanta, Ga. Region IV.

Technical rept. Jun 76-Jun 77

AUTHOR: Wilkerson, Raymond T.; Stroud, Fred B.; Smith, Al

E0251F3 Fld: 7D, 68D, 99A GRAI7803

Jul 77 35p

Monitor: 18

Abstract: A study was made concerning one method of treating a substantial Environmental Emergency and potential health hazard. The U.S. EPA, the City of Jacksonville, FL and the U.S. Coast Guard formulates an inexpensive treatment system that allows the discharge of a mixture of oil, PCB and water harmlessly into the St. Johns River. The emergency stems from the poor structural integrity of the impoundment dikes.

Descriptors: *Water pollution control, *Oil spills, Chlorine organic compounds, Saint Johns River, Activated carbon, Adsorption, Samples, Water analysis, Chemical analysis

Identifiers: *Polychlorinated biphenyls, Water pollution detection, *Oil pits, NTISEPAL

PB-273 842/5ST NTIS Prices: PC A03/MF A01

Health Hazard Evaluation Determination Report Number 76-52-386,
Westinghouse Electric Corporation, Bloomington, Indiana

National Inst. for Occupational Safety and Health, Cincinnati, Ohio.

AUTHOR: Levy, Beth S. B.; Meyer, Channing; Lowry, Larry
E024412 Fld: 6J, 6T, 57J, 57Y, 94D, 68G, 68A GRAI7803

Apr 77 18p

Rept No: NIOSH-TR-HHE-76-52-386

Monitor: 18

Abstract: A health hazard evaluation investigation was conducted by NIOSH at the material laboratory and engineering laboratory of the Westinghouse Electric Corporation plant, in Bloomington, Indiana, a facility engaged in the manufacturing of electrical distribution apparatus equipment. An authorized employee representative requested the investigation for technician exposure to Monlanto 1238 and 1016, Sunoco XD-489-17 and Westinghouse P.D.S. 54210KJ, some of which contained polychlorinated biphenyls, because one of the 'unexplainable liver damage' affecting one of the 10-12 'affected' employees, who had worked with 2 of these chemicals for 12 years. It was determined that exposure to polychlorinated biphenyls has resulted in increased absorption of these compounds by several workers in the areas tested. However no significant biomedical findings were present that would indicate the presence of a toxic situation at the time of the survey. Protective and control measures are recommended.

Descriptors: *Hazardous materials, *Industrial medicine,
*Environmental surveys, *Chlorohydrocarbons, *Electrical industry,
Toxicity, Industrial hygiene, Toxicology, Evaluation, Inspection, Air
pollution, Recommendations, Criteria, Exposure, Medical examination,
Liver, Absorption(Biology)

Identifiers: *Environmental health, Air sampling, Toxic substances,
Occupational safety and health, *Air pollution effects(Humans),
Bloomington(Indiana), Westinghouse Electric Corporation, Air pollution
control, *Polychlorinated biphenyls, Biphenyl/chloro, NTISHEWOSH

PB-273 735/1ST NTIS Prices: PC A02/MF A01

Environmental Assessment of PCBs in the Atmosphere

MITRE Corp., McLean, Va.*Environmental Protection Agency, Research Triangle Park, N.C. (402 364)

Final rept.

AUTHOR: Fuller, B.; Gordon, J.; Kornreich, M.

E0175K2 Fld: 6T, 4A, 68A*, 57Y* GRAI7802

Apr 76 279p*

Rept No: MTR-7210-REV-1

Contract: EPA-68-02-1495

Monitor: EPA/450/3-77/045

Abstract: This report examines atmospheric aspects of environmental problems associated with polychlorinated biphenyls (PCB). Subjects covered include: (1) physical and chemical properties of PCB, (2) monitoring methods for PCB in air, (3) sources of PCB emissions, (4) environmental distribution, transport, and transformation of PCB, (5) methods of control of PCB emissions, and (6) biological effects of PCB.

Descriptors: *Air pollution, Chlorine organic compounds, Physical properties, Chemical properties, Monitoring, Sources, Animals, Toxicology, Public health, Atmospheric diffusion, Chemical analysis, Air pollution control, Carcinogens, Ecology, Sampling, Gas analysis

Identifiers: *Polychlorinated biphenyls, Path of pollutants, Air pollution effect (Animals), NTISEPAAWM

PB-274 115/5ST NTIS Prices: PC A13/MF A01

Followup Study of the Distribution and Fate of Polychlorinated Biphenyls and Benzenes in Soil and Groundwater Samples After an Accidental Spill of Transformer Fluid

Environmental Protection Agency, Atlanta, Ga. Region IV.**Stewart Labs., Inc., Knoxville, Tenn.

Technical rept. 1973-76

AUTHOR: Smith, Al J. Jr; Moein, George J.; Stewart, Peggy L.

E0175H3 Fld: 13B, 68D GRAI7802

1976 19p

Monitor: 18

Prepared in cooperation with Stewart Labs., Inc., Knoxville, Tenn. Presented to the 1976 National Conference on Control of Hazardous Material Spills, New Orleans, La.

Abstract: The report contains a brief discussion of the technical aspects of what happens to spill residuals after cleanup, and after a 3 year period. Biodegradation of PCB is considered as is the various effects of weather, climate, and soil dynamics.

Descriptors: *Soil analysis, *Water analysis, *Water pollution, Chlorine organic compounds, Residues, Transformer fluids, Microorganisms, Weather, Ground water, Tennessee

Identifiers: *Polychlorinated biphenyls, *Polychlorinated benzenes, *Aroclor 1254, Path of pollutants, *Water pollution detection, NTISEPAL

PB-273 984/5ST NTIS Prices: PC A02/MF A01

Identification and Analysis of Polychlorinated Biphenyls and Other
Related Chemicals in Municipal Sewage Sludge Samples

Research Triangle Inst., Research Triangle Park, N.C.*Environmental
Protection Agency, Washington, D.C. Office of Toxic Substances. (304
400)

Final rept. 6 Dec 76-5 Jun 77 on Task 4

AUTHOR: Erickson, Mitchell D.; Pellizzari, Edo D.

E007211 Fld: 14B, 7D, 99A, 68D GPAI7801

Aug 77 164p

Contract: EPA-68-01-1978

Monitor: EPA/560/6-77/021

Abstract: Methods were developed for the extraction, clean-up and GC/MS analysis of polychlorinated biphenyls (PCBs) and related chemicals in municipal sludge samples. Each of the sludge samples received from nine major United States cities was processed to yield a neutral fraction and two acid fractions which were methylated with dimethylsulfate and diazomethane, respectively. Samples were cleaned up by silica gel column chromatography. A total of 35 chlorinated compounds were found in the full scan GC/MS analysis; including polychlorobiphenyls, polychloronaphthalenes, polychloroaniline, polychlorobenzene and DDE. Some chlorinated compounds remain unidentified.

Descriptors: *Chemical analysis, *Sludge, Chlorine organic compounds, Samples, Extraction, Gas chromatography, Mass spectroscopy, Laboratory equipment, Sampling

Identifiers: *Polychlorinated biphenyls, *Sewage sludge, Polychlorinated naphthalenes, Polychlorinated aniline, Benzene/chloro, Produces, Sulfate/dimethyl, NTISEPAOTS

PB-273 192/5ST NTIS Prices: PC A08/MF A01

Evaluation of Tests with Early Life Stages of Fish for Predicting Long-Term Toxicity

Environmental Research Lab.-Duluth, Minn.

Journal article

AUTHOR: McKim, James M.

D3802K2 Fld: 6F, 6T, 6C, 13B, 57H, 57Y, 98F, 68D GRAI7726

17 Jan 77 10p

Rept No: EPA/600/J-77/046

Monitor: 18

Pub. in Jnl. of Fisheries Research Board of Canada, v34 n8 p1148-1154 1977.

Abstract: Partial and complete life-cycle toxicity tests with fish, involving all developmental stages, have been used extensively in the establishment of water-quality criteria for aquatic life. During extended chronic exposures of fish to selected toxicants, certain developmental stages have frequently shown a greater sensitivity than others. In 56 life-cycle toxicity tests completed during the last decade with 34 organic and inorganic chemicals and four species of fish, the embryo-larval and early juvenile life stages were the most, or among the most, sensitive. Tests with these stages can be used to estimate the maximum acceptable toxicant concentration (MATC) within a factor of two in most cases. Therefore, toxicity tests with these early life stages of fish should be useful in establishing water-quality criteria and in screening large numbers of chemicals.

Descriptors: *Pesticides, *Toxicity, *Fishes, *Water pollution, Life cycles, Metals, Sewage, Biphenyl, Chlorine organic compounds, Survival, Evaluation, Growth, Concentration(Composition), Time, Exposure, Sensitivity, Predictions

Identifiers: Reprints, Biphenyl/chloro, Polychlorinated biphenyls, NTIS EPA ORD

PB-272 769/1ST NTIS Prices: PC A02/MF A01

Catalytic Hydrodechlorination of Polychlorinated Pesticides and Related Substances: An Executive Summary

Ebon Research Systems, Silver Spring, Md.*Municipal Environmental Research Lab., Cincinnati, Ohio.

D3795C2 Fld: 6F, 7D, 68F, 99F, 57P GRAI7726

Sep 77 61p

Contract: EPA-68-03-2460

Monitor: EPA/600/j8-77/013

Abstract: A study was undertaken of the catalytic conversion of chlorinated pesticides and other undesirable chlorinated compounds to acceptable compounds. This study shows that chlorine can be catalytically removed and replaced by hydrogen to produce relatively non-toxic hydrocarbons. The batch process involves use of a supported nickel catalyst, ethanol as solvent, and sodium hydroxide as an acid-acceptor of the hydrogen chloride by-product. A reactivity sequence is established based on carbon-chlorine bonding wherein olefinic chlorine is the least reactive. Reaction models are determined for Aroclor 1248 and DDE. Removal of ortho-substituted chlorine is the limiting reaction in hydrodechlorination of Aroclor. Aldrin and dieldrin are the most difficult compounds to hydrodechlorinate because of steric hindrance. Removal of aromatic chlorine is the limiting reaction in the hydrodechlorination of DDT and DDE.

Descriptors: *Insecticides, *Chlorine organic compounds, *Catalysis, Aldrin, Dieldrin, DDT, Chemical reactors, Pesticides, Laboratory equipment, Chemical reactions, Reaction kinetics, Mass spectroscopy, Hydrogenation, Dechlorination

Identifiers: *Hydrodechlorination, *Environmental chemical substitutes, Procedures, Aroclor 1248, DDE insecticide, Toxaphene, Dichlorodiphenyltrichloroethane, Ethylene/bis(chlorophenyl)-dichloro, Dimethanonaphthalenes, NTISEPAORD

PB-272 603/2ST NTIS Prices: PC A04/MF A01

Residues of PCB's and DDT in the Western Lake Superior Ecosystem

Environmental Research Lab.-Duluth, Minn.

Journal article

AUTHOR: Veith, G. D.; Kuehl, D. W.; Puglisi, F. A.; Glass, G. E.;
Eaton, J. G.

D3724D3 Fld: 6F, 13B, 57H, 68E GPAI7725

1977 14p

Rept No: EPA/600/J-77/045

Monitor: 18

Pub. in Archives of Environmental Contamination and Toxicology, v5
p487-499 1977.

Abstract: Fish from western Lake Superior (1972-73) contained DDT and PCB residues at concentrations greater than 0.1 ppm. The most predominant PCB's were those containing 3 to 6 chlorine atoms per molecule, and GLC data indicated that the mixtures were most like the commercial product Aroclor (R). Other chlorinated contaminants identified by GC/MS analyses and occurring at concentrations less than 0.1 ppm were hexachlorobenzene (C6Cl6), chlordane, nonaclor, and dieldrin. Lindane which has been previously reported in Lake Superior, was below the detection limit of approximately 0.01 ppm. The relationship between the size of lake trout and the concentration of total DDT in the fish was compared to measurements reported in previous studies. The comparison suggests that DDT residues have declined since 1968.

Descriptors: *Pesticides, *Fishes, *Lake Superior, DDT, Residues, Biphenyls, Chlorine organic compounds, Trout, Concentration(Composition), Size determination, Chlorodan, Naphthalene compounds, Benzene, Dieldrin, Chlorohydrocarbons, Halohydrocarbons, Tolerances(Physiology)

Identifiers: Polychlorinated biphenyls, Biphenyl/chloro, Benzene/hexachloro, Nonaclor, NTISEPAORD

PB-272 447/4ST NTIS Prices: Not available NTIS

Effects and Interactions of Polychlorinated Biphenyls (PCB) with
Estuarine Microorganisms and Shellfish

Maryland Univ., College Park. Dept. of Biology.*Environmental Research
Lab., Gulf Breeze, Fla.

Final rept.

AUTHOR: Colwell, Rita P.; Sayler, Gary S.

D3714A3 Fld: 6F, 6M, 13B, 57H, 57K, 68D GRAI7725

Jun 77 57p

Grant: EPA-R-803300-01-0

Monitor: ERL/GB-324

Abstract: The role of estuarine bacteria in the mobilization, transport, and removal of polychlorinated biphenyls (PCB) was investigated in estuarine environments. A main objective of this investigation was to determine a secondary impact of PCB contamination of estuarine systems. The specific secondary effect was the PCB-stress-induced accumulation and depuration of enteric bacteria by shellfish, i.e., the Chesapeake Bay oyster, *Crassostrea virginica*. For this report, bacteria uninhibited by PCB, but capable of growth in the presence of PCB, are defined as PCB-resistant. In this regard, PCB-resistant bacteria were found to be distributed ubiquitously throughout estuarine and marine environments sampled in this study. The residence time of PCB in estuarine and marine environments is concluded to be sufficiently long to induce stress upon estuarine animals.

Descriptors: *Marine microorganisms, *Bacteria, *Shellfish, Enterobacteriaceae, Chlorine aromatic compounds, Water pollution, Aquatic animals, Invertebrates, Oysters, Stress (Physiology), Contamination, Biodeterioration, Estuaries, Ecology, Interactions

Identifiers: *Crassostrea virginica*, Ecosystems, *Biphenyl/chloro, Heterotrophs, *Water pollution effects(Animals), Bioaccumulation, NTISEFACRD, NTISCOMNOA

DB-272 103/3ST NTIS Prices: PC A04/MF A01

Organic Contaminants

Environmental Research Lab.-Duluth, Minn.

Journal article

AUTHOR: Glass, G. E.; Strachan, W. M. I.; Willford, W. A.; Armstrong, F. A. I.; Kaiser, K. L. E.

D3625I1 Fld: 13B, 68E, 68D GRAI7724

1977 20p

Rept No: EPA/600/J-77/042

Monitor: 18

Pub. in the Waters of Lake Huron and Lake Superior, v3 p417-502 1977.

Abstract: Organic pollutants may constitute the most widespread waste loadings into the waters of Lake Superior. There are essentially three categories of organic contaminants. The first grouping consists of those organic compounds that readily degrade biologically or chemically. The second category of organic contaminants is comprised of less readily degraded organic compounds which may be directly toxic to aquatic life and to consumers of aquatic life, which may be bioconcentrated to toxic levels, or which may be metabolized to a more toxic form and stored in higher organisms. The third category consists of the many organic compounds that can cause taste and odor problems in domestic water supplies or taint the flesh of food fishes. Identification of individual organic compounds is difficult in environmental samples, and currently the state of the art is developing. The analytical methodology employed for all studies was based on extraction of non-ionic compounds. The data presented in this document for specific contaminants are only a representative portion of the data available.

Descriptors: *Organic compounds, *Lake Superior, Concentration (Composition), Biphenyls, Water pollution, Toxicity, Biodegradation, Odors, Tastes, Potable water, Cyanides, Esters, Phthalates, Chlorobenzenes, Chlorine organic compounds, DDT, Insecticides, Dieldrin, Aromatic polynuclear hydrocarbons, Phenols

Identifiers: *Water pollution sampling, Aldrin, Polychlorinated biphenyls, DDD insecticide, DDE insecticide, Dimethanonaphthalenes, Benzene/hexachloro, Lindane, Cyclohexane/hexachloro, Chlordane, Methoxychlor, Norbornene/chloro, Styrene/octachloro, Thiophene/methylbenzo, Endosulfan, Heptachlor epoxide, Reprints, NTISEPAORD

PB-271 769/2ST NTIS Prices: PC A02/MF A01

Ten NIOSH Analytical Methods Set-2

Stanford Research Inst., Menlo Park, Calif.*National Inst. for
Occupational Safety and Health, Cincinnati, Ohio. (332 500)
D3615I4 Fld: 7D, 6J, 68G, 99A, 57D, 68A GRAI7724
Jul 77 316p
Contract: DHEW-210-76-0123
Monitor: NIOSH-SCP-FW-2

Abstract: Industrial hygiene sampling and analytical methods were developed and validated under a follow-up research effort to develop measurement methods which failed to validate under the joint NIOSH/OSHA Standards Completion Program. This is the second set of 10 methods in an effort to develop methods for 130 substances. Monitoring methods for the following substances are included: Allyl glycidyl ether, Benzoyl peroxide, Chlorodiphenyl(42% chlorine), Furfuryl alcohol, Hydroquinone, Iron oxide fume, Methylcyclohexanone, Methyl chloride, Stibine, and Vanadium (V2O5 fume).

Descriptors: *Industrial hygiene, *Gas analysis, Standards, Tests, Chemical analysis, Monitors, Methodology, Air pollution, Samples, Experiments, Vanadium, Benzoyl peroxide, Hydroquinone, Iron oxides, Chloromethanes, Ethers, Chlorine organic compounds, Alcohols

Identifiers: *Occupational safety and health, *Air pollution detection, *Indoor air pollution, *Toxic substances, Maximum permissible exposure level, Procedures, Ether/allyl-glycidyl, Biphenyl/chloro, Furfuryl alcohols, Cyclohexanone/methyl, Stibine, NTISHEWOSH

PB-271 464/0ST NTIS Prices: PC A14/MF A01

Effects of Aroclor (Trademark) 1016 and Halowax (Trademark) 1099 on Juvenile Horseshoe Crabs (*Limulus polyphemus*)

Texas A and M Univ., College Station.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration. (347 350)

AUTHOR: Neff, J. M.; Giam, C. S.

D3615C1 Fld: 6T, 6F, 8A, 57Y, 57H, 68E, 68D, 47D GRAI7724

1977 17p

Grant: NSF-IDO75-04890

Monitor: NSF/IDOE-77-122

Pub. in Physiological Responses of Marine Biota to Pollutants, p21-35 1977.

Abstract: Monsanto has replaced its more highly chlorinated PCB's with a new, presumably less persistent formulation, Aroclor 1016, containing greatly reduced amounts of isomers with 5 or more chlorines per biphenyl. Chlorinated naphthalenes are manufactured in the United States by the Koppers Company under the trade name Halowax. The purpose of this study was to compare the biological effects of Aroclor 1016 and Halowax 1099 on juvenile horseshoe crabs, *Limulus polyphemus*. The chronic toxicity of these compounds and their effects on molting and respiration were also investigated.

Descriptors: *Crabs, *Toxicity, *Pesticides, Aquatic animals, Arthropoda, Shellfish, Physiological effects, Respiration, Chlorine organic compounds, Biphenyls, Chlorine aromatic compounds

Identifiers: Reprints, **Limulus polyphemus*, *Water pollution effects(Animals), Environmental chemical substitutes, *Aroclor 1016, *Halowax 1099, Polychlorinated naphthalenes, Polychlorinated biphenyls, Biphenyl/chloro, NTISIDOE, NTISNSFG

PB-271 423/6ST NTIS Prices: Not available NTIS

Osmoregulation of the Grass Shrimp 'Palaemonetes pugio' Exposed to Polychlorinated Biphenyls (PCBS). I. Effect on Chloride and Osmotic Concentrations and Chloride-and Water-Exchange Kinetics

Texas A and M Univ., College Station.**EG and G Bionomics, Wareham, Mass. Aquatic Toxicology Lab.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration.

AUTHOR: Roesijadi, G.; Anderson, J. W.; Petrocelli, S. R.; Giam, C. S. D3615B4 Fld: 6T, 6F, 8A, 13B, 68E, 68D, 98F, 57Y, 57H, 47D GRAI 7724

13 Aug 76 15p

Grant: NSF-GX-37344, NSF-ID075-04890

Monitor: NSF/IDOE-77-123

Prepared in cooperation with EG and G Bionomics, Wareham, Mass. Aquatic Toxicology Lab.

Pub. in Marine Biology, v38 p343-355 1976.

Abstract: Grass shrimp, *Palaemonetes pugio*, were capable of hypo- and hyper-osmotic regulation of body fluids. Hemolymph chloride and osmotic concentrations were maintained at relatively stable levels over a wide salinity range. Following an abrupt transfer from intermediate (14 and 17 parts per thousand by weight) to high (31 and 35 parts per thousand by weight) or low (1 and 2 parts per thousand by weight) salinities, hemolymph chloride levels exhibited initial overshoot and undershoot, respectively, of new steady-state levels. Changes in chloride space following salinity transfer paralleled those of hemolymph chloride levels. Rate constants for chloride turnover indicated independent exchanges of sodium and chloride ions. Water-turnover measurements showed that permeability of *P. pugio* was greatest at the isosmotic salinity (17 parts per thousand by weight) and reduced at salinities which were associated with active osmoregulation. Exposure to sublethal and 96-h LC50 levels of Aroclor 1254 did not seriously alter hemolymph chloride and osmotic concentrations, chloride space or chloride-exchange kinetics in adult shrimp.

Descriptors: *Pesticides, *Shrimps, *Toxicity, *Water pollution, Chlorine organic compounds, Biphenyls, Salinity, Osmosis, Exposure, Body fluids, Ionic regulation (Physiology), Chlorides, Bioassay, Aquatic animals

Identifiers: Reprints, **Palaemonetes pugio*, *polychlorinated biphenyls, *Water pollution effects (Animals), International Decade of Ocean Exploration, *Osmoregulation, Biphenyl/chloro, NTISTDOF, NTISNSFG

PB-271 422/85T NTIS Prices: Not available NTIS

Osmoregulation of the Grass Shrimp 'Palaemonetes pugio' Exposed to Polychlorinated Biphenyls (PCBs). II. Effect on Free Amino Acids of Muscle Tissue

Texas A and M Univ., College Station.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration. (347 350)

AUTHOR: Roesijadi, G.; Anderson, J. W.; Giam, C. S.

D3615B3 Fld: 6T, 6F, 6C, 8A, 57Y, 68E, 68D, 57H, 47D GRAI7724

13 Aug 76 9p

Grant: NSF-GX-37344, NSF-ID075-04890

Monitor: NSF/IDOE-77-124

Pub. in Marine Biology, v38 p357-363 1976.

Abstract: Glycine was the most abundant free amino acid (FAA) in abdominal muscle of grass shrimp *Palaemonetes pugio*, accounting for over 50% of the total pool. Arginine, alanine, proline, taurine and serine were also present at relatively high concentrations. Following transfer from 17 to 2 and 32 ppt by weight S, new steady-state levels of total FAA were observed at 72 h. Total FAA and the sum of glycine, alanine and proline exhibited a positive correlation with salinity. Exposure to Aroclor 1254 did not have appreciable effects on total FAA levels, indicating that disruption of intracellular osmoregulation was not a major consequence of PCB toxicity. However, changes in individual amino acid concentrations in exposed shrimp were reflective of an altered metabolic state. Glycine, which did not show changes immediately following exposure, underwent large decreases after transfer to PCB-free water and indicated a delayed effect of PCB exposure. A correlation between salinity and the sum of glycine, alanine and proline did not exist in exposed shrimp.

Descriptors: *Salinity, *Shrimps, *Toxicity, *Amino acids, *Pesticides, Invertebrates, Aquatic animals, Chlorine aromatic compounds, Osmosis, Muscles, Metabolism, Exposure, Experimental data, Physiology, Regulation, Biochemistry

Identifiers: *Polychlorinated biphenyls, Biphenyl/chloro, *Palaemonetes pugio*, *Water pollution effects(Animals), Reprints, *Osmoregulation, NTISIDOF, NTISNSFG

PB-271 421/OST NTIS Prices: Not available NTIS

Immobilization of Hazardous Residues by Encapsulation

Washington State Univ., Pullman.*National Science Foundation,
Washington, D.C. Research Applied to National Needs. (369 850)

Semi-annual technical rept.

AUTHOR: Subramanian, R. V.; Mahalingam, R.

D3614L2 Fld: 13B, 7A, 68C, 99B, 68F GRAI7724

Jul 77 93p

Grant: NSF-ENV76-06583

Monitor: NSF/PA-770183

See also report dated 30 Apr 76, PB-262 648.

Abstract: The objective of this research is to devise and evaluate methods for solidification in a polymer matrix of liquids containing hazardous substances. The report seeks to: (1) evaluate the true immobilization of wastes encapsulated in the polyester matrix by long-range leaching studies; (2) evaluate the applicability of the process to a wide spectrum of actual hazardous wastes; (3) optimize the conditions for the emulsification and curing steps of the process; and (4) provide a sound basis for commercial exploitation of the process by detailed plant investigations. A wide variety of industrial wastes was obtained from chemical companies and waste treatment industries. These contained toxic components such as cyanide, arsenic, poisonous metal ions, PCB, kepone, and pharmaceutical wastes. The process was found to be generally applicable to solidify these wastes. The detailed results of these studies form the basis of this report in two parts. The laboratory studies of the process are contained in part 1, and the pilot plant studies in part 2.

Descriptors: *Encapsulating, *Hazardous materials, *Industrial waste treatment, *Radioactive contaminants, Performance evaluation, Curing, Chemical industry, Pilot plants, Cyanides, Arsenic, Metals, Ions, Chlorine organic compounds, Drugs, Process charting, Design criteria, Cost analysis, Solid waste disposal, Polyester resins, Residues, Solidification, Air pollution, Water pollution, Dispersion

Identifiers: Biphenyl/chloro, Kepone, Liquid wastes, NTIS NSFRA

PB-271 410/3ST NTIS Prices: PC A05/MF A01

Toxicity, Accumulation, and Release of Three Polychlorinated Naphthalenes (Halowax 1000, 1013, and 1099) in Postlarval and Adult Grass Shrimp, 'Palaemonetes pugio'

Texas A and M Univ., College Station. Dept. of Biology.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration. (402 267)

AUTHOR: Green, F. A. Jr; Neff, J. M.

D3614J3 Fld: 6T, 6F, 8A, 13B, 68F, 68D, 98F, 57Y, 57H, 47D GRAI 7724

1977 10p

Grant: NSF-ID075-04890

Monitor: NSF/IDOE-77-128

Pub. in Bulletin of Environmental Contamination and Toxicology, v17 n4 p399-407 1977.

Abstract: The toxicity to and accumulation and release of three PCNs by postlarval and adult grass shrimp, *Palaemonetes pugio* is reported. Postlarval grass shrimp were found to be slightly more sensitive than adults to Halowax 1099 and 1013, but were more tolerant to Halowax 1000. In general, it appears that the shrimp are less tolerant to trichloro- and tetrachloronaphthalene (Halowax 1099) than they are to PCNs of lower or high chlorination (Halowax 1000 and 1013). The results of the accumulation experiments partially account for these differences in toxicity. The degree to which the different compounds were accumulated corresponded to their relative degree of toxicity. This, in turn, could be directly related to the relative ability of the shrimp to metabolize or excrete PCNs of different chlorine content.

Descriptors: *Pesticides, *Shrimps, *Toxic tolerances, *Water pollution, *Chlorohydrocarbons, Exposure, Tissues(Biology), Bioassay, Naphtalene, Metabolism, Aquatic animals, Bioassay

Identifiers: International Decade of Ocean Exploration, Peprints, *Palaemonetes pugio*, Water pollution effects(Animals), Bioaccumulation, NTISIDOE, NTISNSFG

PB-271 397/2ST NTIS Prices: Not available NTIS

Transfer of the Chlorinated Hydrocarbon PCB in Laboratory Marine Food Chain

Scripps Institution of Oceanography, La Jolla, Calif. **National Marine Fisheries Service, La Jolla, Calif. Southwest Fisheries Service. *National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration. (319 100)

AUTHOR: Scura, E. D.; Theilacker, G. H.

D3613K2 Fld: 8A, 6F, 47D, 57H GPA17724

1977 10p

Grant: NSF-GX-32977

Monitor: NSF/IDOE-77-130

Prepared in cooperation with National Marine Fisheries Service, La Jolla, Calif. Southwest Fisheries Center.

Pub. in Marine Biology, v40 p317-325 1977.

Abstract: The transfer of chlorinated hydrocarbons (CHC) in a laboratory simulation of a three trophic level marine food chain was studied. The food chain consisted of the algal flagellate *Dunaliella* sp., the rotifer *Brachionus plicatilis*, and the larva of the northern anchovy *Engraulis mordax*. CHC were introduced into the seawater at concentrations representative of near-shore conditions off southern California without the use of dispersing agents. Each trophic level appeared to be in a steady-state at the time of first sampling, 5 days after inoculation. Apparent partition coefficients were calculated for each trophic level. The CHC contamination in the diet of the rotifers and anchovy larvae was also calculated. Unfed anchovy larvae accumulated the same amount of CHC as fed larvae and the final concentration appeared to be dependent on the CHC concentration in the seawater. The data in this report suggest that CHC accumulation is not a food-chain phenomenon but rather the result of direct partitioning of the compounds between the seawater and the test organisms.

Descriptors: *Food chains, *Chlorohydrocarbons, Aquatic animals, Aquatic plants, Algae, Ecology, Chlorine aromatic compounds, Larva, Simulation, Experimental data, Contamination, Diet, Tables(Data)

Identifiers: Biphenyl/chloro, *Water pollution effects (Animals), *Water pollution effects (Plants), Ecosystems, *Polychlorinated biphenyls, *Dunaliella*, Reprints, *Brachionus plicatilis*, *Engraulis mordax*, Anchovies, Bioaccumulation, Rotifera, NTISIDOE, NTISCOMMF, NTISNSFG

PB-271 335/2ST NTIS Prices: Not available NTIS

PCBS Involvement in the Pulp and Paper Industry

Versar, Inc., Springfield, Va.*Environmental Protection Agency,
Washington, D.C. Office of Toxic Substances.

Final rept. on Task 4

AUTHOR: Carr, Roderick A.; Durfee, Robert L.; McKay, Edward G.

D3524J1 Fld: 6F, 6T, 13B, 68D, 68, 57 GRAI7723

25 Feb 77 110p

Rept No: 474.5A

Contract: EPA-68-01-3259

Monitor: EPA/560/6-77/005

See also PB-252 012.

Abstract: The sources, distribution, and losses of PCBs in the U.S. pulp and paper industry are discussed in detail. The major source of PCBs to the industry is recycled carbonless copy paper manufactured from 1957 to 1971, but the amounts of PCBs from this source diminished rapidly after 1971. A model showing past and projected PCBs content in product and wastewaters from the industry is presented and discussed. Estimated costs (worst-case basis) for wastewater treatment to achieve one ppb PCBs in effluents from the industry are developed; results indicate a 3 to 5 percent product cost increase will result from such treatment.

Descriptors: *Paper industry, *Environmental impacts, *Chlorine aromatic compounds, Sources, Cost estimates, Water pollution control, Air pollution control, Industrial wastes, Incineration, Carbon, Adsorption, Process charting, Pulping, Combustion products, Recirculation, Cost analysis, Mathematical models

Identifiers: *Biphenyl/chloro, Polychlorinated biphenyls, Path of pollutants, NTISEPAOTS

PB-271 017/6ST NTIS Prices: PC A06/MF A01

Environmental Chemicals: Human and Animal Health (Proceedings) Held at Fort Collins, Colorado on August 7-11, 1972

Environmental Protection Agency, Washington, D.C. Office of Pesticide Programs.*Colorado State Univ., Fort Collins. Inst. of Rural Environmental Health.

D3514G1 Fld: 6F, 13B, 68G, 57H, 57U GFAI7723

Aug 72 236p

Rept No: EPA/540/9-72/015

Monitor: 18

Sponsored in part by Colorado State Univ., Fort Collins. Inst. of Rural Environmental Health.

Abstract: ;Partial contents: Environmental geochemistry in Missouri; Trace elements in water; Mercury as an environmental pollutant; Molybdenum as an environmental pollutant; Lead in soils and plants; Heavy metal poisonings in animals; Environmental chemicals and carcinogenesis; Polychlorinated biphenyls (PCB's) in humans; Epidemiology of poisoning by chemicals; Monitoring of environmental toxicants; Carbon monoxide as a national problem; Nitrates and water quality; Teratogenesis and mutagenesis of environmental chemicals.

Descriptors: *Meetings, *Chemical compounds, Environments, Interactions, Relationships, Geochemistry, Tables(Data), Trace elements, Toxic diseases, Chlorine aromatic compounds, Exposure, Monitors, Epidemiology, Humans, Animals, Plants(Botany), Soils, Lead(Metal), Mercury, Molybdenum, Missouri

Identifiers: *Environmental health, Polychlorinated biphenyls, Biphenyl/chloro, Carcinogenesis, Heavy metals, *Chemical effluents, NTISEPAOPP

PB-270 648/9ST NTIS Prices: PC A11/MF A01

Assessment of the Environmental and Economic Impacts of the Ban on Imports of PCBs

Versar, Inc., Springfield, Va.*Environmental Protection Agency, Washington, D.C. Office of Toxic Substances. (389 335)

Final rept.

AUTHOR: Burruss, Robert P. Jr

D3391E1 Fld: 13B, 68A*, 94* GRAI7722

Jul 77 175p*

Rept No: 474-5B

Contract: EPA-68-01-3259

Monitor: EPA/550/6-77/007

Abstract: This report summarizes an investigation into the uses of imported polychlorinated biphenyls (PCBs) in the United States. Imported PCBs are presently used only for the maintenance of certain mining machinery. In addition, PCBs are present as a significant impurity in polychlorinated terphenyls (PCTs) imported for use in investment casting waxes. Importation of PCBs for these uses will be banned after 1977 by the Toxic Substances Control Act, unless exemptions are allowed in accordance with the provisions of the Act. The recent Directive of the Council of the European Communities (EEC) prohibits use of PCBs and PCTs in investment casting waxes, but allows continued use of PCBs in mining machinery in Europe.

Descriptors: *Air pollution abatement, *Hazards, *Chlorine aromatic compounds, Mining engineering, Investment casting, Waxes, Imports, United States, Legislation, Foundries, Environmental surveys, Economic impact

Identifiers: *Polychlorinated biphenyls, Biphenyl/chloro, Polychlorinated terphenyls, Mining machinery, Investment casting waxes, Toxic hazards, Toxic Substances Control Act, Banning, NTISEPACTS

PB-270 225/6ST NTIS Prices: PC A08/MF A01

A First Order Mass Balance Model for the Sources, Distribution and Fate of PCBs in the Environment

Versar, Inc., Springfield, Va.*Environmental Protection Agency, Washington, D.C. Office of Toxic Substances.

Final rept.

AUTHOR: Whitmore, Frank C.

D3391D3 Fld: 13B, 68D, 68A GRAI7722

27 Jul 77 180

Rept No: 474-53

Contract: EPA-68-01-3259

Monitor: EPA/460/6-77/006

Abstract: A first order model for the sources, distribution and fate of PCBs in an aquatic system is described. The model is then applied to Lake Michigan and to the Great Lakes Systems. The results obtained from the model indicate that atmospheric sources are a major PCB input to the Great Lakes. Because of the great water mass of the lakes, the PCB concentration appears to be storage controlled rather than loss controlled. The major loss mechanisms are found to be co-evaporation from the airwater interface and entrapment with sediments. It is estimated that if all inputs or PCBs rate Lake Michigan were eliminated, it would take more than 70 years for the concentration of PCBs in the water to decrease by 50 per cent.

Descriptors: *Air pollution, *Water pollution, *Chlorine organic compounds, *Lake Michigan, *Great Lakes, Mathematical models, Distribution(Property), Mass transfer, Sediments, Adsorption, Fallout, Sources, Estimates, Atmospheric models, Evaporation, Concentration(Composition), Input

Identifiers: *Polychlorinated biphenyls, Biphenyl/chloro,
*Bioaccumulation, NTISEPAOTS

PB-270 220/7ST NTIS Prices: PC A09/MF A01

Destroying Chemical Wastes in Commercial Scale Incinerators. Facility Report No. 6. Rollins Environmental Service, Inc., Deer Park, Texas

TPW Defense and Space Systems Group, Redondo Beach, Calif.*Environmental Protection Agency, Washington, D.C. Office of Solid Waste Management Programs.

Facility test rept.

AUTHOR: Ackerman, D.; Clausen, J.; Johnson, R.; Tobias, R.; Zee, C.
D3322F2 Fld: 7A, 68C, 68A, 99B GRAI7721

1977 173p

Contract: EPA-68-01-2966

Monitor: EPA/SW-122c.5

See also report dated Dec 76, PB-267 987.

Abstract: Incineration tests were conducted at Rollins Environmental Services, Inc., Deer Park, Texas, to determine the effectiveness of thermally destroying two selected industrial wastes: PCB-containing capacitors and nitrochlorobenzene waste (NCB). Analysis of combustion gas samples indicated destruction efficiencies of over 99.999 percent for each waste constituent. Some PCBs were detected in the ash when whole capacitors were incinerated in the rotary kiln, but not when hammermilled capacitors were burned. Standard EPA Method 5 tests were performed on stack emission to determine particulate loading and composition. Estimated cost to hammermill and incinerate 5000 metric tons of waste capacitors per year is \$3.65 capital investment and an operating cost of \$751/metric ton. Cost of incinerating 4540 metric tons/year of NCB was estimated to be \$2.82 million capital and \$283/metric ton operating costs.

Descriptors: *Incinerators, *Industrial wastes, *Solid waste disposal, Mass spectroscopy, Gas chromatography, Sampling, Air pollution control equipment, Performance evaluation, Combustion products, Cost analysis, Capacitors, Efficiency, Performance evaluation, Capitalized costs, Operating costs, Gas analysis, Chemical analysis, Scrubbers, Field tests

Identifiers: *Liquid wastes, *Polychlorinated biphenyls,
*Benzene/chloro-nitro, NTISEPASW

PB-270 897/2ST NTIS Prices: PC A08/MF A01

Methodology for Measurement of Polychlorinated Biphenyls in Ambient Air and Stationary Sources - A Review

Environmental Monitoring and Support Lab., Research Triangle Park, N.C. Quality Assurance Branch.

Final rept.

AUTHOR: Margeson, John H.

D3164G4 Fld: 7C, 14B, 68A*, 99A* GRAI7720

Apr 77 39p*

Rept No: EPA/600/4-77/021

Monitor: 18

Abstract: The state of development of methodology for measurement of polychlorinated biphenyls (PCBs) in ambient air and stationary sources was reviewed. The most promising method for ambient air measurements involves collection of PCBs on polyurethane foam, extraction with an organic solvent, removal of interferences by column chromatography, and confirmation and analysis by electron-capture gas chromatography. Quantitation by perchlorination of PCBs to decachlorobiphenyl (DCB) is the most promising quantitation technique, but the procedure has not yet been perfected to the points are quantitatively converted to DCB. Perfection of this technique should allow for significant improvement in the quality of ambient PCB data being generated. Source and ambient methods differ mainly in sampling. Work on methodology for stationary sources is in the early stages of development and further investigations are needed. The report contains 56 references.

Descriptors: *Reviews, Chlorine organic compounds, Sampling, Gas analysis, Chemical analysis, Monitoring, Air pollution, Polyurethane resins, Foams, Extraction, Gas chromatography, Electron capture, Absorption, Concentration(Composition), Physical properties, Chemical properties

Identifiers: Stationary sources, *Polychlorinated biphenyls, *Air pollution detection, Aroclors, Electron capture detectors, Biphenyl/chloro, NTISEPAORD

PB-269 350/5ST NTIS Prices: PC A03/MF A01

Metals, Pesticides, and PCBs: Toxicities to Shrimp Singly and in Combination

Environmental Research Lab., Gulf Breeze, Fla.

Final rept.

AUTHOR: Nimmo, DelWayne P.; Bahner, Lowell H.

D3144E1 Fld: 6T, 6F, 13B, 98F, 57Y, 57H, 68E, 68D GRAI7720

1976 12p

Rept No: EPA/600/J-76-070, Contrib-271

Monitor: 18

Pub. in Estuarine Processes: Uses, Stresses and Adaptation to the Estuary, v1, p523-531 1976.

Abstract: The objective of the study was to assess potential deleterious effects of certain toxicants, singly and in combination, to penaeid shrimp. In nature, these shrimp are exposed to combinations of toxicants from industrial and municipal out-falls, from agricultural runoff or from dredge-and-fill operations. The combined toxicities of methoxychlor and cadmium to penaeid shrimp, *Penaeus duorarum*, were either independent or additive, and varied with the method(s) of bioassay. Conclusions were based on the results of 10-, 25- and 30-day bioassays conducted with the toxicants added singly or in combination to flowing water of constant salinity and temperature. Cadmium, but not methoxychlor, was accumulated by shrimp and methoxychlor appears to influence the processes of accumulation or loss of cadmium from tissues of shrimp.

Descriptors: *Toxicity, *Shrimps, *Cadmium, *Pesticides, *Metals, Chlorine aliphatic compounds, Toxicology, Bioassay, Lethal dosage, Tissues(Biology), Pathology

Identifiers: *Methoxychlor, Reprints, *Bioaccumulation, *Penaeus duorarum*, Pink shrimp, Polychlorinated biphenyls, Biphenyl/chloro, Chlorine aromatic compounds, *Water pollution effects(Animals), Synergism, NTISEPAORD

PB-268 681/4ST NTIS Prices: Not available NTIS

Development of Microwave Plasma Detoxification Process for Hazardous Wastes. Phase I

Lockheed Missiles and Space Co., Inc., Palo Alto, Calif. Palo Alto Research Lab.*Municipal Environmental Research Lab., Cincinnati, Ohio.
(210 118)

Final rept.

AUTHOR: Bailin, Lionel J.; Hertzler, Barry L.

D314311 Fld: 14B, 68A, 68C, 68D, 68F, 99A GRAI7720

Apr 77 82p

Contract: EPA-68-03-2190

Monitor: EPA/600/2-77/030

Abstract: The microwave process described in this report is a relatively new application of what has been termed the 'fourth state of matter', or the 'plasma state'. It is the first practical application of a microwave discharge to the decomposition of chemical compounds in significant quantities. This report describes a recent, successful, R&D effort in which a former 'grams-per-hour' system was scaled up to a 5 to 7 pounds-per-hour system, and then its performance was verified with several typical hazardous materials. The materials tested and detoxified were Malathion, methyl-bromide, polychlorinated biphenyls, phenylmercuric acetate, and Kepone. Complete detoxification resulted. Further benefits of the process are the competitive, reasonable costs of about \$0.20 per pound of material processed, including all costs. The process warrants further development, namely additional scale-up to pilot and field units. Presently, units up to 100 pounds per hour or so appear feasible to construct and be operable within two or three years.

Descriptors: *Hazardous materials, *Microwave equipment, *Detoxification, *Plasmas(Physics), *Chemical industry, Performance evaluation, Decomposition, Malathion, Bromine organic compounds, Chlorine organic compounds, Industrial waste treatment, Chemical analysis, Cost analysis, Combustion products, Mercury organic compounds, Pesticides, Design criteria, Laboratory equipment, Air pollution control, Water pollution control, Solid waste disposal

Identifiers: *Chemicals, Methane/bromo, Polychlorinated biphenyls, Kepone, Toxic substances, Mercury/acetato-phenyl, *Microwave plasma detoxification process, NTISEPAORD

PR-268 526/1ST NTIS Prices: PC A05/MF A01

Fine-Grained Sediment and Industrial Waste Distribution and Dispersal
in New Bedford Harbor and Western Buzzards Bay, Massachusetts

Woods Hole Oceanographic Institution, Mass.*National Oceanic and
Atmospheric Administration, Rockville, Md. Office of Sea Grant. (381
000)

Technical rept.

AUTHOR: Summerhayes, Colin P.; Ellis, Jeffrey P.; Stoffers, Peter;
Briggs, Scott R.; Fitzgerald, Michael G.

D3081F3 Fld: 13B, 8J, 68D, 47, 86M GRAI7719

Apr 77 121p

Rept No: WHOI-76-115

Grant: NOAA-04-6-158-44016, NOAA-04-6-158-44106

Monitor: NOAA-77060807

Abstract: The findings of a two-year study designed to establish and explain the past and the present patterns of movement and accumulation of fine-grained sediment, human waste, and industrial waste in New Bedford Harbor and its approaches, are presented. The major findings of this study are: (1) the construction of a hurricane barrier has caused a significant increase in the sedimentation rate in New Bedford Harbor; (2) the harbor acts as an imperfect trap for materials that are introduced into it, thereby allowing the transfer of industrial contamination to Buzzards Bay; and (3) the surface and near surface sediments of New Bedford Harbor are highly enriched in metals, these metals having been derived locally. The waters of the harbor are known to contain substantial amounts of PCB's (polychlorinated biphenyls), considered an environmental hazard, and discharged by local industries. The bottom sediments of the inner harbor and the navigation channel contain large amounts of heavy metals, oil, and grease.

Descriptors: *Water pollution, *Solid waste disposal, *Industrial wastes, *Buzzards Bay, *New Bedford Harbor, Sediments, Chlorine organic compounds, Ocean bottom, Coasts, Oil pollution, Metals, Submarine topography, Ocean tides, Suspended sediments, Seasonal variations, Sampling, Water analysis, Harbors, Transport properties, Estuaries, Barriers, Massachusetts

Identifiers: *Ocean waste disposal, Polychlorinated biphenyls, Heavy metals, Household wastes, Sea Grant program, NTISCOMNOA, NTISWHOI

PB-269 628/4ST NTIS Prices: PC A06/MF A01

Cycling of Pollutants

Environmental Research Lab., Gulf Breeze, Fla.

Final rept.

AUTHOR: Duke, Thomas W.

D3C72K4 Fld: 13B, 6T, 68E, 68D, 57Y GRAI7719

1976 4p

Rept No: EPA/600/J-76/068

Monitor: 18

Pub. in Estuarine Processes, v1 p481-482 1976.

Abstract: Environmental distribution of pesticides, their pathways of transfer and bioaccumulation, are known in many instances, yet their ultimate effects on organisms are relatively unknown. Importance of the impact of oil, heavy metals, and pesticides on ecosystems and on biological systems ranging from micro-organisms to fishes is emphasized in this introduction to a symposium on the 'Cycling of Pollutants.' The combined toxicities of methoxychlor, cadmium, and polychlorinated biphenyls were discussed at this session.

Descriptors: *Pesticides, *Metals, *Toxicity, *Water pollution, Marine microorganisms, Cadmium, Fishes, Chlorine aliphatic compounds, Aromatic compounds, Biphenyls, Chlorine organic compounds

Identifiers: Reprints, Heavy metals, Methoxychlor, Polychlorinated biphenyls, NTISEPAORD

PB-268 572/5ST NTIS Prices: Not available NTIS

Photochemical Confirmation of Mirex in the Presence of Polychlorinated Biphenyls

Health Effects Research Lab., Research Triangle Park, N.C.

Journal article

AUTHOR: Lewis, Robert G.; Hanisch, Robert C.; MacLeod, Kathryn E.; Sovocool, G. Wayne

D305511 Fld: 6J, 13E, 68E, 57U GRAI7719

7 May 76 6p

Rept No: EPA/600/J-76/065

Monitor: 18

Pub. in Jnl. of Agric. Food Chem., v24 n5 p1030-1035 1976.

Abstract: A simple method for the determination of mirex in the presence of polychlorobiphenyls (PCB's) is reported. The procedure depends on diethylamine-assisted photodegradation of interfering PCB's prior to measurement of the mirex by electron capture gas chromatography. An inexpensive 275-W sunlamp (spectral output greater than 280 nm) may be used as the irradiation source. Reductive dechlorination of the PCB results apparently through primary photoexcitation of the biphenyl, followed by hydrogen abstraction from both the alkyl and amino groups of the amine. The method has been successfully applied to human tissue extracts for the determination of mirex in the presence of Aroclor 1260 and other commonly occurring chlorinated pesticides.

Descriptors: *Chemical analysis, *Pesticides, Residues, Chlorine organic compounds, Gas chromatography, Electron capture, Tissue extracts, Photochemistry, Insecticides, Humans

Identifiers: Reprints, *Mirex, Methanocyclobuta (cd) pentalenes, Polychlorinated biphenyls, NTISEPAORD

PB-268 138/5ST NTIS Prices: PC A02/MF A01

Microeconomic Impacts of the Proposed Marking and Disposal Regulations
for PCBs

Versar, Inc., Springfield, Va.*Environmental Protection Agency,
Washington, D.C. Office of Toxic Substances. (389 335)

Final rept.

D2965B2 Fld: 5B, 13B, 68C*, 96A GRAI7718

26 Apr 77 184p*

Rept No: 474-7

Contract: EPA-68-01-3259

Monitor: EPA/560/6-77/013

Abstract: This report summarizes the estimated economic impacts of the marking and disposal regulations for PCBs which are being proposed in fulfillment of the requirements of Section 6(e) of the Toxic Substances Control Act. The scope of this analysis included estimates of the quantities of PCBs and equipment containing PCBs which will be affected by the proposed regulations, the present and required future availability, feasibility, and costs of the required PCB disposal facilities, the secondary costs of controlled disposal including storage, recordkeeping, and transportation, and the costs of satisfying the various marking requirements. The economic analysis included estimates of the additional costs of complying with these regulations as a function of year and economic sector. The analysis also considered the possible economic effects of these costs on price levels, investment requirements, and employment. Finally, the effects of compliance on energy requirements and on the availability of strategic materials were estimated.

Descriptors: *Economic impacts, *Liquid waste disposal, *Solid waste disposal, *Marking, Energy consumption, Chlorine organic compounds, Regulations, Manufacturing, Cost analysis, Forecasting, Transformers, Capacitors, Cargo transport, Sewage sludges, Storage, Feasibility, Incinerators, Earth fills, Industrial wastes, Utilization, Record management, Containers, Marketing

Identifiers: *Polychlorinated biphenyls, Biphenyl/chloro, Toxic substances, NTISEPAOTS

PB-267 833/2ST NTIS Prices: PC A09/MF A01

High-Volume Collection of Atmospheric Polychlorinated Biphenyls

Rhode Island Univ., Kingston. Dept. of Food and Resource Chemistry.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration.

AUTHOR: Bidleman, T. F.; Olney, C. E.

D2962G1 Fld: 14B, 4A, 68D, 99A, 55E GRAI7718

1974 9p

Grant: NSF-GX-33777

Monitor: NSF/IDOE-77-93

Pub. in Bulletin of Environmental Contamination and Toxicology, v11 n5 p442-449 1974.

Abstract: An efficient collection system for PCB vapors that allows hundreds of cubic meters of air to be sampled per day is reported. The trap is a plug of porous polyurethane foam, a substance that has been used to extract PCB from seawater. The foam offers little resistance to air passage and therefore is compatible with high-volume sampling apparatus.

Descriptors: *Samplers, *Gas analysis, Chlorine organic compounds, Air pollution, Sampling, Extraction, Polyurethane resins, Foam, Laboratory equipment, Atmospheric motion

Identifiers: Reprints, *Air pollution detection, *Polychlorinated biphenyls, Path of pollutants, International Decade of Ocean Exploration, Biphenyl/chloro, NTISIDOE, NTISNSFG

PB-267 689/8ST NTIS Prices: Not available NTIS

High Molecular Weight Hydrocarbons in the Air and Sea: Rates and Mechanisms of Air/Sea Transfer

Rhode Island Univ., Kingston. Dept. of Food and Resource Chemistry.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration.

AUTHOR: Bidleman, T. F.; Rice, C. P.; Olney, C. E.

D2962F4 Fld: 13B, 68E, 68D, 68A GRAI7718

1976 . 31p

Grant: NSF-GX-33777

Monitor: NSF/IDOE-77-94

Pub. in Marine Pollutant Transfer, Chapter 13, p323-351 1976.

Abstract: More information accumulated on concentrations of CHC in the air and ocean makes it seem safe to conclude that DDT concentrations in ocean mixed layer are nearly two orders of magnitude lower than predicted by both global circulation models. Concentrations of DDT in the troposphere are at least 100 times lower than Woodwell's estimate, but perhaps less than an order of magnitude from those predicted by Cramer. Based on what has been learned since the early 1970's, new estimates of air/sea CHC fluxes can be made which are useful for three reasons: they allow assessment as to whether aerial input can potentially account for the CHC levels presently observed in the ocean; they suggest which atmosphere removal processes are likely to result in significant deposition into the oceans; and they provide a stimulus for the further research which will be needed to improve knowledge of CHC transfer through the physical environment.

Descriptors: *Hydrocarbons, *Pesticides, *Water pollution, *Air pollution, Chlorine organic compounds, Air water interactions, Concentration(Composition), Troposphere, DDT, Atmospheric diffusion, Sea water

Identifiers: Reprints, Path of pollutants, Polychlorinated biphenyls, International Decade of Ocean Exploration, NTISIDOE, NTISNSFG

PB-267 688/OST NTIS Prices: Not available NTIS

The Accumulation and Distribution of Organochlorines and Some Heavy Metals in American Falls Reservoir Fishes, Water, and Sediment

Idaho State Univ., Pocatello. Dept. of Zoology.*Office of Water Research and Technology, Washington, D.C.

Master's thesis

AUTHOR: Kent, James C.

D2892H4 Fld: 6F, 8H, 68D, 48G, 57H, 57Y, 57Z GRAI7717

1976 87p

Contract: DI-14-34-0001-6013

Project: OWRT-A-043-IDA

Monitor: OWRT-A-043-IDA(1)

Abstract: Chlorinated hydrocarbon residues (DDT metabolites, dieldrin, and PCB's) were found in fish flesh samples and sediment in American Falls Reservoir. The concentration and type of chlorinated hydrocarbon varied with fish species and age. The mean value for PCB's in large suckers was 671 ug/kg. The Environmental Protection Agency has recommended that PCB concentrations in any sample consumed by any bird or mammal be no greater than 500 ug/kg. Chlorinated hydrocarbons were not detected in the water samples. Mercury and cadmium were found in all species analyzed for those particular metals. Results indicate that the Food and Drug Administration's standard of 0.5 mg/kg may be exceeded in crappie, suckers, and large rainbow trout. The mean value for mercury in water was 0.9 ug/l. The Environmental Protection Agency has recommended for the protection of fish and predatory aquatic organisms, that total mercury concentration in unfiltered water should not exceed 0.2 ug/l at any time or place. The World Health Organization has recommended daily intake of cadmium not be more than 70 ug/day. Consumption of fishes from the reservoir would exceed the recommended limit. The maximum concentration of cadmium in the water was seven times the value given by the National Academy of Sciences, considered to be an environmental threat. Arsenic was found only in the sediments and water. It was not detected in any of the fishes sampled.

Descriptors: *Pesticides, *Water pollution, *Fishes, Fresh water fishes, Insecticides, Chlorine organic compounds, Water analysis, Chemical analysis, DDT, Limnology, Dieldrin, Mercury(Metal), Cadmium, Concentration(Composition), Sediments, Bioassay, Residues, Metals, Arsenic, Particles, Standards, Sampling

Identifiers: Polychlorinated biphenyls, Bioaccumulation, Water runoff, *Heavy metals, DDD insecticides, *Pesticide residues, NTISDIOWRT

PB-267 914/OST NTIS Prices: PC A05/MF A01

Review of the Environmental Fate of Selected Chemicals

Stanford Research Inst., Menlo Park, Calif.*Environmental Protection Agency, Washington, D.C. Office of Toxic Substances. (332 500)

Final rept. on Task 3

AUTHOR: Radding, Shirley B.; Liu, David H.; Johnson, Howard L.; Mill, Theodore

D287512 Fld: 7C, 13E, 7E, 68D, 68A, 99D, 68 GRAI7717

May 77 150p

Contract: EPA-68-01-2681

Monitor: EPA/560/5-77/003

See also Final rept. on Task 1 dated 10 Jan 75, PB-238 908.

Abstract: A review of the recent literature on sources, production, environmental fate, and bioaccumulation has been carried out by SRI on 26 classes of compounds. These included epoxides, haloolefins, aldehydes, alkyl and benzyl halides, peroxides, hydroperoxides and peracids, polyhalomethanes, aromatic amines, polychlorinated biphenyls, azo dyes, carbamic acid esters, hydrazines, acyl halides and ketene, phosphoric acid esters, aziridines, lactones, alkyl sulfates, sulfones, aryl dialkyltriazenes, diazoalkanes, haloalcohols, haloethers, hydroxylamines, nitrosamines, nitrofurans, and azides.

Descriptors: *Carcinogens, *Reviews, Inorganic azides, Organic azides, Esters, Carbamic acid, Azo dyes, Sources, Methodology, Aldehydes, Epoxy compounds, Chemical properties, Sulfones, Furans, Ketenes, Hydrazines, Amines, Methane, Polymers, Physical properties, Halohydrocarbons, Benzene, Peroxy organic acids, Peroxy organic compounds, Phosphoric acid, Aziridines, Lactones, Sulfates, Alcohols, Ethers, Azo compounds, Hydroxy organic compounds, Nitroso compounds, Amines, Reaction kinetics, Photochemistry, Industrial wastes, Sources, Manufacturing, Water pollution, Air pollution, Hydrolysis

Identifiers: Bioaccumulation, *Toxic substances, *Path of pollutants, Polychlorinated biphenyls, Triazenes, *Environmental surveys, NTISEPAOTS, NTISSRI

PB-267 121/2ST NTIS Prices: PC A07/MF A01

Environmental Applications of Advanced Instrumental Analyses:
Assistance Projects FY 75

Environmental Research Lab., Athens, Ga. Analytical Chemistry Branch.

AUTHOR: Alford, Ann L.

D2661D3 Fld: 13B, 7D, 99A, 68D GRAI7715

Jan 77 48p

Rept No: EPA/600/4-77/004

Project: EPA-16020-GHZ

Monitor: 18

See also report dated Jun 75, PB-247 056.

Abstract: The Analytical Chemistry Branch of the Athens Environmental Research Laboratory identified and measured aquatic pollutants under eight projects in response to requests for assistance from other EPA organizations and other government agencies. In most cases these analyses helped us to solve, or at least to understand more clearly, the related pollution incident, and in some cases the analyses provided evidence for enforcement of regulatory legislation. Under an additional project, analytical consultations were held as requested by various organizations concerned with pollution incidents. This report was submitted in fulfillment of Project 16020 GHZ by the Environmental Research Laboratory, Athens, Georgia. Projects discussed were completed during FY 1975.

Descriptors: *Water analysis, Chlorine organic compounds, Absorption spectra, Photometry, Chemical analysis, Organic compounds, Industrial wastes, Trace elements, Fishes, Poultry wastes, Potable water, Atomic spectroscopy, Mass spectrometry, Gas chromatography, Mercury, Sea water, Plants(Botany), Soil analysis, Electric power plants, Neutron activation analysis, Concentration(Composition)

Identifiers: *Water pollution detection, Polychlorinated biphenyls, NTISEPAORD

PB-266 425/8ST NTIS Prices: PC A03/MF A01

Effects of Aroclor (Trademark) 1254 on Brook Trout, 'Salvelinus fontinalis'

Environmental Research Lab.-Duluth, Minn.

Final rept. 1972-74

AUTHOR: Snarski, Virginia M.; Puglisi, Frank A.

D2655B1 Fld: 6T, 6F, 13B, 98F, 68D, 57Y, 57H GRAI7715

Dec 76 44p

Rept No: EPA/600/3-76/112

Monitor: 18

Abstract: No adverse effects were observed on survival, growth, and reproduction of brook trout exposed for 71 weeks to 0.94 micrograms/l and lower concentrations of the polychlorinated biphenyl Aroclor 1254 ($P = 0.05$). Survival and growth to 90 days of alevin-juveniles from exposed parents were also unaffected ($P = 0.05$). Polychlorinated biphenyl concentrations in the brook trout were directly proportional to the water exposure concentrations ($P = 0.05$). The PCB tissue concentrations appeared to have reached a steady state by the first sampling after 14 weeks of exposure. The PCB residues (wet-tissue basis) in chronically exposed fish were approximately 2 micrograms/g in the fillet and 9 micrograms/g in the 'whole body' (entire fish minus one fillet and the gonads) at the highest water concentration, 0.94 micrograms/l. The higher residue in the whole body compared to the corresponding fillet was due to the higher fat content of the former.

Descriptors: *Trout, *Chlorine aromatic compounds, *Fishes, Physiological effects, Tables(Data), Growth, Reproduction(Biology), Bioassay, Exposure, Recommendations, Toxicology, Survival, Tissues(Biology), Analyzing, Sampling, Freshwater fishes, Residues, Concentration(Composition)

Identifiers: Biphenyl/chloro, *Aroclor 1254, Bioaccumulation, *Water pollution effects(Animals), *Salvelinus fontinalis, Polychlorinated biphenyls, NTISEPAORD

PB-266 356/5ST NTIS Prices: PC A03/MF A01

Identity, Origin and Development of Off-Flavors in Great Lakes
Anadromous Fish

Wisconsin Dept. of Natural Resources, Madison.**Wisconsin
Univ.-Madison. Dept. of Food Science.*National Marine Fisheries
Service, Washington, D.C.

Completion rept. Jul 74-Jun 76

AUTHOR: Lindsay, R. C.

D2382J2 Fld: 6H, 6C, 13B, 98H, 98F, 68D, 86Q GRAI7713

Feb 77 9p

Grant: NOAA-04-5-043-63

Project: AFC-13

Monitor: NOAA-77031512

Prepared by Wisconsin Univ.-Madison. Dept. of Food Science.

Abstract: The principal effort has been directed towards the chemical identification of volatile compounds present in Great Lakes salmon and environmentally related materials. Volatile compounds were collected from samples using vacuum and atmospheric steam distillations with subsequent ether extractions. Aroma concentrates obtained from the recovery procedures were subjected to high resolution gas chromatographic analysis and mass spectrometry. Compounds with potent and distinctive odors and/or structures which indicated that the substances were different from those routinely encountered in most foods were identified. The occurrence of a number of aromatic hydrocarbons along with the aliphatic even-carbon numbered hydrocarbons would strongly suggest salmon pick-up of oil or petroleum-based product contamination materials. The identification of polychlorinated biphenyl compounds indicates that compounds of relatively low degrees of chlorination are currently present in salmon along with other compounds exhibiting greater chlorination of the biphenyl ring system.

Descriptors: *Oil pollution, *Great Lakes, *Salmon, *Lake Michigan, Flavor, Identifying, Aromatic compounds, Biphenyls, Chlorine organic compounds, Phthalates, Esters, Volatility

Identifiers: *Polychlorinated biphenyls, Volatile compounds, Biphenyl/chloro, NTISCOMNOA, NTISCOMNMF

PB-265 987/8ST NTIS Prices: PC A02/MF A01

Isolation and Identification of Polychlorinated Styrenes in Great Lakes Fish

Environmental Research Lab.-Duluth, Minn.

Journal article

AUTHOR: Keuhl, D. W.; Kopperman, H. L.; Veith, G. D.; Glass, G. E.

D2363K1 Fld: 6T, 6F, 13B, 57Y, 57H, 68D, 98F GRAI7713

1976 7p

Rept No: EPA/600/J-76/026

Monitor: 18

Pub. in Bulletin of Environmental Contamination and Toxicology, v16 n2
p127-132 1976.

Abstract: Octachlorostyrene was prepared by two independent synthetic routes, and GC retention time data as well as a mass spectrum of the standard were obtained. A comparison of these data with those observed for a component in fish from Lake Huron, Lake Ontario, and the lower Detroit River indicates that octachlorostyrene is present in fish residues from these sources. In addition, mass spectral data indicated the presence of several hepta and hexachlorostyrene isomers in these fish. Further studies should be concerned with quantification of OCS and evaluation of possible sources of these compounds, such as impurities in products produced by exhaustive chlorination or as by-products in the electrolytic production of chlorine. Copyright (c) 1976 by Springer-Verlag New York Inc.

Descriptors: *Fishes, *Toxicology, Styrenes, Chlorine organic compounds, Chromatographic analysis, Lake Ontario, Lake Huron, Detroit River, Mass spectroscopy, Fresh water fishes, Tables(Data), Tissues(Biology), Experimental data, Aldrin, Water pollution, Pesticides

Identifiers: Reprints, *Bioaccumulation, *Polychlorinated styrenes, Styrene/chloro, Styrene/octachloro, DDE insecticide, Alewife, Stizostedion vitreum, Also pseudoharengus, Water pollution effects(Animals), NTISEPAORD

PB-265 290/7ST NTIS Prices: Not available NTIS

State Roles/Activities Session, March 3, 1977, 1:00 P. M

Environmental Protection Agency, Chicago, Ill. Air and Hazardous Materials Div.**Michigan Dept. of Natural Resources, Lansing.**Wisconsin Dept. of Natural Resources, Madison.**Illinois State Environmental Protection Agency, Springfield.

AUTHOR: Hesse, John; Kleinart, Stanton; Miller, Warren; Duprey, Robert
D2362H3 Fld: 13B, 68 GRAI7713

3 Mar 77 72p

Rept No: EPA/905/9-77/005

Monitor: 18

Prepared in cooperation with Michigan Dept. of Natural Resources, Lansing, Wisconsin Dept. of Natural Resources, Madison, and Illinois State Environmental Protection Agency, Springfield. See also PB-265 147.

Abstract: These panelists talked about their State agencies that are directly concerned with the Toxic Substances Control Act. They stated their concerns about the Act, specifically dealing with its repercussions, funding, and potential problems in putting the Act into effect and enforcing it. Those speaking represented the States of Michigan, Wisconsin, Illinois, as well as the U.S. Environmental Protection Agency, Region V. A brief period of questions and answers followed the panelists' comments. The major thrust of the programs are concerned with the contaminants such as mercury and PCB's which accumulate in fish and other animals.

Descriptors: *Meetings, *Pollution, Public health, Water pollution control, Mercury, Chlorine organic compounds, Pesticides, Law enforcement, Industrial wastes, Air pollution control, Oil pollution, Materials handling, Regulations

Identifiers: *Toxic Substances Control Act, Polychlorinated biphenyls, Biphenyl/chloro, Bioaccumulation, NTISEPAL

PB-265 148/7ST NTIS Prices: PC A04/MF A01

NIOSH Analytical Methods for Set I

Stanford Research Inst., Menlo Park, Calif.*National Inst. for
Occupational Safety and Health, Cincinnati, Ohio. (332 500)
D2362C2 Fld: 7D, 6J, 68G*, 99A*, 57U*, 68A GRAI7713
Dec 76 120p*
Contract: PHS-CDC-99-74-45
Monitor: NIOSH-SCP-I
Supersedes PB-246 152.

Abstract: Industrial Hygiene sampling and analytical monitoring methods validated under the joint NIOSH/OSHA Standards Completion Program for Set I are contained herein. Monitoring methods for the following compounds are included: acetylene tetrabromide, chlorinated diphenyl oxide, chlorodiphenyl (54% chlorine), epichlorohydrin, 1,1,1,2-tetrachloro-2,2-difluoroethane, 1,1,2,2-tetrachloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloronaphthalene, trifluoromonomobromomethane, allyl chloride, chlorobenzene, 1,1-dichloroethane, 1,1,2,2-tetrachloro-1,2-difluoroethane, tetrachloronaphthalene, and 1,2,3-trichloropropane.

Descriptors: *Industrial hygiene, *Gas analysis, *Halohydrocarbons, Chlorine aliphatic compounds, Fluorine aliphatic compounds, Chlorobenzenes, Epichlorohydrin, Allyl chloride, Tests, Standards, Chemical analysis, Methodology, Monitors, Air pollution, Samples, Experimental design, Chlorine organic compounds, Naphthalene compounds

Identifiers: *Occupational safety and health, *Air pollution detection, *Indoor air pollution, Acetylene/tetrabromo, Ethane/difluoro-tetrachloro, Ethane/tetrachloro, Ethane/trichloro-trifluoro, Propane/trichloro, Ethane/dichloro, Ether/chloro-diphenyl, Biphenyl/chloro, Naphthalene/trichloro, Methane/bromo-trifluoro, Naphthalene/tetrachloro, Procedures, NTISHEWOSH

PB-265 028/1ST NTIS Prices: PC A06/MF A01

Identification of Chlorinated Insecticides in Fish for the Missouri Basin Region

Federal Water Quality Administration, Cincinnati, Ohio. Advanced Waste Treatment Research Lab.

D2232A2 Fld: 13B, 68E, 68D GRAI7712

1 Dec 70 20p

Monitor: 18

Abstract: The Missouri Basin Region, FWQA requested assistance for the analysis of a number of fish samples taken from the Nishnabotna River in Missouri. Heptachlor, aldrin, heptachlor epoxide, gamma chlordane, dieldrin, and DDT and its metabolites DDE and DDD were identified in samples of muscle tissue and viscera from several species of fish taken from the Nishnabotna River. While dieldrin was the most abundant chlorinated insecticide in almost all of the samples, it did not appear at abnormally high levels, and usually occurred in amounts three to four times greater than the other insecticides.

Descriptors: *Insecticides, *Water quality data, *Nishnabotna River, *Fishes, Dieldrin, Sampling, DDT, Tissues (Biology), Heptachlor, Chlorine organic compounds, Aldrin, Missouri

Identifiers: Methanoindene/heptachloro-tetrahydro, Dimethanonaphthalenes, DDE insecticide, DDD insecticide, Ethane/bis (Chlorophenyl)-dichloro, Aroclor 1254, Gamma chlordane, Heptachlor epoxide, Ethylene/bis (Chlorophenyl)-dichloro, Polychlorinated biphenyls, Biphenyl/chloro, Heptachlor epoxide, Methano-indeno-oxirene, NTISEPAZ

PB-264 901/OST NTIS Prices: PC A02/MF A01

Toxicity of Polychlorinated Biphenyls (PCB's) to Fish and Other Aquatic Life

Environmental Research Lab.-Duluth, Minn.**Corvallis Environmental Research Lab., Oreg. Western Fish Toxicology Station.

AUTHOR: Nebeker, Alan V.; Puglisi, Frank A.; DeFoe, David L.

D2225F3 Fld: 6T, 6F, 13B, 57Y, 57H, 68D GRAI7712

Mar 77 84p

Rept No: EPA/600/3-77/034

Monitor: 18

Prepared in cooperation with Corvallis Environmental Research Lab., Oreg. Western Fish Toxicology Station.

Abstract: Polychlorinated biphenyls (PCB's) have been shown to be widespread in the environment. Their significance in the aquatic environment as a poison is now being revealed. They are being detected in fish and other aquatic life at levels much higher than concentrations found in the water. The acute toxicity of some of the many types of PCB's produced commercially has been demonstrated for a few species of fish, and fish food organisms, such as shrimp, scuds, and aquatic insects; however, little information is currently available on the chronic effects of PCB on the full life cycles of aquatic animals. In order to assess the danger of these compounds to fish and fish food organisms the laboratory designed and conducted bioassays using *Daphnia magna*, the fathead minnow *Pimephales promelas*, the flagfish *Jordanella floridae*, the scud *Gammarus pseudolimnaeus*, and the midge *Tanytarsus dissimilis*, using commercially available PCB mixtures (Aroclor 1221, 1232, 1242, 1248, 1254, 1260, 1262, and 1268).

Descriptors: *Toxicity, *Fishes, *Aquatic animals, Toxicology, Freshwater fishes, Chlorine aromatic compounds, Bioassays, Growth, Survival, Reproduction(Biology), Experimental data, Water pollution, Diptera, Lethal dosage, Crustacea

Identifiers: *Water pollution effects(Animals), *Biphenyl/chloro, Chemicals, *Daphnia magna*, *Jordanella floridae*, Flagfish, Fathead minnow, *Gammarus pseudolimnaeus*, *Tanytarsus dissimilis*, *Pimephales promelas*, NTISEPAORD

PB-264 804/6ST NTIS Prices: PC A05/MF A01

The Sea Bird Wreck in the Irish Sea, Autumn 1969

Natural Environment Research Council London (England) (407175)
D2144C4 Fld: 6C, 6F, 13B, 57Z, 57H, 68D GRAI7712
1971 18p
Rept No: Pub-Ser-C-4
Monitor: 18

Abstract: This report is about the deaths of over 12,000 sea birds, mostly guillemots, which were washed up on the shores of the Irish Sea and its approaches in the autumn of 1969. It describes the main features of the incident, the investigations that were put in hand to ascertain the causes, and the conclusions that emerged.

Descriptors: *Birds, *Great Britain, Death, Pollutants, Storms, Malnutrition, Oil pollution, Biphenyl

Identifiers: Sea birds, *Guillemots, *Irish sea, polychlorinated biphenyl, *Water pollution effects(Animals), Death, NTISDODXA

AD-A037 876/OST NTIS Prices: PC A02/MF A01

Commercial Fishery Investigations

West Virginia Dept. of Natural Resources, Charleston. Div. of Wildlife Resources.*National Marine Fisheries Service, Washington, D.C. Office of State-Federal Relationships.

Completion rept. 1 Oct 73-30 Sep 76

AUTHOR: Miles, Robert L.

D2101D1 Fld: 6F, 6C, 13B, 57P, 98P, 68D, 86Q GRAI7711

Jan 77 22p

Grant: NOAA-04-4-043-409, NOAA-04-5-043-13

Monitor: NOAA-77020201

Sponsored in part by Grant NOAA-04-6-043-44010. See also report dated Jun 73, COM-74-10001.

Abstract: The Ohio River commercial fishery, which had been closed due to excessive mercury levels in channel catfish, was re-opened on July 1, 1973. Preliminary analyses of channel catfish collected from two Ohio River locations in 1973 revealed possible problems with high PCB levels. PCB levels were above the FDA's edible fish tolerance level of 5.0 ppm in channel catfish from one of the three locations sampled in 1975 and chlordan was above the acceptable level of 0.3 ppm at all three locations. U.S. Environmental Protection Agency analyses differed greatly from those conducted by the Food and Drug Administration. Additional catfish samples were collected for pesticide and heavy metal analysis in 1976.

Descriptors: *Pesticides, *Mercury (Metal), *Catfishes, *Water pollution, *Ohio River, Fisheries, Toxic tolerances, Biphenyl, Chlorohydrocarbons, Chlorine aromatic compounds, Chlordan, Sampling, West Virginia, Chlorine organic compounds

Identifiers: Biphenyl/chloro, Polychlorinated biphenyls, NTISCOMNOA, NTISCOMNMF

PB-264 653/7ST NTIS Prices: PC A02/MF A01

Reproductive Dysfunction in Rhesus Monkeys Exposed to Low Levels of Polychlorinated Biphenyls (Aroclor 1248)

Wisconsin Univ., Madison.*Public Health Service, Washington, D.C.*National Oceanic and Atmospheric Administration, Rockville, Md. Office of Sea Grant. (380 100)

AUTHOR: Barsotti, D. A.; Marlar, R. J.; Allen, J. R.

D1803E4 Fld: 6T, 57Y, 68G, 86M GRAI7709

5 Sep 75 8p

Rept No: WIS-SG-76-365

Grant: PHS-ES-00472, PHS-ES-00958

Monitor: NOAA-76122907

Pub. in Pd. Cosmet. Toxicol., v14 p99-103 1976.

Abstract: Eighteen female and four male adult rhesus monkeys were fed the polychlorinated biphenyl (PCB) Aroclor 1248 at levels of either 2.5 or 5.0 ppm in the diet. These levels are equal to and 50% of, the concentration allowed in certain foods destined for human consumption. After consuming these diets for 2 months, some of the females developed acne, alopecia, erythema and swelling of the eyelids, and by 6 months all females exhibited these changes to some degree. Modification in serum lipids developed gradually, with a trend towards hypocholesterolaemia, hypolipidaemia and decreased serum triglycerides. Analysis of subcutaneous fat showed an accumulation of the PCB isomers in the adipose tissue. Within 4 months, menstrual cycles were altered; menostaxis and menorrhagia occurred frequently and at times amenorrhoea was apparent. The ability of the animals to maintain pregnancy was impaired, as indicated by frequent resorptions and abortions. The data presented indicate that long-term, low-level exposure of female non-human primates to PCBs can affect many important biological parameters.

Descriptors: *Toxicity, *Reproduction(Biology), Bioassay, Monkeys, Diets, Toxicology, Laboratory animals, Ingestion(Biology), Chlorine aromatic compounds, Breeding, Primates, Contaminants, Exposure, Physiological effects, Experimental data

Identifiers: Biphenyl/chloro, Reprints, Sea Grant program, Rhesus monkeys, *Polychlorinated biphenyls, Arcclors, NTISCOMNOA, NTISHRAPHS

PB-263 380/8ST NTIS Price: PC A02

Considerations Relating to Toxic Substances in the Application of
Municipal Sludge to Cropland and Pastureland (A Background Summary)

Environmental Protection Agency, Washington, D.C. Office of Toxic
Substances.

Final rept.

AUTHOR: Kover, Frank D.

D1793I2 Fld: 13B, 6T, 68D, 57Y GRAI7709

Nov 76 30p

Rept No: EPA/560/8/76/004

Monitor: 18

Abstract: This report presents background information pertinent to an
assessment of the potential health hazards from toxic substances when
disposing/utilizing municipal sludge on agricultural lands,
particularly croplands and pasturelands where products enter the human
food chain.

Descriptors: *Sludge disposal, *Farm crops, *Toxicity, Metals, Trace
elements, Cadmium, Biphenyls, Concentration(Composition), Lead(Metal),
Mercury(Metal), Chlorine aromatic compounds, Plant growth, Vegetables,
Food chains

Identifiers: Biphenyl/chloro, Residues, NTISEPAOTS

PB-263 006/9ST NTIS Prices: PC A03/MF A01

Pesticide Recovery Studies for Evaluation of Department of the Army
Pesticide Monitoring Program Soil and Sediment Analysis Methodology.
Part I. Determination of Pesticide and Polychlorinated Biphenyl
Recoveries from Soil Extracted Immediately Following Fortification

Army Environmental Hygiene Agency Aberdeen Proving Ground Md (038150
)

Pesticide monitoring special study

AUTHOR: Vinopal, J. Howard; Suprock, John F.; White, Thomas M.

D1713D4 Fld: 6F, 57H, 68E GRAI7709

Dec 76 21p

Rept No: USAEHA-44-0131-77

Monitor: 18

Abstract: This is a report providing analytical details and analytical results of pesticide and polychlorinated biphenyl (PCB) recovery studies used to evaluate Department of the Army (DA) Pesticide monitoring program soil analysis methodology. The present study was specifically involved with the determination of pesticide and PCB recoveries from soil which was extracted immediately following fortification and then carried through routine soil transfer, cleanup, concentration and analysis procedures. The percent recovery values for eight of the nine pesticides studied and for Aroclor 1260 were essentially quantitative, ranging from 90.0 to 107.6. The recovery data clearly indicated that pesticide losses following immediate extraction of fortified soil samples, and during subsequent transfer, cleanup, concentration and analysis steps were minimal or nonsignificant using routine DA Pesticide Monitoring Program soil analysis methodology.

Descriptors: *Pesticides, Soils, Sediments, Residues, Level (Quantity), Chemical analysis, Chlorinated hydrocarbons, DDT, Monitoring, Methodology

Identifiers: *Polychlorinated biphenyls, Persistence, NTISDODXA

AD-A035 782/2ST NTIS Prices: PC A02/MF A01

Microbial Metabolism of Polychlorinated Biphenyls. Studies on the Relative Degradability of Polychlorinated Biphenyl Components by 'Alkaligenes' sp

Wisconsin Univ., Madison. Dept. of Entomology.*National Oceanic and Atmospheric Administration, Rockville, Md. Office of Sea Grant. (406 657)

AUTHOR: Furukawa, Kensuke; Matsumura, Fumio
D1662G2 Fld: 13B, 6A, 57B, 68D, 86M GRAI7708

20 Oct 75 10p

Rept No: WIS-SG-76-363

Monitor: NOAA-76122905

Pub. in Jnl. of Agricultural and Food Chemistry, v24 p251-256 Mar-Apr 76.

Abstract: A bacterial strain belonging to the genus Alkaligenes was isolated from a lake sediment by using biphenyl as a sole carbon source. Metabolic degradation of various polychlorinated biphenyls (PCB) by this organism was studied. The bacterium was capable of metabolizing various PCB components, including a highly chlorinated one through an oxidative route. The organism appears to preferentially degrade the less chlorinated (ring II) of the two rings. Degradation takes place in two major steps. The first step produces metabolic intermediates which are considered to be chlorinated derivatives of 2-hydroxy-6-oxo-6-phenylhexa-2,4-dienoic acid, which often has a yellow color with an absorption around 400 nm. In the second step these colored metabolic intermediates are degraded to corresponding chlorobenzoic acids. Generally speaking, degradation of PCBs becomes increasingly difficult as the degree of chlorination increases. Copyright (C) 1976 by the American Chemical Society. (Author modified).

Descriptors: *Biodeterioration, Bacteria, Biphenyl, Polyphenyl compounds, Chlorine organic compounds, Degradation, Metabolism, Water pollution, Concentration(Composition), Surface waters, Lakes, Sediments

Identifiers: *Biphenyl/chloro, *Alkaligenes, NTISCOMNOA

PB-263 510/OST NTIS Price: PC A02

Proceedings of the Annual Tropical and Subtropical Fisheries Technological Conference (First) Held in Corpus Christi, Texas on March 8-10, 1976. Volume I

Texas A and M Univ., College Station. Dept. of Marine Resources Information.*National Oceanic and Atmospheric Administration, Rockville, Md. Office of Sea Grant.

AUTHOR: Cobb, Bryant F. III; Stockton, Alexandra B.

D1661L2 Fld: 6C, 98F, 86M GRAI7708

Oct 76 432p

Rept No: TAMU-SG-77-104

Grant: NOAA-04-6-158-44012

Monitor: NOAA-76122901

Abstract: Volume I of the Proceedings of the First Annual Tropical and Subtropical Fisheries Technological Conference contains the following papers: The value of technology to the seafood industry; The FAO programme of cooperative research in tropical fish technology; The spoilage of fish in the tropics; Cellular aspects of reproduction in Penaeid shrimp; Texas A&M University shrimp mariculture program; Current status of the culture of river shrimps of the Genus macrobrachium; Chemical and nutritive composition of shrimp; Biochemistry and physiology of shrimp - effect on use as food; Cholesterol in crustacea; Water migration and dehydration in stored frozen breaded shrimp; International standardization of shrimp products - U.S. contribution; Bacteriology of shrimp; Time and temperature parameters for the destruction of Salmonella in cooked, peeled and deveined shrimp; Trace elements found in various species of shrimp harvested from selected areas; Polychlorinated biphenyls in shrimp; Analysis of petroleum hydrocarbon contamination in shrimp; Sodium bisulfite and its residual use in controlling blackspot in shrimp; Utilization of recovered shrimp protein as a pigment source for salmonids; and the status of the shrimping industry.

Descriptors: *Fisheries, *Tropical regions, *Meetings, Shellfish, Crustacea, Aquaculture, Marine biology, Biochemistry, Contamination, Biphenyl, Fresh water fishes, Marine fishes, Seafood, Hydrocarbons, Animal diseases, Shrimps, Reproduction(Biology), Animal physiology, Market research, Lobsters

Identifiers: Sea Grant program, Biphenyl/chloro, NTISCOMNOA

PB-263 399/8ST NTIS Prices: PC A19/MF A01

PCB Emissions from Stationary Sources: A Theoretical Study

Monsanto Research Corp., Dayton, Ohio. Dayton Lab.*Industrial
Environmental Research Lab., Research Triangle Park, N.C. (401 865)

Final rept.

AUTHOR: Knieriem, Herman Jr

D1653D4 Fld: 7A, 68A*, 99B* GRAI7708

Oct 76 43p*

Rept No: MRC-DA-577

Contract: EPA-68-02-1320

Monitor: EPA/600/7-76/028

Abstract: The report gives results of a theoretical assessment of polychlorinated biphenyl (PCB) formation and destruction in conventional fossil fuel fired sources. Results suggest a small but finite possibility that PCB isomers may be found in their emissions. The study was the result of concern caused by tentative identification of PCB isomers in ash and flyash from a utility steam generating boiler. The theoretical assessment concluded that: (1) PCB emissions are more likely from higher-chlorine content coal or residual oil combustion than from refined oil or natural gas; (2) PCB isomers with four or more chlorine atoms per molecule are more of an environmental hazard than those with three or less; (3) the probability of forming PCB isomers with four or more atoms of chlorine per molecule during combustion is restricted by the short residence times and low concentrations of chlorine available in many fossil fuels; (4) the amount of PCB emissions, if any, may be related to polynuclear aromatic hydrocarbon emissions; (5) based on the above, inefficient combustion control is more likely to produce PCB emissions than optimum conditions; and (6) the highest priority for field sampling and analysis of PCB from combustion sources should be for small- and medium-sized, hand- and underfeed-stoked coal furnaces.

Descriptors: *Ash content, *Isomers, *Assessments, *Fossil fuels, Electric power plants, Oxidation, Tables(Data), Chlorine organic compounds, Air pollution, Coal, Natural gases, Fuel oil, Furnaces, Reaction kinetics, Aromatic polycyclic hydrocarbons, Thermodynamics, Boilers, Chemical analysis, Combustion products, Industrial wastes, Gas analysis, Concentration(Composition), Sampling, Fly ash

Identifiers: *Biphenyl/chloro, *Air pollution detection, Coal-fired power plants, Stationary sources, Polychlorinated biphenyls, NTISEPAORD

PB-262 850/1ST NTIS Prices: PC A03/MF A01

Catalytic Conversion of Hazardous and Toxic Chemicals: Catalytic Hydrodechlorination of Polychlorinated Pesticides and Related Substances

Worcester Polytechnic Inst., Mass. Dept. of Chemical Engineering.*Municipal Environmental Research Lab., Cincinnati, Ohio. (409 918)

Final rept.

AUTHOR: LaPierre, Rene B.; Eiron, Ehud; Wu, David; Guczi, Laszlo; Kranich, Wilmer L.

D1652F4 Pld: 7C, 68E, 68A, 68D, 99D GRAI7708

Jan 77 184p

Grant: EPA-R-802857-01

Monitor: EPA/600/3-77/018

Abstract: A study has been undertaken of the catalytic conversion of chlorinated pesticides and other environmentally undesirable chlorinated materials into acceptable compounds. The results of this study show that chlorine can be catalytically removed and replaced by hydrogen to produce relatively nontoxic hydrocarbons which may either be useful as items of commerce or which may be easily combusted. The experimental foundation for a large scale hydrodechlorination process has been laid. The Process involves the use of a supported nickel catalyst in a batch process using ethanol as a solvent and sodium hydroxide as an acid acceptor of the hydrogen chloride byproduct. Temperatures of less than 150C and hydrogen pressures of less than 50 atmospheres are required for most classes of chlorinated pesticides and related substances. Palladium as a catalyst did not give results which were significantly better than nickel. A reactivity sequence has been established based on carbon chlorine bonding, wherein olefinic chlorine is most reactive, aromatic chlorine is less reactive and aliphatic chlorine is least reactive. Reaction models have been proposed and the relative rates of parallel and consecutive hydrodechlorination steps have been determined for Aroclor and DDE under various process conditions. Removal of ortho substituted chlorine is the limiting reaction in hydrodechlorination of Polychlorinated Biphenyls (PCB's). Highly bridged and nonplanar molecules such as Aldrin and Dieldrin are the most difficult compounds to hydrodechlorinate due to steric effects. Removal of aromatic chlorine is the limiting reactor in the hydrodechlorination of DDT and DDE. The hydrodechlorination process as described should be applicable to other classes of pesticides such as the isomeric hexachlorocyclohexanes (e.g., Lindane), and the Methanoindenes (e.g., Chlordane). Due to steric effects chlordane should have a reactivity similar to that of Aldrin.

Descriptors: *Decomposition, *Catalysis, *Chlorine organic compounds, *Pesticides, *Hazardous materials, *Dechlorination, Air pollution, Water pollution, Soil, DDT, Chemical analysis, Tables(Data), Palladium, Nickel, Terpenes, Chlorine alephatic compounds, Liquid waste disposal

Identifiers: *Environmental chemical substitutes, Aroclors, DDE Insecticide, DDD Insecticide, Aldrin, Dieldrin, Toxaphene, Ethylene/bis(Chlorophenyl)-dichloro, Ethane/bis(Chlorophenyl)-dichloro, Dimethanonaphthalenes, Toxic substances, NTISEPAORD

PB-262 804/8ST NTIS Prices: PC A09/NTA01

The Synthesis of 2-Chlorobiphenyl-1', 2', 3', 4', 5', 6'-14C6

Alaska Univ., College. Inst. of Marine Science.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration. (405 785)

AUTHOR: Reichardt, Paul B.; Schuttner, Scott E.

D1633K4 Fld: 7C, 99D GRAI7708

2 Sep 75 5p

Rept No: IMS-Contrib-258

Grant: NSF-IDP75-03677

Monitor: NSF/IDOE-76-182

Pub. in Jnl. of Labelled Compounds and Radiopharmaceuticals, v12 n2 p243-246 1976.

Abstract: Modification of the traditional Gomberg reaction conditions provides a simple, economical route to chlorobiphenyl-(14)C6 (I). The reaction of benzene-U-(14)C6 with an excess of the diazonium salt from 2-chloroaniline produces (14)C-labelled I in 10% radiochemical yield. This method should be applicable to the preparation of any chlorinated biphenyl having one unsubstituted ring.

Descriptors: *Synthesis(Chemistry), *Isotopic labeling, *Carbon 14, Polyphenyl compounds, Aromatic polycyclic compounds, Chlorine aromatic compounds, Air pollution, Water pollution, Modifications

Identifiers: Reprints, *Biphenyl/chloro, *Polychlorinated biphenyls, Air pollution detection, Water pollution detection, Gomberg reaction, NTISIDOE, NTISNSFG

PB-261 894/OST NTIS Prices: Not available NTIS

Atmospheric Freons and Halogenated Compounds

Rutgers - The State Univ., New Brunswick, N.J. Dept. of Environmental Science.*Environmental Sciences Research Lab., Research Triangle Park, N.C. Gas Kinetics and Photochemistry Branch.

Final rept.

AUTHOR: Appleby, Alan

D1503L1 Fld: 13B, 7E, 4B, 68A, 99E, 55E GRAI7707

Nov 76 357p

Grant: EPA-R-800833

Monitor: EPA/600/3-76/108

Abstract: Ambient levels of atmospheric Freons, halogenated hydrocarbons, and SF₆ were measured at various locations in the U.S.A. Compounds such as CCl₃F, CCl₂F₂, CH₃-CCl₃, and CCl₄ were ubiquitous and generally measured at sub ppb levels. Tropospherically reactive compounds such as C₂Cl₄ and CHClCCl₂ were frequently measured; other compounds were measured where a reasonable source was known. A novel pulsed flow coulometry gas chromatographic analysis along with other requisite analytical and calibration procedures were developed and used. Laboratory irradiation simulations established the tropospheric stability of CCl₃F, CCl₂F₂, CH₃CCl₃, CCl₄, CCl₂FCClF₂, the reactivity of the chlorinated ethylenes, and the stratospheric reactivity of CCl₃F, CCl₄, and CCl₂F₂. Adventitious labelling of air masses with halogenated compounds was used to demonstrate urban ozone transport to rural areas.

Descriptors: *Gas analysis, *Fluorohydrocarbons, *Halogen organic compounds, *Sulfur hexafluoride, *Atmospheric chemistry, Chlorine aromatic compounds, Air pollution, Atmospheric composition, Chemical analysis, Gas chromatography, Colorimetric analysis, Calibrating, Graphic methods, Chlorine organic compounds, Aerosols, Field tests, Experimental design, Trace elements, Ozone, Rural areas, Stratosphere, Troposphere, Lower atmosphere, Photochemical reactions, Concentration(Composition), Monitoring, Sources, Toxicity, Dichlorodifluoromethane, Utilization, Carbon tetrachloride, Vinyl chloride, Tables(Data), Iodine organic compounds, Industrial wastes

Identifiers: *Air pollution detection, Ethylene/chloro, Procedures, *Freons, Methane/iodo, Ethylene/trichloro, Ethylene/dichloro, Methane/dichloro, Biphenyl/chloro, Methane/chloro-trifluoro, Polychlorinated biphenyl, NTISEPAORD

PB-262 432/8ST NTIS Prices: PC A16/MF A01

Toxicity of Polychlorinated Biphenyls (Aroclor 1254) to Adult, Juvenile, and Larval Stages of the Shrimp *Palaemonetes pugio*

Texas A and M Univ., College Station.**Bionomics Marine Lab., Pensacola, Fla.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration. (347 350)

AUTHOR: Roesijadi, G.; Petrocelli, S. R.; Anderson, J. W.; Giam, C. S.; Neff, G. E.

D1493J4 Fld: 6T, 6F, 13B, 8A, 57Y, 57H, 98F, 68D, 47D GRAI7707
1976 9p

Monitor: NSF/IDOE-76-203

Prepared in cooperation with Bionomics Marine Lab., Pensacola, Fla.

Abstract: The toxicity of Aroclor 1254 to adult, juvenile and larval stages of the grass shrimp, *Palaemonetes pugio*, an estuarine crustacean abundant along the Atlantic and Gulf of Mexico coastal regions of North America are reported. The effect of Aroclor 1254 on *P. pugio* larvae was evident both as mortalities at a relatively high concentration of 15.6 microgram/liter and increased duration to the postlarval stage at lower exposure levels. Larval grass shrimp are not as motile as postlarvae, and extended larval development may be associated with greater predation or more difficult food capture. Changes in the duration of larval development of *P. pugio* have also been observed to occur in response to differing diets. Larval and juvenile *P. pugio* were more sensitive to Aroclor 1254 than adults. This was expected since earlier life stages are generally considered to be more sensitive to the physicochemical nature of the environment. Differences in salinity did not appreciably alter the toxicity.

Descriptors: *Toxicity, *Shrimps, Aquatic animals, Larvae, Contaminants, Chlorine aromatic compounds, Estuaries, Crustacea, Shellfish, Exposure, Mortality, Responses, Atlantic Ocean, Mexico Gulf, Bioassays, Tables(Data), Mortality

Identifiers: Reprints, *Water pollution effects(Animals), *Polychlorinated biphenyls, Biphenyl/chloro, *Palaemonetes pugio, NTISIDOE, NTISNSFG

PB-261 880/9ST NTIS Prices: Not available NTIS

Manual of Analytical Quality Control for Pesticides and Related Compounds, in Human and Environmental Samples. A Compendium of Systematic Procedures Designed to Assist in the Prevention and Control of Analytical Problems

Lafayette Coll., Easton, Pa. Dept. of Chemistry.*Health Effects Research Lab., Research Triangle Park, N.C.

AUTHOR: Sherma, Joseph

D1325H4 Fld: 13B, 7D, 68E*, 68A, 68D, 99A* GRAI7706

Feb 76 289p*

Contract: EPA-68-02-1727

Monitor: EPA/600/1-76/017

Abstract: This manual primarily provides the pesticide chemist with a systematic protocol for the prevention and control of analytical procedures which arise in the analysis of human or environmental media. The sections dealing with inter- and intra-laboratory quality control, the evaluation and standardization of materials used, and the operation of the gas chromatograph are intended to highlight and provide advice in dealing with many problems which constantly plague the pesticide analytical chemist. Section 7 discusses many aspects of the problem areas involved in extraction and isolation techniques for pesticides in various types of samples. Techniques for confirming the presence or absence of pesticides in sample materials are treated, at some length. This highly important area provides validation of the data obtained by the more routine analytical procedures. The gas chromatograph, being the principal instrument currently used in pesticide analysis, often requires simple servicing or troubleshooting. A section addressing some of these problems is included. Last, but by no means least in importance, is a short dissertation of the value and need for systematic training programs for pesticide chemists.

Descriptors: *Pesticides, *Manuals, *Chemical analysis, Flame photometry, Water pollution, Gas analysis, Gas chromatography, Air pollution, Public health, Humans, Standards, Detectors, Tissues(Biology), Herbicides, Concentration(Composition), Water analysis, Extraction, Separation, Samples, Quality control, Residues, Qualitative analysis, Quantitative analysis, Animals, Electrometers, Laboratory equipment, Sampling, Nuclear magnetic resonance, Spectroscopy, Spectrophotometry, Polarography, Experimental design, Fluorescence, Soil analysis, Dust, Sediments, Food analysis, Flame photometry, Precipitation(Chemistry), Carbamates, Blood chemical analysis, Urine, Phenols, Naphthols, Bioassay, Chlorine organic compounds, Thin 1 layer chromatography, Absorbers(Materials)

Identifiers: Procedures, Standard reference materials, Biphenyl/chloro, Flame conization detector, Phenol/pentachloro, Phenol/nitro, D2-4 herbicide, T2-4-5 herbicide, NTISEPAORD

PB-261 019/4ST NTIS Prices: PC A13/MF A01

Toxicity of Polychlorinated Biphenyls to 'Euglena gracilis': Cell Population Growth, Carbon Fixation, Chlorophyll Level, Oxygen Consumption, and Protein and Nucleic Acid Synthesis

Armed Forces Radiobiology Research Inst Bethesda Md (034700)

Scientific rept.

AUTHOR: Ewald, W. G.; French, J. E.; Champ, M. A.

D1293B3 Fld: 6T, 6F, 13B, 57Y, 57H, 68D GRAI7706

Jul 76 18p

Rept No: AFRRI-SR76-33

Monitor: 18

Abstract: Populations of *Euglena gracilis* in exponential growth under light were exposed to 2.5, 5.0, 7.5, and 10 ppm of Aroclor 1221. With Aroclor 1242, no inhibition of growth was observed with up to 100 ppm exposure. Cell cultures exposed to 4.4 ppm of Aroclor 1221 for 48 hours had a significantly reduced rate of carbon fixation and reduced levels of chlorophyll after correction for cell density. Oxygen consumption was not affected. Uptake of H(3)-leucine in treated cultures was twice that of controls, and H(3)-uridine uptake was significantly lower. Uptake of H(3)-thymidine, and incorporation of H(3)-leucine, H(3)-thymidine, and H(3)-uridine were not significantly different in treated and control cultures. An inexpensive and rapid screening method for potential toxic environmental chemical compounds used by military organizations is of great importance in case such compounds are accidentally introduced into the environment.

Descriptors: *Biphenyl, *Water pollution, Inhibition, Toxicity, Photosynthesis, Growth(Physiology), Chlorophylls, Oxygen consumption, Nucleic acids, Biosynthesis, Methodology, Proteins, Indicators, Chemical agent detectors

Identifiers: *Polychlorinated biphenyls, *Euglena gracilis*, *Water pollution effects(Plants), NTISDODXA

AD-A033 900/2ST NTIS Prices: PC A02/MF A01

PCB and the Activities Budget of the Crab *Hemigrapsus Oregonensis*

Oregon State Univ., Corvallis. School of Oceanography.*Energy Research and Development Administration. (9500119)

AUTHOR: Pearson, W. H.; Holton, R. L.

D1281C2 Fld: 6F, 13B, 57H, 68D, 98F GRAI7705

1974. 22p

Contract: AT(45-1)-2227

Monitor: 18

Abstract: In order to understand the adaptive processes of an estuarine organism under stress from a pollutant the behavior of the crab *Hemigrapsus oregonensis* was assessed with and without exposure to polychlorinated biphenyls (PCB'S). Activities budgets were developed from observations of the time crabs spent in 20 categories of shelter use, posture, and activity while held in habitat models complete with tides. Females spent more time sheltered and feeding but less time displaying than males. For both sexes certain activities predominated at certain tidal stages. Multivariate discriminant analysis was used to explore differences in activities budgets between ordinary conditions and stressing conditions when PCB-contaminated sand was present. Discriminant functions containing all 20 activities did not clearly distinguish the budgets of stressed and unstressed crabs. Stepwise discriminant analyses, used to choose the most parsimonious functions, indicated where the budgets differed. For both sexes and different trials, feeding consistently appeared in the multivariate discriminant functions and decreased under PCB exposure. The discriminant analysis suggested that the consequences one would predict for a pollutant-induced stress are functions of the paradigm under which one observes. In a search to predict the consequences of pollution one should be alert not only to the character of the organism's failures, but also to the nature of its successes. (ERA citation 02:004010)

Descriptors: *Crustaceans, *Polycyclic aromatic hydrocarbons, *Water pollution, Aquatic organisms, Behavior, Biological effects, Biological stress, Estuaries, Health hazards, Metabolism, Tolerance

Identifiers: ERDA/560304, ERDA/550100, *Water pollution effects(Animals), NTISERDA

RLO-2227-T12-56 NTIS Prices: PC A02/MF A01

NIOSH/OSHA Draft Technical Standards for Acetylene Tetrabromide, Allyl Chloride, Chlorobenzene, Chlorodiphenyl (54 percent Chloride), 1,1-Dichloroethane, Epichlorhydrin. Set I. (Part 1)

Occupational Safety and Health Administration, Washington, D.C. Office of Standards.

D1241C4 Fld: 6J, 6T, 57U, 94D, 68G GRAI7705

17 Sep 75 115p

Rept No: TS-D-75-917-I1

Monitor: 18

See also Part 2, PB-260 372.

Abstract: Draft technical standards are outlined for acetylene tetrabromide, allyl chloride, chlorobenzene, chlorodiphenyl (54 percent chloride), 1,1-dichloroethane, and epichlorhydrin. Each standard includes definitions, monitoring requirements, methods of compliance, procedures for respiratory and personal protection, medical surveillance, and recordkeeping. Appendixes for each standard include health hazard data, emergency and first aid procedures, precautions for safe use, handling and storage, physical and chemical data, fire, explosion and reactivity hazard data, and spill or leak procedures.

Descriptors: *Hazardous materials, *Industrial medicine, *Allyl chloride, *Epichlorohydrin, Toxicity, Criteria, Inspection, Standards, Recommendations, Bromine organic compounds, Chlorine organic compounds, Industrial hygiene, Industrial atmospheres, Monitoring, Materials handling, Storage, Physical properties, Chemical properties, Explosives

Identifiers: Procedures, *Benzene/chloro, *Ethane/dichloro, *Biphenyl/chloro, NTISLABCSH

PB-260 371/OST NTIS Prices: PC A06/MF A01

Effects of DDT and Polychlorinated Biphenyls on Cellular Metabolism and Ultrastructure of 'Crithidia Fasciculata', a Flagellated Protozoan

Armed Forces Radiobiology Research Inst Bethesda Md (034700)

Scientific rept.

AUTHOR: French, J. E.; Roberts, J. P.

D1143I4 Fld: 6T, 6C, 57Y, 57F, 68E GRAI7705

Jul 76 24

Rept No: AFRRI-SR-76-31

Monitor: 18

Abstract: DDT and polychlorinated biphenyls (PCBs) have been shown to be toxic to *Crithidia fasciculata* by inhibition of cell population growth. Energy metabolism, protein and nucleic acid biosynthesis, and ultrastructure were chosen as indices for determining the metabolic site(s) of this inhibition. DDT had no effect on carbon dioxide evolution, whereas PCB exposure caused a transient inhibition and then stimulation after 6 and 24 hours, respectively. After 6 hours exposure to DDT or PCB, inhibition of both uptake and incorporation of thymidine and uridine, but not of L-leucine, was observed. By 24 hours of PCB exposure, uptake and incorporation of these three radioprecursors were two to three times greater than control. After 24 hours DDT exposure, only thymidine uptake and incorporation exhibited such an increase. Ultrastructural changes induced by these compounds included cellular and mitochondrial swelling, disruption of the mitochondrial genophore, and failure of the mitochondrion to replicate in synchrony with cell division.

Descriptors: *DDT, Biosynthesis, Metabolism, Microstructure, Physiological effects, Growth (Physiology), Proteins, Nucleic acids, Radioactive isotopes, Toxicity

Identifiers: *Polychlorinated Biphenyls, *Crithidia fasciculata, NTISDODXA

AD-A033 507/5ST NTIS Prices: PC A02/MF A01

The Ecological Impact of Synthetic Organic Compounds on Estuarine Ecosystems

Mote Marine Lab., Sarasota, Fla.*Environmental Research Lab., Gulf Breeze, Fla. (404 687)

AUTHOR: Lincer, Jeffrey L.; Haynes, Marita E.; Klein, Marian L.

D1055F4 Fld: 6F, 8A, 8H, 13B, 57H*, 47D*, 68E*, 68D, 57P GRAI7704

Sep 76 364p*

Project: EPA-ROAP-10AKC-043

Monitor: EPA/600/3-76/075

Abstract: The review and indexed bibliography concerns the presence and effects of pesticides (i.e., insecticides, herbicides, fungicides, etc.) and industrial toxicants in the estuarine ecosystem. The industrial toxicants refer, primarily, to polychlorinated biphenyls, but phthalate esters, polychlorinated terphenyls, chlorinated dibenzodioxins and dibenzofurans are also discussed. The review covers literature of the last decade, with emphasis on the most recent 5 years. However, the 700-plus references in the bibliography span a much wider range. A permuted keyword retrieval system (SPINDEX) is provided to allow practical use of the bibliography by scientists, academicians, and societal decision makers.

Descriptors: *Chlorine organic compounds, *Pesticides, *Estuaries, *Ecology, *Bibliographies, Furans, Organic compounds, Fungicides, Herbicides, Industrial wastes, Toxicology, Aquatic biology, Marine microorganisms, Chlorine aliphatic compounds, Phthalates, Esters, Terphenyls, DDT, Mortality, Fishes, Invertebrates, Oxygen heterocyclic compounds

Identifiers: Bioaccumulation, Ecosystems, Polychlorinated biphenyls, Biphenyl/chloro, Reviews, Terphenyl/chloro, Bioaccumulation, Accumulation, Pesticide residues, Carbamates, NTISEPAORD

PB-259 943/9ST NTIS Prices: PC A16/MF A01

Polychlorinated Biphenyls Health Effects and Recommendations

Illinois Inst. for Environmental Quality, Chicago.**Illinois Univ. Medical Center, Chicago. School of Public Health.

Final rept.

D0423E2 Fld: 6T, 6F, 6J, 57Y*, 57H, 57U, 94D, 68G* GRAI7703

Jun 76 50p*

Rept No: IIEQ-76-05

Project: IIEQ-90-002

Monitor: 18

Also pub. as Environmental Health Resource Center, Chicago, Ill. Rept. no. EHRC-16. Prepared in cooperation with Illinois Univ. Medical Center, Chicago. School of Public Health. (PC A03/MF A01)

Abstract: ;Contents: Chemical structure; Industrial uses; Where PCBs are found and their mode of transport; Routes into the environment; Rate of loss into the environment; Rates of transport within the environment; PCB levels in Illinois; Health effects of PCBs--Animal studies; Health effects of PCBs--Human exposure via food, air, and water; PCB levels in tissues of humans in the United States; High risk segments of the population.

Descriptors: *Chlorine aromatic compounds, *Toxicology, *Ecology, Toxicity, Chemical compounds, Laboratory animals, Bioassay, Food chains, Pathology, Pathophysiology, Chromosomes, Genetics, Reproduction(Biology), Tissues(Biology), Humans, Industrial medicine, Air pollution, Water pollution, Recommendations, Illinois

Identifiers: *polychlorinated biphenyls, *Biphenyl/chloro, *Environmental health, *Air pollution effects(Humans), *Water pollution effects(Humans), Lake Michigan, NTIS IIEQ

PB-259 269/9ST NTIS Prices: PC A03/MF A01

Studies on Measurement of PCB in Exhaust Gases (Haigasuchu no PCB no Sokutei ni Tsuite)

Environmental Protection Agency, Research Triangle Park, N.C.
Translation Services Section.

AUTHOR: Kawase, Z.; Arai, M.; Yoshida, Y.

D0352D1 Fld: 7D, 68A, 99A GRAI7702

1973 7p

Rept No: EPA-TR-76-544

Monitor: 18

Trans. of Taiki Osen Kenkyu (Japan) v8 n3 p598 Oct 73. (PC A02/MF A01)

Abstract: Polychlorinated biphenyls (PCB) in the combustion gas of domestic refuse were measured at two incinerators. First, the measurement method was devised by examination of absorbent and capturing rates. The tests using several organic solvents showed that 10% glycerine solution yielded the best result. For a capturing device, between a flask and an absorption jar, a tube packed with glass wool was installed. The capturing rate of the tube was 83%, and together with the absorption jar, the total capturing rate was 96%, and in some cases 97.9%. This method was then applied to the combustion gas of incinerators. The PCB content in the gas was small, with the maximum measurement of 0.30 microgram/N cu m, which was captured in the tube; there was no trace in the absorbent.

Descriptors: *Chlorine organic compounds, Air pollution, Industrial wastes, Combustion products, Incinerators, Absorbents

Identifiers: *Biphenyl/chloro, *Air pollution detection,
*Polychlorinated biphenyls, Japan, Translations, NTISEPAISD

PB-259 071-T/ST NTIS Prices: PC A02/MF A01

Kerr Coefficients of Polychlorinated Biphenyls and Chlorinated Naphthalene

National Bureau of Standards, Washington, D.C. Electricity Div.*Sandia Corp., Albuquerque, N. Mex.

Final rept.

AUTHOR: Misakian, Martin; Hebner, Robert E. Jr

D0345G1 Fld: 7C, 14B, 99D, 99A, 86V GRAI7702

19 Apr 76 5p

Project: NBS-2110136

Monitor: 18

Sponsored in part by Sandia Corp., Albuquerque, N. Mex. Pub. in Jnl. of Applied Physics, v47 n9 p4052-4055 Sep 76.(PC A02/MF A01)

Abstract: The electro-optic Kerr coefficients of two polychlorinated biphenyls and chlorinated naphthalene have been measured to an accuracy of plus or minus 7% using a comparative technique. Physical properties of the fluids relevant to application in electro-optic devices are discussed.

Descriptors: *Kerr cells, Chlorine aromatic compounds, Physical properties, Optical measuring instruments

Identifiers: Reprints, *Biphenyl/chloro, *Naphthalene/chloro,
*Polychlorinated biphenyls, NTISCOMNBS, NTISDODAF

PB-258 885/3ST NTIS Prices: PC A02/MF A01

Determination of PCB and PCT in the Atmosphere Using Filter Paper
(Roshi-ho o Mochiita Taikichu PCB, PCT no Sokutei ni Tsuite)

Environmental Protection Agency, Research Triangle Park, N.C.
Translation Services Section.

AUTHOR: Okita, Toshiichi; Takizawa, Yukio; Minagawa, Kohei; Sugai,
Ryuichi; Kifune, Ikuei

D0222C4 Fld: 7C, 99A, 68A GRAI7701

1974 5p

Rept No: EPA-TR-76-545

Monitor: 18

Trans. of Taiki Osen Kenkyu (Japan) v9 n2 p214 1974.

Abstract: In order to perform simultaneous measurements of PCT and PCB produced by burning using a simple and rapid method, the authors studied the method of collecting them by glass fiber filter paper coated with glycerine. They also carried out measurements of those chemicals in the environment.

Descriptors: *Gas analysis, *Chlorine aromatic compounds, Absorption, Combustion products, Filter paper, Glycerol, Quantitative analysis, Japan, Translations

Identifiers: *Air pollution detection, *Polychlorinated biphenyls, *Biphenyl/chloro, *Terphenyl/chloro, Polychlorinated terphenyls, NTISEPAISD

PB-258 786-T/ST NTIS Prices: PC A02/MF A01

Determination of PCB in Dust, Ash and Combustion Gas from City Waste Incinerators (Toshigomi Shokyakuro kara Haishutsu Sareru Dasuto, Haibun Oyobi Haigasuru chu no PCB Bunseki)

Environmental Protection Agency, Research Triangle Park, N.C.
Translation Services Section.

AUTHOR: Susuki, Ryota; Ito, Masayuki; Noma, Masanori; Moritani, Akira; Watanabe, Yuji

D0221C1 Fld: 7C, 68A, 99A GRAI7701

1974 12p

Rept No: EPA-TR-76-540

Monitor: 18

Trans. of Aichi-ken Kogai Chosa Senta Shoho (Japan) v2 p43-49 1974.

Abstract: polychlorobiphenyl (PCB) contents in burned refuse, water washed ash, dust collected with multicron or electrostatic precipitator and combustion gas were estimated. For the sampling of PCB in the combustion gas, the adsorption into n-hexane by impinger as the wet method, the adsorption by florigil column coated with 5% glycerin as the dry method and the method of two shape-cylindrical glass filter were investigated. The most effective method was the last one. PCB contents in combustion gas were varied from none detect to 12 microg/N cu m, in burned refuse, water washed ash and dust were 0.01-0.70 microg/g.

Descriptors: *Chemical analysis, *Residues, *Chlorine aromatic compounds, *Gas analysis, Incinerators, Ashes, Dust, Particles, Japan, Translations, Flue gases, Refuse, Solid wastes

Identifiers: *Polychlorinated biphenyls, *Biphenyl/chloro, NTISEPAISD

PB-258 668-T/ST NTIS Prices: PC A02/MF A01

Investigation of Measuring Method of PCB in Gas Phase (Kiso PCB
Sokuteiho no Kento)

Environmental Protection Agency, Research Triangle Park, N.C.
Translation Services Section.

AUTHOR: Abe, T.; Sone, M.

DC221B4 Fld: 7C, 99A, 68A GRAI7701

Apr 74 10p

Rept No: EPA-TR-76-542

Monitor: 18

Trans. of Miyagi-Ken Kogai Gijutsu Senta Hokoku (Japan) n2 p24-27 Apr
74.

Abstract: Polychlorobenzene (PCB) contents in the exhausted gas from garbage combustion and in the air were measured. For the former, the exhaust gas was sucked from the duct directly by a pump and passed through two mist traps which were maintained at 0 and -78 C and through an n-hexane trap at -78 C. The PCB in the three traps was pooled and n-hexane was separated from water by a fractionating funnel and then concentrated by a KD concentrator, purified by fluorigel column, and finally analyzed by gas chromatography quantitatively and qualitatively. Air was sucked by high volume air sampler for 24 hr and dust collected on filter paper was extracted into 100 ml of n-hexane for 4 or 5 hr. This was concentrated by KD concentrator to 5 ml and analyzed by gas chromatography after purification by fluorigel column.

Descriptors: *Chlorine aromatic compounds, *Gas analysis, *Chemical analysis, Air pollution, Particles, Flue gases, Incinerators, Gas sampling, Cold traps, Japan, Translations

Identifiers: *Air pollution detection, *Polychlorinated biphenyls, *Biphenyl/chloro, NTISEPAISD

PB-258 667-T/ST NTIS Prices: PC A02/MF A01

Treatment Effectiveness for the Removal of Selected Contaminants from Drinking Water

Stone (Ralph) and Co., Inc., Los Angeles, Calif.*Environmental Protection Agency, Washington, D.C. Div. of Water Supply.

Final rept.

AUTHOR: Stone, Ralph; Smallwood, H. A.; Marsh, J. Rodney
DC071B3 Fld: 13B, 7A, 50B*, 68D*, 99B*, 91A* GRAI7626
Jul 75 199p*
Contract: EPA-68-01-2692
Monitor: 18

Abstract: An extensive literature survey was conducted to determine treatment methods for removing antimony, beryllium, cobalt, lithium, molybdenum, nickel, tungsten, vanadium, bisethers, polychlorinated biphenyls, chlorinated hydrocarbon insecticides, and organophosphorus insecticides from drinking water. The processes discussed included ion exchange, reverse osmosis, electrodialysis, distillation, coagulation/precipitation, chemical oxidation, radio-chemical degradation, and adsorption. Treatment efficiencies were determined in terms of influent and effluent concentrations for each applicable treatment method. Process designs, constraints and limitations, operating conditions, and costs were presented for each treatment process discussed. Each process was evaluated as to its availability, applicability, and technical and economic feasibility. The best available and best technically feasible treatment processes were presented for each contaminant.

Descriptors: *Reviews, *Water treatment, *Potable water, *Water quality, Insecticides, Metals, Activated carbon treatment, Ion exchanging, Electrodialysis, Precipitation(Chemistry), Coagulation, Oxidation, Ionizing radiation, Performance evaluation, Efficiency, Costs, Evaluation, Feasibility, Antimony, Beryllium, Ethers, Chlorine organic compounds, Cobalt, Lithium, Molybdenum, Nickel, Phosphorus organic acid esters, Tungsten, Vanadium, Endrin, DDT, Aldrin

Identifiers: Reverse osmosis, Polychlorinated biphenyls, Biphenyl/chloro, Ultrafiltration, Parathion, Lindane, NTISEPAO

PB-258 271/6ST NTIS Prices: PC\$7.50/MF\$3.00

Destruction of Polychlorinated Biphenyls in Sewage Sludge During Incineration

Versar, Inc., Springfield, Va.*Environmental Protection Agency,
Washington, D.C. (389 335)

Final rept.

AUTHOR: Whitmore, Frank C.

D0064K3 Fld: 13B, 68A, 68C GRAI7626

1976 80p

Contract: EPA-68-01-1587

Monitor: 18

Abstract: An experiment has been carried out to determine the efficiency with which PCB's are destroyed in a municipal sewage sludge incinerator. A standard mixture of PCB's (Aroclor 1254) was injected into the sludge cake at the rate of 50 ppm (dry solids basis) under conditions whereby the various emergent streams from the furnace could be monitored. The experimental results indicate no PCB's present in either the scrubber exhaust water or in the ash; the amount of PCB in the emergent stack gases were found to correspond to destruction ratios in excess of 0.94 under normal furnace operating conditions.

Descriptors: *Sludge disposal, *Incinerators, *Air pollution, *Solid waste disposal, Sewage sludge, Chlorine aromatic compounds, Decomposition, Flue gases, Gas sampling, Gas analysis

Identifiers: *Biphenyl/chloro, *Polychlorinated biphenyls, NTISEPAO

PB-258 162/7ST NTIS Prices: PC\$5.00/MF\$3.00

Analysis and GC-MS Characterization of Toxaphene in Fish and Water

Fish and Wildlife Service, Columbia, Mo. Fish-Pesticide Research
Lab.*Environmental Research Lab., Duluth, Minn.

Final rept. Apr 72-Mar 74

AUTHOR: Stalling, David L.; Huckins, James N.

D0062H3 Fld: 7C, 99A, 68E, 68D GRAI7626

Aug 76 53p

Monitor: EPA/600/3-76/076

Abstract: Sensitive methods for the detection and identification of toxaphene in water and fish are described. Polyurethane foam, gel permeation and silicic acid chromatography were used to permit accurate quantitation of multi-component toxaphene residues. A method for characterization of changes in isomer composition of toxaphene residues in fish was reported. A brief description for PCB-Toxaphene separation is given. The chemical composition of toxaphene was examined by electron impact and chemical ionization mass spectrometry. Chemical ionization gas chromatography-mass spectrometry was particularly applicable to the analysis and confirmation of toxaphene in residues in environmental samples.

Descriptors: *Insecticides, *Water analysis, *Fishes, Gas chromatography, Mass spectroscopy, Residues, Trout, Chemical analysis, Chlorine organic compounds

Identifiers: *Toxaphene, *Pesticide residues, Biphenyl/chloro, NTISEPAORD

PB-257 773/2ST NTIS Prices: PC\$4.50/MF\$3.00

Identification of Selected Federal Activities Directed to Chemicals of
Near-Term Concern

Environmental Protection Agency, Washington, D.C. Office of Toxic
Substances.

Final rept.

C7602A1 Fld: 13B, 6T, 68A, 68D, 57Y GRAI7624

Jul 76 36p

Rept No: EPA/560/4-76/006

Monitor: 18

Abstract: This Report is intended to assist Federal agencies and other interested organizations obtain current information on the on-going activities of EPA directed to selected chemicals of near-term concern. In addition to identifying the principal EPA programs related to these chemicals, the Report also includes significant activities of other organizations when that information is available.

Descriptors: *Bibliographies, *Environmental surveys, *Asbestos, *Arsenic, *Vinyl chloride, *Vinylidene chloride resins, Chlorine organic compounds, Bromine organic compounds, Anilines, Water pollution, Air pollution, Drinking water, Monitoring, Industrial wastes, Earth fills, Law enforcement, Toxicology

Identifiers: *Benzidines, *Benzene/hexachloro, *Butadiene/hexachloro, *Biphenyl/bromo, *Biphenyl/chloro, Environmental chemical substitutes, *Polychlorinated biphenyls, NTISEPAOTS

PB-257 494/5ST NTIS Prices: PC\$4.00/MF\$3.00

Industry Views on the Use of Polychlorinated Biphenyls in Transformers and Capacitors

Environmental Protection Agency, Washington, D.C. Office of Toxic Substances.

Final rept.

C7393D1 Fld: 7A, 13B, 68A, 68D, 99B GRAI7622

Jun 76 41p

Rept No: EPA/560/4-76/003

Monitor: 18

Abstract: Statements presented by representative manufacturers and users of PCB's and PCB containing products at meetings with the EPA Administrator have been compiled. Industry outlines its plans for discontinuing the use of PCB's, but presents summarizations of the problems with the phasing out of capacitor and transformer manufacture. The report represents a consultative step in meeting the EPA goal of banning the use of PCB's in all new products.

Descriptors: *Meetings, *Electrical industry, Transformers, Biphenyl, Capacitors, Pollution, Chlorine organic compounds

Identifiers: *Biphenyl/chloro, Polychlorinated biphenyls, NTISEPAOTS

PB-255 899/7ST NTIS Prices: PC\$4.00/MF\$3.00

Summary Characterizations of Selected Chemicals of Near-Term Interest

Environmental Protection Agency, Washington, D.C. Office of Toxic Substances.

Final rept.

C7392J1 Fld: 13B, 68*, 68A, 68D, 99* GRAI7622

Apr 76 50p*

Rept No: EPA/56C/4-76/004

Monitor: 18

Abstract: This report includes summary characterizations of 15 chemicals of near-term concern to EPA. The report summarizes (a) health and ecological effects and environmental behavior, (b) sources, environmental levels and exposed populations, (c) technologic and economic aspects and (d) steps that have been taken and are being taken.

Descriptors: *Environmental impacts, *Arsenic, *Asbestos, *Benzene, *Cadium, *Hydrogen sulfide, *Mercury, *Platinum, *Vinylidene chloride, *Aromatic polycyclic hydrocarbons, Public health, Economic analysis, Toxicity, Biphenyls, Phosphates, Concentration (Composition), Industrial wastes, Exhaust emissions, Air pollution, Water pollution, Bromide organic compounds, Chlorine organic compounds

Identifiers: *Ethylene/dibromo, *Benzidines, *Ethylene/trichloro, *Phosphate/tris (dibromopropyl), *Biphenyl/bromo, NTISEPAOTS

PB-255 817/9ST NTIS Prices: PC\$4.00/MF\$3.00

Transport of Chlorinated Hydrocarbons in Sediments of the Upper
Chesapeake Bay

Westinghouse Ocean Research Lab., Annapolis, Md.*Office of Water
Research and Technology, Washington, D.C.

Final rept.

AUTHOR: Palmer, H. D.; Tzou, K. T. S.; Swain, A.

C7205A1 Fld: 13B, 8A, 6F, 68D, 47B GRAI7621

1976 155p

Contract: DI-14-31-0001-4204

Project: OWRT-C-5160 (4204)

Monitor: OWRT-C-5160 (4204) (1)

Abstract: The analyses of both bottom sediments and seston from 3 depths over 28 hour periods at fixed stations have yielded information on the levels of PCB, DDT and chlordan in the Upper Chesapeake Bay of Maryland. Seston samples showed mean concentrations of 4.3 ppt (parts per trillion) of PCB, .23 ppt of DDT and .81 ppt chlordan off Annapolis; off Baltimore Harbor the mean concentrations were 4.5 ppt, PCB, .27 ppt DDT and .62 ppt chlordan. At the head of the bay, these values were 12.08 ppt PCB, 1.03 ppt DDT and 0.72 ppt chlordan. Transport direction was generally to the south. It is concluded that most of the chlorinated hydrocarbon compounds in the upper bay have come from the Susquehanna River drainage, and that Baltimore Harbor, although displaying high local values in bottom sediments, is not a major source to the upper bay.

Descriptors: *Water pollution, *Chlorohydrocarbons, *Sediment transport, *Chesapeake Bay, Estuaries, Biphenyl, DDT, Chlordan, Concentration(Composition), Drainage, Aromatic hydrocarbons, Suspended sediments, Tidal currents, Marine biology, Susquehanna River, Maryland

Identifiers: Biphenyl/chloro, *Path of pollutants, Seston, Baltimore Harbor, Northstar vessel, NTISDIOWRT

PB-255 688/4ST NTIS Prices: PC\$6.75/MF\$3.00

Chlorinated Hydrocarbons in Seawater: Analytical Method and Levels in the Northeastern Pacific

Scripps Institution of Oceanography, La Jolla, Calif.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration.*National Marine Fisheries Service, La Jolla, Calif. Southwest Fisheries Center. (319 100)

AUTHOR: Scura, Edward D.; McClure, Vance E.

C7143F4 Fld: 14B, 13B, 99A, 68D, 47 GRAI7620

25 Nov 74 11p

Grant: NSF-GX-32977

Monitor: NSF/IDOE-76-69

Prepared in cooperation with National Marine Fisheries Service, La Jolla, Calif. Southwest Fisheries Center.

Pub. in Marine Chemistry, v3 p337-346 1975.

Abstract: A method is described for analyzing nanogram quantities of chlorinated hydrocarbons from 1-1 samples of seawater. Seawater samples are pumped through a copper column containing a mixture by weight of 5 percent activated carbon powder, 10 percent MgO and 85 percent refined diatomaceous earth. The chlorinated hydrocarbons in the seawater are absorbed or trapped on the column and subsequently eluted with 30 percent benzene in acetone (v/v) for analysis by gas-liquid chromatography. This procedure was used to analyze chlorinated hydrocarbon levels in samples collected off the southern California coast. The authors suggest that anthropogenic chlorinated hydrocarbons can be used for investigation of large-scale ocean currents and mixing processes.

Descriptors: *Water analysis, *Chlorine organic compounds, *Chlorohydrocarbons, Diphenyls, Marine atmosphere, Sea water, Water pollution, Gas chromatography, North Pacific Ocean, Pesticides, DDT, Adsorbents, Concentration (Composition)

Identifiers: Reprints, *Water pollution detection, Biphenyl/chloro, International Decade of Ocean Exploration, NTISIDOE, NTISNSFG, NTISDODN

PB-255 528/2ST NTIS Prices: Not available NTIS

Criteria Document for PCBs

Massachusetts Audubon Society, Lincoln.*Environmental Protection Agency, Washington, D.C. Office of Water Planning and Standards.
AUTHOR: Nisbet, Ian C. T.

C7065F1 FLD: 13B, 7C, 6A, 6F, 6T, 68D*, 99D, 57Y*, 57H, 57B GRAI
7619

Jul 76 624p*

CONTRACT: EPA-68-01-4154

MONITOR: EPA/440/9-76/021

See also PB-255 395.

ABSTRACT: Contents: Introduction--(Principal sources of information, Uses and releases of PCBs into the environment, PCB mixtures and contaminants: the problem of evaluation); Chemical and physical properties--(Nomenclature of chlorobiphenyls and isomers, Manufacture and nomenclature of commercial PCB mixtures, Constitution of Aroclor mixtures, Constitution of other commercial mixtures, Occurrence of certain substitution patterns in PCB mixtures, Physical properties of chlorobiphenyls and PCB mixtures, Physical properties of chlorinated dibenzofurans, Chemical properties of chlorobiphenyls and commercial mixtures); Toxic effects--(Effects on microbial systems, Effects on phytoplankton, Effects on aquatic invertebrates, Effects on fish, Effects on birds, Toxic effects in mammals--acute and subacute studies, Toxicity of PCDFs in mammals and the role of PCDFs in the toxicity of commercial PCBs--(Chronic effects of PCBs in mammals and effects on reproduction, Enzyme induction and other effects on the liver, Induction of porphyria, Miscellaneous biochemical effects, Immunosuppressive effects, Carcinogenic and co-carcinogenic effects, Mutagenic and teratogenic effects, Effects in humans); Environmental fate and effects--(Persistence, metabolism and fate, Bio-accumulation and bio-magnification, Presence in the aquatic environment, Effects on biota and natural ecosystems, Potential effects in the human population).

DESCRIPTORS: *Toxicology, *Water pollution, *Environmental impacts, *Industrial wastes, Particles, Physical properties, Manufacturing, Combustion products, Chemical industry, Industrial plants, Chemical properties, Solubility, Liver, Effluents, Photochemical reactions, Diphenyls, Air pollution, Vaporizing, Degradation, Stability, Concentration(Composition), Furans, Biochemistry, Marine atmospheres, Metabolism, Field tests, Public health, Fishes, Birds, Soil analysis, Sediments, Marine microorganisms, Absorption(Biology), Enzymes

IDENTIFIERS: *Biphenyl/chloro, Water pollution effects(Plants), Water pollution effects(Animals), Water pollution effects(Humans), Furan/dibenzo, Aroclors, Laboratory tests, Bioaccumulation, Environmental persistence, *Polychlorinated phenyls, NTISEPAL, NTISEPAOWP

PB-255 397/2ST NTIS Prices: PC\$16.25/MF\$2.25

Assessment of Wastewater Management, Treatment Technology, and
Associated Costs for Abatement of PCBs Concentrations in Industrial
Effluents

Versar, Inc., Springfield, Va.*Environmental Protection Agency,
Washington, D.C. Office of Water Planning and Standards. (389 335)

Final rept. on Task 2

AUTHOR: Durfee, Robert

C7065E4 FLD: 7A, 13B, 68D*, 99B* GRAI7619

3 Feb 76 281p*

CONTRACT: EPA-68-01-3259

MONITOR: EPA/560/6-76/006

See also PB-255 397.

ABSTRACT: This report was prepared to provide technologic supporting
information for toxic pollutant effluent standards proposed by EPA
under 307(a) of the Federal Water Pollution Control Act Amendments of
1972. The report identified potential technologies, assesses
implementation feasibility, estimates final effluent characteristics
and estimates installation and operation costs for PCBs manufacturers,
manufacturers of electrical capacitors, and manufacturers of
electrical transformers.

DESCRIPTORS: *Water pollution control, *Industrial waste treatment,
Design criteria, Activated carbon, Adsorbents(Materials), Diphenyls,
Chlorine organic compounds, Manufacturing, Chemical industry,
Capacitors, Transformers, Carbon, Capitalized costs, Operating costs,
Cost estimates, Process charting, Effluents, Concentration(Compositio-
n), Solid waste disposal, Air pollution, Earth fills, Performance
evaluation, Ozonation, Incinerators, Filtration, Oils, Standards,
Ultraviolet radiation

IDENTIFIERS: *Biphenyl/chloro, *Polychlorinated biphenyls, Amberlite
polymers, NTISEPAL, NTISEPAOWP

PB-255 396/4ST NTIS Prices: PC\$9.25/MF\$2.25

PCBs Water Elimination/Reduction Technology and Associated Costs,
Manufacturers of Electrical Capacitors and Transformers

Versar, Inc., Springfield, Va.*Environmental Protection Agency,
Washington, D.C. Office of Water Planning and Standards. (389 335)

Addendum to Final rept. (Task II)

AUTHOR: Durfee, Robert

C7C65E3 PLD: 13B, 7A, 68D*, 99B*, 97 GRAI7619

2 Jul 76 39p*

CONTRACT: EPA-68-01-3259

MONITOR: EPA/440/9-76/020

See also PB-255 396.

ABSTRACT: This addendum report summarizes the quantities and sources of wastewaters in the manufacture of electrical transformers and capacitors; describes the alternate available technologies for reducing or eliminating the discharges on a source-by-source basis; and tabulates the estimated costs for achieving such reduction or elimination.

DESCRIPTORS: *Water pollution control, *Transformers, *Capacitors, *Industrial waste treatment, Diphenyl, Chlorine organic compounds, Manufacturing, Cost estimates

IDENTIFIERS: *Biphenyl/chloro, *Polychlorinated biphenyls, Power transformers, NTISEPAL, NTISEPAOWP

PB-255 395/6ST NTIS Prices: PC\$4.00/MF\$2.25

Selected Aspects of the Control of Toxic Substances (A Compilation of Speeches), by the Members of the Staff of the Office of Toxic Substances

Environmental Protection Agency, Washington, D.C. Office of Toxic Substances.

Final rept.

C7C43D1 FLD: 6F, 6F, 57Y, 57H, 68G GRAI7619

May 76 147p

REPT NO: EPA/560/4-76/002

MONITOR: 18

ABSTRACT: ;Contents: Chemical and environmental concerns; Pesticides and the Toxic Substances Control Act; Address to the conference on the environmental impact of water chlorination; An approach to the control of toxic substances; Environmental aspects of chemical use in printing operations; Chemicals and the environment; Program of the Office of Toxic Substances in relation to microcosm methodology development and the OTS ecological effects program; Environmental aspects of chemical use in well-drilling operations; Risk analysis and setting standards for chemical carcinogens; Environmental aspects of chemical use in rubber processing operations; Role of the Environmental Protection Agency in establishing standards on trace contaminants.

DESCRIPTORS: *Toxicology, Chemical compounds, Carcinogens, Pesticides, Chlorination, Monitors, Standards, Mutagens, Fire resistant coatings, Benefit cost analysis, Ecology, Contaminants

IDENTIFIERS: Air pollution control, *Toxic substances, Toxic Substances Control Act, Chemical agent detection, *Toxic environments, Water pollution control, Biphenyl/chloro, Environmental impact assessments, Environmental health, NTISEPAOTS

PB-254 417/9ST NTIS Prices: PC\$6.00/MF\$2.25

Effect of DDT and Polychlorinated Biphenyls on Cell Population Growth of 'Crithidia Fasciculata', A Flagellated Protozoan

Armed Forces Radiobiology Research Inst Bethesda Md (034700)

Scientific rept.

AUTHOR: French, J. E., Roberts, J. F.

C7002H1 PLD: 6T, 6F, 13B, 57Y, 68E, 57F GRAI7619

May 76 20p

REPT NO: AFRRI-SR76-21

PROJECT: DNA-NWED-QAXM

TASK: C903

MONITOR: 18

ABSTRACT: Cell population growth inhibition of *Crithidia fasciculata* by cell density and cell protein assays after p,p'-DDT and polychlorinated biphenyl (PCB) exposure during exponential growth was analyzed. DDT was apparently not metabolized by this cell. In vitro tests indicated that PCB toxicity increased with decreasing percent chlorination of the mixture. DDT and PCB (Aroclor 1254) were calculated to have ID50 values of 425.0 and 10.5 ppm after 12 and 24 hours exposure, their respective period of greatest cell population growth inhibition. Cell density correlated with cell protein as a measure of toxicity for PCB but not for p,p'-DDT. A critical concentration range was observed above which the effects were decreased relative to those from lower concentrations employed. The maximum concentration of DDT associated with the cellular compartment occurred by 6 hours of exposure. The sensitivity of *C. fasciculata* to DDT or PCBs makes it an appropriate model for further xenobiotic-cell interaction studies involving these compounds. An inexpensive and rapid screening method for toxic chemical compounds used by military organizations is of great importance. To meet these requirements, an inexpensive and quick screening method was developed using the protozoan *Crithidia fasciculata*. (Author)

DESCRIPTORS: *Cell division, *DDT, *Chlorinated hydrocarbons, *Biphenyl, *Insecticides, . Protozoa, Toxicity, Metabolism, Concentration (Composition)

IDENTIFIERS: *Crithidia fasciculata*, *Toxicology, Pesticides, NTISDODXA

AD-A026 867/2ST NTIS Prices: PC\$3.50/MF\$2.25

Laboratory Study of the Release of Pesticide and PCB Materials to the Water Column During Dredging and Disposal Operations

Envirex Inc Milwaukee Wis Environmental Sciences Div (409750)

Final rept.

AUTHOR: Fulk, Richard, Gruber, David, Wullschleger, Richard

C6993K2 FLD: 13B, 8H, 68D, 48G GRAI7619

Dec 75 118p

CONTRACT: DACW39-74-C-0142

MONITOR: WES-CR-D-75-6

Report on Dredged Material Research Program.

ABSTRACT: Sediments, water column water, and interfacial water samples were obtained from dredged areas located in Calumet Harbor, Chicago; Green Bay near the mouth of the Fox River, Wisconsin; Mt. Hope Bay near Fall River, Massachusetts; Tabbs Bay near the Houston Ship Channel, Texas; and the Mississippi River near Memphis, Tennessee. Samples were analyzed for pesticide materials, PCB, oil and grease, total organic carbon, and silt and clay fraction. Measurable amounts of Polychlorinated biphenyls (PCB) were found in almost all samples. Of the pesticides, dieldrin and DDT compounds were the most common. Aldrin and 2,4-D esters were present in a few samples. No correlation was found between the amount of TOC, oil and grease, and silt and clay fraction, and the sediment PCB content or the interstitial water PCB content. As a result of desorption tests and settling tests using several sediment to water ratios, the transfer of soluble pesticide material to the water was found to be negligible at sediment to water ratios of 1:10 or less. Chlorinated hydrocarbon materials associated with the resuspended solids reached concentrations at or near background water column levels after settling for periods ranging from 5 to 24 hr. (Author)

DESCRIPTORS: *Sediments, *Pesticides, *Water pollution, Sampling, Chemical analysis, Contamination, Hydrocarbons

IDENTIFIERS: *Dredged materials, *Polychlorinated biphenyls, Dredged spoil, Dredged material research, *Biphenyl/chloro, Sediment water interactions, Water chemistry, NTISDODXA

AD-A026 685/8ST NTIS Prices: PC\$5.50/MF\$2.25

Chlorinated Hydrocarbons in Cetaceans

Rhode Island Univ Kingston Graduate School of Oceanography (406099)

AUTHOR: Taruski, A. G., Olney, C. E., Winn, Howard E.

C6984L2 FLD: 6F, 13B, 8A, 68E, 68D, 68G, 98F, 57H, 47D GRAI7619

24 Mar 75 7p

CONTRACT: NC0014-76-C-0226

MONITOR: 18

Availability: Pub. in Jnl. of the Fisheries Research Board of Canada,
v32 n11 p2205-2209 1975.

ABSTRACT: DDT, PCBs, chlordanes, and dieldrin levels were measured in blubber of 18 cetaceans, including humpback, sperm, dense-beaked, Atlantic, and Pacific pilot whales, and five species of dolphins. All had significant residue levels, ranging from 1.1 to 1023 ppm IDDT (wet weight basis), and 0.7-147 ppm PCBs. These levels are high enough to justify efforts to reduce PCB contamination of the oceans and a continued ban on widespread use of DDT. (Author)

DESCRIPTORS: *DDT, *Dieldrin, *Chlordane, Water pollution, Insecticides, Chlorinated hydrocarbons, Dolphins(Mammals), Whales, Residues, Cetacea, Sea water, Biphenyl, Fats, Toxicity, Reprints

IDENTIFIERS: *Polychlorinated biphenyls, Aquatic Toxicity, *Water pollution effects(Animals), NTISDODXR

AD-AC26 496/0ST NTIS Prices: PC\$3.50/MF\$2.25

Review of PCB Levels in the Environment

Environmental Protection Agency, Dallas, Tex. Region VI.

Final rept.

AUTHOR: Finlay, Doris J., Siff, Frederick H., DeCarlo, Vincent J.

C6954I3 FLD: 6F, 13B, 57H*, 68*, 68D GRAI7618

Jan 76 143p*

REPT NO: EPA/560/7-76-001

MONITOR: 18

ABSTRACT: This study reviews the current PCB data base to assess the PCB levels in the environment on a national level; the full spectrum of PCB levels reported in man and the environment were of interest. Data were obtained from a number of national monitoring programs, the literature and many unpublished reports. The data examined was inclusive to December 1, 1975. It should be stressed at the outset, that due to the complexity and difficulty of PCB identification and measurement, that levels reported are not really comparable between different investigators. This aspect could not be compensated for or identified in the data presented.

DESCRIPTORS: *Chlorine organic compounds, *Pesticides, *Pollution, Monitoring, Water resources, Sediments, Soils, Fishes, Birds, Lakes, Rivers, Ocean environments, Sewage treatment, Industrial plants, Food, Humans, Concentration(Composition), Solubility, Tables(Data)

IDENTIFIERS: *Biphenyl/chloro, Arochlor, *Polychlorinated biphenyls, NTISEPAOTS

PB-253 735/5ST NTIS Prices: PC\$6.00/MF\$2.25

Biodegradation of Cellulosic Substrates

Louisiana State Univ Baton Rouge*Office of Naval Research, Arlington,
Va. (211650)

Final rept.

AUTHOR: Meyers, Samuel P.

C6932D2 FLD: 13B, 8M, 68D, 57K GRAI7618

1 Jun 76 15p

CONTRACT: N00014-69-A-0211-0006

PROJECT: NR-306-087

MONITOR: 18

ABSTRACT: Mechanisms for accelerated biodegradation of cellulosic substrates have been examined, especially analyses and optimization of pre-treatment of the fiber prior to microbial digestion. Methodology has been developed for enumeration of cellulolytic microorganisms and quantitative evaluation of cellulose transformation in the environment. Enzymatic activities of specific microorganisms have been studied, along with effect of specific pollutants on in situ processes, particularly cellulose turnover. PCBs present in cellulosic wastes have been analyzed and schematics proposed for their removal. Overall data suggest that selected physical/biodegradative techniques can be developed to accelerate rates of cellulose decomposition in the aqueous environment.

DESCRIPTORS: *Cellulose, *Biodeterioration, *Water pollution, Chlorine compounds, Biphenyl, Chemical analysis, Concentration (Composition), Hydrocarbons, Marine atmospheres, Microorganisms, Sodium nitrite, Photochemical reactions, Ultraviolet radiation, Oil spills

IDENTIFIERS: Biphenyl/chloro, Bioecology, NTISDODN

AD-A026 401/OST NTIS Prices: PC\$3.50/MF\$2.25

An Appraisal of Tests and Standards for the Evaluation of Electrical Insulating Fluids

National Bureau of Standards, Washington, D.C. Electricity Div.*Energy Research and Development Administration, Washington, D.C.

Final rept.

AUTHOR: Miller, David B., Bower, Vincent E., Kotter, F. Ralph, Petersons, Oskars, Birky, Merritt M.

C6884J1 FLD: 09A, 06T, 49G, 57Y, 97, 68G GRAI7617

14 May 76 124p

REPT NO: NBSIR-76-1054

CONTRACT: E(49-18)-2052

PROJECT: NBS-2110506

MONITOR: 18

ABSTRACT: Based on a literature study and interviews with representatives of the electric utility industry, manufacturers of insulating fluids and electrical apparatus, government regulatory agencies, organizations preparing standards and codes, trade associations and independent testing laboratories, the status of existing standards and test procedures for insulating fluids is reviewed. Askarel-type transformers and capacitors are described and the characteristics of several currently-used as well as new candidate insulating fluids are given. The possible impact of codes and government regulations on the introduction of new fluids into use is reviewed. Needs for new or revised test procedures and standards are noted and recommendations made for research and development efforts as well as administrative actions to facilitate the qualifying of new insulating fluids as acceptable replacements for the askarels currently in use in a certain class of transformers and capacitors.

DESCRIPTORS: *Insulating oil, *Standards, *Toxicity, Laboratory design, Flammability, Toxicology, Degradability, Transformers, Capacitors, Air pollution, Stability, Water pollution, Silicon organic compounds, Chlorine aromatic compounds, Dielectric properties, Alkanes, Diphenyl, Recommendations, Biodeterioration

IDENTIFIERS: Biphenyls/chloro, Toxic hazards, NTISCOMNBS, NTISERDA

PB-253 110/1ST NTIS Prices: PC\$5.50/MF\$2.25

The Isolation and Determination of Diphenyl Chloride from Animal Tissue and Its Distribution in White Rats (Enka Jifueniru no Dobutsu Soshiki Kara no Chushutsu Teiryoho Narabi ni Shiroezumi ni Okeru Tainai Bunpu)

Environmental Protection Agency, Research Triangle Park, N.C.
Translation Services Section.

AUTHOR: Sekita, H., Osawa, M., Ito, Y., Tanabe, H.

C6884G2 FLD: 06H, 06T GRAI7617

1970 17p

REPT NO: EPA-TR-74-482

MONITOR: 18

Trans. of Shukueishi (Japan) v11 n5 p361-368 1970.

ABSTRACT: Up to 48 hours after a single oral dose of 2 ml of rice bran oil containing 2,500 ppm of diphenyl chloride to white rats, approximately 10% of the diphenyl chloride administered was excreted in the feces, however absolutely none was observed in the urine. When rice bran oil containing 2,500 ppm of diphenyl chloride was administered to white rats once daily at a dosage of 2 ml each time for seven days continuously, it was noted that distribution of diphenyl chloride in the body showed the greatest accumulation in the skin, followed by the muscle, intestine, liver, pancreas and lungs. From the fact that there were differences in the diphenyl chloride compositional ratios in the ECD gas chromatograms of extracts from the tissue of white rats that had been administered diphenyl chloride, it is believed that the modality of accumulation within the body, metabolism and excretion of each of the components of the diphenyl chloride administered differs.

DESCRIPTORS: *Food processing, *Toxicity, *Food contamination, *Chlorides, Experimental data, Laboratory animals, Rats, Japan, Translations, Tissues (Biology), Toxicology

IDENTIFIERS: *Biphenyl/chloro, NTISEPAISD

PB-253 033-T/ST NTIS Prices: PC\$3.50/MF\$2.25

Evaluation of a Laboratory Microcosm for Study of Toxic Substances in the Environment

Illinois Univ. at Urbana-Champaign.*National Science Foundation, Washington, D.C. Research Applied to National Needs. (175 750)

Final technical rept. 1 Jul 73-31 Dec 75

AUTHOR: Metcalf, Robert L.

C6884C4 FLD: 06T, 06F, 13B, 57Y, 57H, 68D, 68G GRAI7617

1975 72p

GRANT: NSF-ESR74-22760

MONITOR: NSF/RA/E-75-116

ABSTRACT: The final report, highlighting the results obtained, describes how a simple model ecosystem technology can yield, at modest expense, a wealth of valuable information about pesticides, drugs, plasticizers, industrial chemicals, carcinogens, and trace metals. Researchers describe the value of their laboratory microcosm in prescreening new chemicals at an early stage in their development; developing 'environmentally congenial products'; and tracing environmental fate and degradation pathways, toxicity, ecological magnification, biodegradability index and unextractable radioactivity. A bibliography containing published results, in research papers and technical reports, is included.

DESCRIPTORS: *Water pollution, *Ecology, *Toxicity, Biodeterioration, Radioactivity, Lake Decatur, Aquatic biology, Technology, Evaluation, Toxicology, Bibliographies, Models, Tables(Data), Herbicides, Pesticides, Drugs, Plasticizers, Carcinogens, Air pollution, Environments, Trace metals, Water pollution, Heptachlor, Chlordan, Cycloalkene compounds, Dienes, Chlorine aromatic compounds, Experimental data

IDENTIFIERS: Ecosystems, *Toxic hazards, Environmental health, Biphenyl/chloro, Path of pollutants, Bioaccumulation, NTISNSFRA

PB-252 982/4ST NTIS Prices: PC\$4.50/MF\$2.25

The Microbial Degradation of Aromatic Petroleum Products

Texas Univ At Austin Dept of Microbiology*Office of Naval Research,
Arlington, Va. (408737)

Annual rept. no. 3, 1 Jul 75-30 Jun 76

AUTHOR: Gibson, David T.

C6864J4 FLD: 6M, 6A, 57K, 57B GRAI7617

30 Jun 76 54p

REPT NO: 16-1938-3

CONTRACT: N00014-76-C-0102

PROJECT: NR-205-008

MONITOR: 18

See also report dated 30 Jun 75, AD-A012 486.

ABSTRACT: The biodegradation of ortho-xylene by a species of *Nocardia* is initiated by nuclear oxidation to form 3,4-dimethylcatechol. The latter compound is apparently formed from cis-3,4-dimethyl-3,5-cyclohexadien-1,2-diol (cis-o-xylene dihydrodiol). Enzymatic fission of 3,4-dimethylcatechol produces an acid, 2-hydroxy-5-methyl-6-oxohepta-2,4-dienoic acid, that undergoes spectral changes at acid and alkaline pH. Further metabolism of the ring-fission product occurs by a hydrolytic reaction that forms acetic and 2-oxohex-4-enoic acids. Enzymatic hydration of the latter compound to give 4-hydroxy-2-oxohexanoate is followed by an aldolase reaction that produce pyruvate and propionaldehyde. The pathway proposed for the biodegradation of o-xylene is analogous to those reported for the degradation of a number of aromatic compounds. Commercial samples of 2-, 3- and 4-chlorobiphenyl contain impurities that cause lag periods in the growth of *Beijerinckia* on succinate. Purified preparations of these compounds also inhibited the initiation of growth of this organism but not to the same extent. Preliminary observations suggest that inhibition may be associated with the ease of oxidation of the monochlorinated biphenyl isomers.

DESCRIPTORS: *Petroleum products, *Biodeterioration, *Xylenes, *Bacteria, Oxidation, Biphenyl, Microorganisms, Thiophenes, Degradation, Chemical analysis

IDENTIFIERS: *Biphenyl/chloro, *Dibenzothiophenes, Soil bacteria, *Nocardia*, Soil analysis, NTISDODN

AD-A026 128/9ST NTIS Prices: PC\$4.50/MF\$2.25

National Conference on Polychlorinated Biphenyls (November 19-21, 1975, Chicago, Illinois)

Research Triangle Inst., Research Triangle Park, N.C. Center for Technology Applications.*Environmental Protection Agency, Washington, D.C. Office of Toxic Substances.*Department of Agriculture, Washington, D.C.*Department of Health, Education, and Welfare, Washington, D.C.*Department of the Interior, Washington, D.C.

AUTHOR: Ayer, Franklin A.

C683211 FLD: 06F, 13B, 07A, 06T, 68*, 68A, 68D, 57H*, 57Y, 57U, 99B

GRAI7616

Mar 76 469p*

CONTRACT: EPA-68-01-2928

MONITOR: EPA/560/6-75-004

Prepared in cooperation with Department of Agriculture, Washington, D.C., Department of Health, Education, and Welfare, Washington, D.C., and Department of the Interior, Washington, D.C.

ABSTRACT: The objectives of the conference where to bring together the latest data and best available expertise to help clarify the problems associated with the manufacture, use and disposal of PCBs ... help assess the effectiveness of steps taken to reduce the problems associated with PCBs ... provide a platform for interested parties to present previous neglected data concerning PCBs ... help clarify the feasibility and complications of steps to reduce the problems associated with PCBs.

DESCRIPTORS: *Meetings, *Manufacturing, *Environmental impacts, *Utilization, *Air pollution, *Water pollution, *Toxicology, Isomers, Public health, Capacitors, Insulating oil, Air pollution control, Water pollution control, Law enforcement, Marine atmosphere, Economics, Biphenyls, Chlorine aromatic compounds, Tissues (Biology), Biochemistry, Bioassay, Laboratory animals

IDENTIFIERS: *Biphenyl/chloro, Air pollution effects (Humans), Air pollution effects (Animals), Pollutant identification, Environmental chemical substitutes, Water pollution effects (Animals), Water pollution effects (Humans), *Polychlorinated biphenyls, NTISEPAOTS

PB-253 248/9ST NTIS Prices: PC\$12.00/MF\$2.25

PCBs in the United States Industrial Use and Environmental Distribution

Versar, Inc., Springfield, Va.*Environmental Protection Agency,
Washington, D.C. Office of Toxic Substances. (389 335)

Final rept. on Task 1

AUTHOR: Durfee, Robert L., Contos, Gayaneh, Whitmore, Frank C.,
Barden, James D., Hackman, E. E. III

C6733I3 FLD: 07C, 13B, 68*, 68A*, 68C*, 68D*, 99D GRAI7615

25 Feb 76 488p*

REPT NO: 474.1

CONTRACT: EPA-68-01-3259

MONITOR: EPA/560/6-76/005

ABSTRACT: This document presents the current state of knowledge about the production, usage, and distribution of polychlorinated biphenyls (PCBs) in the United States. The information presented is derived from detailed studies on the production and first tier user industries, the past and present generation and disposition of PCB-containing wastes, environmental transport and cumulative loads, potential alternatives to PCBs usage, inadvertent losses to and potential formation in the environment, and current regulatory authorities for PCBs control. These results indicated that, although PCBs content of industrial wastes can be reduced through various approaches (treatment, substitution, etc.), there exists a potentially severe future hazard in the form of large amounts of PCBs currently contained in land disposal sites. Further definition of this and other aspects of the PCBs problem, and determination of ways to minimize the hazard, are recommended.

DESCRIPTORS: *Industrial wastes, *Environmental impacts, Solid waste disposal, Chemical properties, Forecasting, Law enforcement, Manufacturing, Production, Utilization, Paper industry, Physical properties, Photochemical reactions, Process charting, Industrial waste treatment, Air pollution control, Water pollution control, Capacitors, Casting, Transformers, Earth fills, Dyes, Packaging, Public health, Chlorine aromatic compounds, Adsorbents (Materials), Activated carbon treatment, Chemical removal (Water treatment)

IDENTIFIERS: *Biphenyl/chloro, *Terphenyls/chloro, *Polychlorinated biphenyls, Environmental chemical substitutes, NTISEPAOTS

PB-252 402/3ST NTIS Prices: PC\$12.50/MF\$2.25

PCBs in the United States Industrial Use and Environmental Distribution

Versar, Inc., Springfield, Va.*Environmental Protection Agency,
Washington, D.C. Office of Toxic Substances. (389 335)

Final rept. on Task 1

AUTHOR: Durfee, Robert L., Contos, Gayaneh, Whitmore, Frank C.,
Barden, James D., Hackman, E. E. III

C6663L4 FLD: 06F, 06T, 13B, 68*, 57 GRAI7614

25 Feb 76 488p*

REPT NO: 474.1

CONTRACT: EPA-68-01-3259

MONITOR: EPA/560/6-76/005

ABSTRACT: This document presents the current state of knowledge about the production, usage, and distribution of polychlorinated biphenyls (PCBs) in the United States. The information presented is derived from detailed studies on the production and first tier user industries, the past and present generation and disposition of PCB-containing wastes, environmental transport and cumulative loads, potential alternatives to PCBs usage, inadvertent losses to and potential formation in the environment; and current regulatory authorities for PCBs control. These results indicated that, although PCBs content of industrial wastes can be reduced through various approaches (treatment, substitution, etc.), there exists a potentially severe future hazard in the form of large amounts of PCBs currently contained in land disposal sites. Further definition of this and other aspects of the PCBs problem, and determination of ways to minimize the hazard, are recommended.

DESCRIPTORS: *Environmental impacts, *Chlorine aromatic compounds, Hydraulics, Paper industry, Industrial wastes, Production, Utilization, Water pollution control, Air pollution control, Solid waste disposal, Incineration, Law enforcement, Chemical properties, Physical properties, Photochemical reactions, Manufacturing, Capacitors, Combustion products, Transformers, Casting, Heat transfer, Waste treatment, Carbon, Adsorbents(Materials), Ultraviolet radiation, Ozonation, Oxidation, Photodegradation, Earth fills, Phthalic acids, Alkylalton, Silicones, Fire safety, Effluents, Toxicology, Public health, DDT, Pesticides

IDENTIFIERS: Environmental chemical substitutes, *Biphenyl/chloro, Sanitary landfills, Polychlorinated biphenyls, NTISEPAORD

PB-252 012/0ST NTIS Prices: PC\$12.50/MF\$2.25

Report of the DDT Advisory Committee, September 1971

Environmental Protection Agency, Washington, D.C. Office of Pesticide Programs.

AUTHOR: Ruckelshaus, William D.

C6484J4 FLD: 06F, 06T GRAI7612

9 Sep 71 63p

REPT NO: EPA/540/5-71/004

MONITOR: 18

ABSTRACT: The DDT report deals with the following areas: use and residue estimates, analytical interference with the determination of DDT by polychlorinated biphenyls in the environment, toxicology, needs, and conclusions of the committee.

DESCRIPTORS: *DDT, *Insecticides, *Toxicity, *Pollution, Pesticides, Toxicology, Air pollution, Water pollution, Stream pollution, Environmental surveys

IDENTIFIERS: Pesticide residues, Environmental health,
*Biphenyl/chloro, Chlorine aromatic compounds, NTISEPAOPP

PB-251 570/8ST NTIS Prices: PC\$4.50/MF\$2.25

Development of a Study Plan for Definition of PCBS Usage, Wastes, and Potential Substitution in the Investment Casting Industry. Task III

Versar, Inc., Springfield, Va.*Environmental Protection Agency, Washington, D.C. Office of Toxic Substances. (389 335)

Final rept.

AUTHOR: Barden, James D., Durfee, Robert L.

C6492C1 FLD: 07A, 13B, 99B, 68A, 68D GRAI7612

Jan 76 41p

REPT NO: 474-3

CONTRACT: EPA-68-01-3259

MONITOR: EPA/560/6-76/007

See also report on Task 2, dated Jan 76, PB-251 433.

ABSTRACT: A study plan, designed to define the usage of polychlorinated biphenyls (PCBs) and terphenyls (PCTs) in the investment casting industry, was developed under the subject task. Current knowledge was reviewed and used as input to the study plan development. Methods of information gathering and data sources, as required to define industry scope and technology, wastes, and substitution technology, were also determined.

DESCRIPTORS: *Industrial plants, *Casting, Utilization, Industrial wastes, Public health, Air pollution, Water pollution, Terphenyls, Combustion products, Economics, Sampling, Water analysis, Gas analysis, Chlorine aromatic compounds, Investment casting

IDENTIFIERS: *Biphenyl/chloro, *Terphenyl/chloro, *Environmental chemical substitutes, NTISEPAOTS

PB-251 842/1ST NTIS Prices: PC\$4.00/MF\$2.25

Assessment of Wastewater Management, Treatment Technology, and Associated Costs for Abatement of PCBs Concentrations in Industrial Effluents. Task II

Versar, Inc., Springfield, Va.*Environmental Protection Agency, Washington, D.C. Office of Toxic Substances. (389 335)

Final rept.

AUTHOR: Contos, Gayaneh, Durfree, Robert L., Hackman, E. E. III, Price, Kenneth

C6482H1 FLD: 13B, 07A, 68D, 99B GRAI7612

30 Jan 76 282p

CONTRACT: EPA-68-01-3259

MONITOR: EPA/560/6-76/006

ABSTRACT: This document presents the findings of a study of available wastewater management and treatment technology for the purpose of determining toxic pollutant effluents concentrations and daily load achievable in three industrial categories: polychlorinated biphenyls (PCBs) manufacturing; capacitor manufacturing; and transformer manufacturing. All plants in the above categories have PCB discharges to either waterways or sewage treatment plants, under normal operating conditions. All plants have discharges to storm sewers or directly to waterways under heavy rainfall conditions. For scrap oils and burnable solid wastes generated at these plants, high temperature, controlled incineration offers a straightforward method of destruction, whereas scientific landfilling appears to be the best suited mode of disposal for nonburnable contaminated solids. Zero discharge objectives can be best achieved by eliminating discharge streams and developing recycle systems. All non-contact cooling water would be segregated, cooled, and recycled. All other wastewater streams would be pretreated. The portion of the pretreated water which would be used in the plant would be treated with carbon, while the excess water would be incinerated in a specially designed system which would allow for energy recovery. Supporting data, rationale for the selection of above recommended treatment technologies and associated costs are contained in this report. Even some on air pollution control is discussed along with the other pollution factors.

DESCRIPTORS: *Water pollution control, *Industrial waste treatment, *Sewage treatment, *Chlorine aromatic compounds, Chemical removal(Sewage treatment), Activated carbon treatment, Concentration(Composition), Adsorbents, Solid waste disposal, Incineration, Effluents, Capitalized costs, Operating costs, Capacitors, Ozonization, Ultraviolet radiation, Air pollution control, Cost estimates, Filtration, Chemical removal(Water treatment)

IDENTIFIERS: *Biphenyl/chloro, *Polychlorinated biphenyls, NTISEPAOTS

PB-251 433/9ST NTIS Prices: PC\$9.25/MF\$2.25

Sampling Survey Related to Possible Emission of Polychlorinated Biphenyls (PCBs) from the Incineration of Domestic Refuse

Environmental Protection Agency, Chicago, Ill. Region V.

AUTHOR: Timm, Christopher M.

C6475F1 FLD: 13B, 07D, 68A, 68C, 91A, 99A GRAI7612

Nov 75 53p

MONITOR: 18

ABSTRACT: During the three week period October 20-November 7, 1975, ambient and stack sampling for polychlorinated biphenyls (PCBs) were conducted at a domestic incinerator in an effort to quantify the levels of PCB emissions associated with the incineration of domestic refuse. The stack sampling was performed at an incinerator equipped with an electrostatic precipitator using a modified EPA Method 5 sampling train. Xylene was used as the solvent for any gaseous PCBs present in the effluent. Ambient sampling was conducted, upwind and downwind of the incinerator, using hexane as the solvent in duplicate sets of three impingers in series. It was concluded that the particulate emissions contain PCBs; however, the amount emitted does not result in a measurable increase in existing ambient levels of PCB; the presence of PCBs in the vapor state could not be established because of contamination in the xylene used as the solvent; and the use of hexane as the absorbing reagent is appropriate for ambient sampling.

DESCRIPTORS: *Air pollution, *Incinerators, *Solid waste disposal, Refuse disposal, Chlorine aromatic compounds, Monitoring, Gas sampling, Gas analysis, Electrostatic precipitation, Solvents, Hexanes, Xylenes, Sources

IDENTIFIERS: Polychlorinated biphenyls, *Biphenyl/chloro, *Air pollution sampling, NTISEPAG

PB-251 285/3ST NTIS Prices: PC\$4.50/MF\$2.25

Residue-Removal Methods for Pesticides and Industrial Chemicals Found
in Aquatic Environments

Virginia Polytechnic Inst. and State Univ., Blacksburg. Water
Resources Research Center.*Office of Water Research and Technology,
Washington, D.C.

AUTHOR: Young, Roderick W., Parr, O. D., Dickinson, Jean K.

C6471C4 FLD: 07D, 13B, 68D, 68E, 99A GRAI7612

Dec 75 24p

REPT NO: VPI-WRRC-Bull-90

PROJECT: OWRT-A-057-VA

MONITOR: OWRT-A-057-VA(1)

ABSTRACT: This research evaluated various methods that have been
advanced for separation of polychlorobiphenyls from chlorinated
pesticides, to see which were effective in detecting and removing
these residues often present in the aquatic environment. Preliminary
investigations also were made of a new approach, the silylation of
carbamates. Finally, a gas chromatographic (GLC) procedure for
chlorophacinone (CPN) was developed by brominating the parent
compound.

DESCRIPTORS: *Water pollution control, *Pesticides, *Chlorine aromatic
compounds, *Water analysis, Biphenyl, Chlorine aromatic compounds,
Carbamates, Gas chromatography, Chemical analysis, Extraction,
Separation, Industrial wastes, Hazardous materials, Silanes, Silicon
inorganic compounds, DDT, Bromination

IDENTIFIERS: *Biphenyl/chloro, Water pollution detection, Indan
dione/((p-chlorophenyl)phenylacetyl), Arochlors, *Polychlorinated
biphenyls, NTISDIOWRT

PB-250 747/3ST NTIS Prices: PC\$3.50/MF\$2.25

Statement of Concerns of the Lake Michigan Toxic Substances Committee
Related to Polychlorinated Biphenyls

Environmental Protection Agency, Chicago, Ill. Region V.

AUTHOR: Bremer, Karl E.

C6383K4 FLD: 13B, 06C, 08H, 68D, 98F GRAI7611

Jun 75 31p

MONITOR: 18

ABSTRACT: On May 22-23, 1975, a meeting of the Lake Michigan Toxic Substances Committee was called to discuss the concerns of the states and Federal agencies related to problems with polychlorinated biphenyls (PCBs). At the conclusion of this meeting a number of consensus conclusions were drawn and a recommendation was made to ban nationally all domestic and imported PCBs destined for use other than in transformers and capacitors and that even that use be critically reviewed in light of currently available or potential replacement products. This report presents evidence to support the conclusions drawn and the recommendation.

DESCRIPTORS: *Water pollution, *Fishes, *Toxicity, *Lake Michigan, Meetings, Biphenyl, Chlorine aromatic compounds, Concentration (Composition), Transformers, Indiana, Illinois, Michigan, Wisconsin, Capacitors

IDENTIFIERS: Biphenyl/chloro, *Water pollution effects (Animals), Aroclors, Polychlorinated biphenyls, NTISEPAG

PB-250 786/1ST NTIS Prices: PC\$4.00/MF\$2.25

Optimization and Evaluation of a Microelectrolytic Conductivity Detector for the Gas Chromatographic Determination of Pesticide Residues

Purdue Univ., Lafayette, Ind. Dept. of Entomology.*Health Effects Research Lab., Research Triangle Park, N.C.

Final rept.

AUTHOR: Hall, Randall C.

C6285F2 PLD: 14B, 13B, 99A, 68E GRAI7610

Jan 76 164p

CONTRACT: EPA-68-02-1703

MONITOR: EPA/600/1-76/012

ABSTRACT: A microelectrolytic conductivity detector has been optimized and evaluated for the determination of halogen, nitrogen, and sulfur-containing pesticide residues in water, soil and biological samples. The influence of detector operating parameters on detector sensitivity and specificity to model compounds was investigated. Specific parameters studied included furnace temperature, reaction gas, reaction gas flow-rate, conductivity solvent, conductivity solvent flow-rate, reactor contact material, and abstracting agents. Detection limits of representative pesticides were determined for a variety of sample types using optimized detector operating conditions.

DESCRIPTORS: *Insecticides, *Pesticides, *Gas detectors, *Water analysis, *Soil analysis, *Gas chromatography, Monitoring, Water pollution, Sensitivity, Chemical analysis, Residues, Aldrin, Halogen organic compounds, Halogen inorganic compounds, Sulfur organic compounds, Sulfur inorganic compounds, Tissues(Biology), Nitrogen organic compounds, Nitrogen inorganic compounds, Conductivity, Heptachlor, Dieldrin

IDENTIFIERS: *Microelectrolytic conductivity detectors, Biphenyl/chloro, Lindane, NTISEPAORD

PB-250 451/2ST NTIS Prices: PC\$6.75/MF\$2.25

Compilation of State Data for Eight Selected Toxic Substances. Volume
V. Monitoring Program Capability Descriptor Tables

Mitre Corp., McLean, Va.*Environmental Protection Agency, Washington,
D.C. Office of Toxic Substances. (402 364)

Final rept.

AUTHOR: Roberts, Elisabeth, Spewak, R., Stryker, S., Tracey, S.

C5945G4 FLD: 06T, 06F, 57Y, 57H, 68 GRAI76C6

Sep 75 314p*

REPT NO: MITRE-75-52-Vol-5

CONTRACT: EPA-68-01-2933

MONITOR: EPA/560/7-75/001-5

Paper copy also available in set of 5 reports as PB-248 659-SET,
PC\$36.00.

ABSTRACT: The volume comprises 160 charts which summarize state agency
toxic substances monitoring capabilities by state, substance, and
agency for 25 monitoring program descriptors.

DESCRIPTORS: *Environmental surveys, Data, Tables(Data), States(United
States), Monitors, Sampling, Arsenic, Beryllium, Cadmium, Cyanides,
Lead(Metal), Mercury(Metal), Chloride aromatic compounds, Toxicology,
Water pollution, Air pollution, Chemical compounds

IDENTIFIERS: *State agencies, *Toxic agents, Biphenyl/chloro,
NTISEPAOTS

PB-248 664/5ST NTIS Prices: PC\$9.75/MF\$2.25

Compilation of State Data for Eight Selected Toxic Substances. Volume I

Mitre Corp., McLean, Va.*Environmental Protection Agency, Washington, D.C. Office of Toxic Substances. (402 364)

Final rept.

AUTHOR: Roberts, Elisabeth, Spewak, R., Stryker, S., Tracey, S.

C5945F4 FLD: C6T, 06F, 57Y*, 57H, 68* GRAI7606

Sep 75 165p*

REPT NO: MITRE-75-52-Vol-1

CONTRACT: EPA-68-01-2933

MONITOR: EPA/560/7-75/001-1

Paper copy also available in set of 5 reports as PB-248 659-SET, PC\$36.00.

ABSTRACT: In June 1974, toxic substances data in the U.S. was collected and analyzed in 20 key states. This report describes that effort and discusses the amount, type and usefulness of the data and the toxic substances monitoring capabilities of the state agencies contacted.

DESCRIPTORS: *Environmental surveys, States(United States), Monitors, Toxicology, Arsenic, Beryllium, Cadmium, Cyanides, Lead(Metal), Mercury(Metal), Chlorine aromatic compounds, Data acquisition, Data processing, Water pollution, Air pollution, Chemical compounds

IDENTIFIERS: *Toxic agents, Biphenyl/chloro, State agencies, NTISEPAOTS

PB-248 660/3ST NTIS Prices: PC\$6.75/MF\$2.25

Compilation of State Data for Eight Selected Toxic Substances. Volume
II. Directory of State Toxic Substances Monitoring Agencies

Mitre Corp., McLean, Va.*Environmental Protection Agency, Washington,
D.C. Office of Toxic Substances. (402 364)

Final rept.

AUTHOR: Roberts, Elisabeth, Spewak, R., Stryker, S., Tracey, S.

C5945G1 FLD: 06T, 06F, 57Y, 57H, 68 GRAI7606

Sep 75 28p*

REPT NO: MITRE-75-52-Vol-2

CONTRACT: EPA-68-01-2933

MONITOR: EPA/560/7-75/001-2

Paper copy also available in set of 5 reports as PB-248 659-SET,
PC\$36.00.

ABSTRACT: The appendix is a listing of key points-of-contact, phone
numbers, agencies, and addresses, for each agency in the 20 states
contacted which monitored toxic substances.

DESCRIPTORS: *Environmental surveys, *Directories, Data, States (United
States), Monitors, Arsenic, Beryllium, Cadmium, Cyanides, Lead (Metal),
Mercury (Metal), Chlorine aromatic compounds, Toxicology, Chemical
compounds, Water pollution, Air pollution

IDENTIFIERS: *State agencies, *Toxic agents, Biphenyl/chloro,
Appendices, NTISEPAOTS

PB-248 661/1ST NTIS Prices: PC\$4.00/MF\$2.25

Compilation of State Data for Eight Selected Toxic Substances. Volume
III. Annotated Bibliography of State Data and Information Sources

Mitre Corp., McLean, Va.*Environmental Protection Agency, Washington,
D.C. Office of Toxic Substances. (402 364)

Final rept.

AUTHOR: Roberts, Elisabeth, Spewak, R., Stryker, S., Tracey, S.

C5945G2 FLD: 06T, 06F, 57Y, 57H, 68 GRAI7606

Sep 75 40p*

REPT NO: MITRE-75-52-Vol-3

CONTRACT: EPA/68-01-2933

MONITOR: EPA/560/7-75/001-3

Paper copy also available in set of 5 reports as PB-248 659-SET,
PC\$36.00.

ABSTRACT: The appendix is a cross-reference bibliography by state and
by substance of every body of data and report collected from the state
agencies in the course of the project.

DESCRIPTORS: *Bibliographies, States(United States), Data, Sources,
Arsenic, Beryllium, Cadmium, Cyanides, Lead(Metal), Mercury(Metal),
Chlorine aromatic compounds, Toxicology, Chemical compounds, Water
pollution, Air pollution

IDENTIFIERS: *Toxic agents, Biphenyl/chloro, Appendices, State
agencies, NTISEPAOTS

PB-248 662/9ST NTIS Prices: PC\$4.00/MF\$2.25

Compilation of State Data for Eight Selected Toxic Substances. Volume
IV. Compilation of Summaries and Analyses of State Data

Mitre Corp., McLean, Va.*Environmental Protection Agency, Washington,
D.C. Office of Toxic Substances. (402 364)

Final rept.

AUTHOR: Roberts, Elisabeth, Spewak, R., Stryker, S., Tracey, S.

C5945G3 FLD: 06T, 06F, 57Y, 57H, 68 GRAI7606

Sep 75 663p*

REPT NO: MITRE-75-52-Vol-4

CONTRACT: EPA-68-01-2933

MONITOR: EPA/560/7-75/001-4

Paper copy also available in set of 5 reports as PB-248 659-SET,
PC\$36.00.

ABSTRACT: The appendix contains all the summaries and analyses of
state agency data that were presented in the four quarterly reports
during the course of the project.

DESCRIPTORS: *Environmental surveys, States(United States), Data
processing, Arsenic, Beryllium, Cadmium, Cyanides, Lead(Metal),
Mercury(Metal), Chloride aromatic compounds, Toxicology, Water
pollution, Air pollution, Chemical compounds

IDENTIFIERS: State agencies, *Toxic agents, Biphenyl/chloro,
Appendices, NTISEPAOTS

PB-248 663/7ST NTIS Prices: PC\$16.25/MF\$2.25

Investigation of Selected Potential Environmental Contaminants:
Chlorinated Paraffins

Syracuse Univ. Research Corp., N.Y. Life Sciences Div.*Environmental
Protection Agency, Washington, D.C. Office of Toxic Substances. (407
456)

Final rept.

AUTHOR: Howard, Philip H., Santodonato, Joseph, Saxena, Jitendra
C5945C1 FLD: 13B, 06J, 06T, 68*, 68A, 68G, 57Y*, 57U, 99, 68D
GRAI7606

Nov 75 122p*

REPT NO: SURC-TR-75-622

CONTRACT: EPA-68-01-3101

MONITOR: EPA/560-2-75-007

See also report dated Sep 75, PB-246 356.

ABSTRACT: This report reviews the potential environmental hazard from
the commercial use of chlorinated paraffins. Chlorinated paraffins, in
most cases, contain 10 to 30 carbon atoms and a chlorine content of
40-70%. They are used as lubricating oil additives, secondary
plasticizers, and flame retardants. Information on physical and
chemical properties, production methods and quantities, commercial
uses and factors affecting environmental contamination, as well as
information related to health and biological effects, are reviewed.

DESCRIPTORS: *Pollution, *Chlorohydrocarbons, *Environmental surveys,
*Toxicology, *Industrial medicine, *Chlorine aliphatic compounds,
Physical properties, Hydrolysis, Photochemistry, Manufacturing,
Storage, Materials handling, Waste disposal, Public health,
Degradation, Photolysis, Physiological effects, Industrial atmospheres
, Hazardous materials, Industrial hygiene, Accumulation, Air pollution
, Exposure, Anesthetics, Water pollution, Reviews, Regulations,
Standards, Chemical properties, Invertebrates, Microorganisms, Animals
, Birds, Public health, Humans, Carcinogens, Plants(Botany),
Monitoring, Composition(Property), Plasticizers, Lubricating oils

IDENTIFIERS: Occupational safety and health, Toxic hazards, *Air
pollution effects(Humans), *Air pollution effects(Animals), Air
pollution detection, Biphenyl/Chloro, Feedstocks, NTISEPAOTS

PB-248 634/8ST NTIS Prices: PC\$5.50/MF\$2.25

PCB In Water. A Bibliography. Volume 2.

Office of Water Research and Technology, Washington, D.C. Water Resources Scientific Information Center.

C59411L2 FLD: 13B, 06F, 07D, 08A, 68D*, 99A, 47D, 57H GRAI7606

Dec 75 295p*

REPT NO: OWRT/WRSIC-75-208, W76-02371

MONITOR: 18

See also PB-217 859.

ABSTRACT: This report, containing 177 abstracts, is another in a series of planned bibliographies in water resources produced from the information base comprising SELECTED WATER RESOURCES ABSTRACTS (SWRA). At the time of search for this bibliography, the data base searched had 39,106 abstracts covering SWRA from January, 1973 (Volume 6, Number 1) through October, 1975 (Volume 8, Number 20). Author and subject indexes are included. (See also W73-06501.)

DESCRIPTORS: *Bibliographies, *Water pollution, *Pesticides, Abstracts, Chemical analysis, Biochemistry, Toxicity, Industrial wastes, Aquatic animals, Food chains, Chlorohydrocarbons, Public health, DDT, Separation, Chromatography, Oceans, Marine biology

IDENTIFIERS: *Biphenyl/chloro, *Chlorine aromatic compounds, Pollutant identification, *Polychlorinated biphenyls, NTISDIOWRT

PB-248 141/4ST NTIS Prices: PC\$9.25/MF\$2.25

NIOSH Analytical Methods for Set I

Stanford Research Inst., Menlo Park, Calif.*National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (332 500)

C5614I3 FLD: C7D, 06J, 99A, 57U, 68G GRAI7601

Oct 75 100p*

CONTRACT: HEW-CDC-99-74-45

MONITOR: NIOSH-SCP-I

See also PB-246 151 and PB-246 153.

ABSTRACT: Industrial Hygiene sampling and analytical monitoring methods validated under the joint NIOSH/OSHA Standards Completion Program for Set I are contained herein. Monitoring methods for the following compounds are included: Acetylene tetrabromide, Chlorobenzene, 1,1-Dichloroethane, 1,1,2,2-tetrachloro-1,2-difluoroethane, 1,1,1,2-tetrachloro-2,2-difluoroethane, 1,1,2,2-tetrachloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane, 1,2,3-trichloropropane, Trifluoromonomobromomethane, Allyl chloride, Chlorodiphenyl (54% chlorine), and Epichlorohydrin.

DESCRIPTORS: *Chemical analysis, *Gas analysis, *Gas sampling, *Industrial hygiene, *Halohydrocarbons, Chlorine aliphatic compounds, Fluorine aliphatic compounds, Chlorobenzenes, Epichlorohydrin, Allyl chloride, Air pollution.

IDENTIFIERS: *Occupational safety and health, Indoor air pollution, Acetylene/tetrabromo, Benzene/chloro, Ethane/difluoro-tetrachloro, Ethane/tetrachloro, Ethane/trichloro-trifluoro, Propane/trichloro, Biphenyl/chloro, NTISHEWOSH

PB-246 152/3ST NTIS Prices: PC\$5.00/MF\$2.25

Toxic Substances

Council on Environmental Quality, Washington, D.C.
C5605G2 FLD: 13B, 68, 68A, 68D GRAI7601
Apr 71 36p
MONITOR: 18

ABSTRACT: The report speaks of toxic substances, specifically metals and their compounds and synthetic organic compounds. It briefly describes each substance and traces its path through the environment. Each substance's interaction with and effect on the environment is discussed. It deals extensively with technological and legal controls and suggests a new system for dealing with the problem.

DESCRIPTORS: *Metals, *Pollution, *Environmental surveys, Toxicology, Contaminants, Water pollution, Pesticides, Lead(Metal), Cadmium, Mercury(Metal), Vanadium, Air pollution, Air pollution control, Water pollution control

IDENTIFIERS: *Toxic Substances Control Act, Toxic agents, Acetic acid/nitrilo-tri, Benzene/chloro-nitro, Biphenyl/chloro, Polychlorobiphenyls, NTISEPAL, NTISEXCEQ

PB-245 378/5ST NTIS Prices: PC\$4.00/MF\$2.25

Pesticides in the Illinois Waters of Lake Michigan

Illinois State Environmental Protection Agency, Springfield. *Environmental Protection Agency, Washington, D.C. Office of Research and Development.

Research rept.

AUTHOR: Schacht, Robert A.

C5392I2 FLD: 13B, 06C, 57H, 68E, 98F, 68D GRAI7524

Jan 74 52p

PROJECT: EPA-16050-ESP

MONITOR: EPA/660/3-74/002

ABSTRACT: The study was initiated to determine present levels of pesticides in Lake Michigan fish, sediments, and water. Data was collected on six species of Lake Michigan fish (yellow perch, chubs, carp, coho salmon, alewife, and brown trout); open lake and tributary stream and ravine sediments; and open water, tributary stream, and sewage treatment plant effluents. Samples analyzed for pesticides were selected from the following list: Heptachlor, heptachlor epoxide, dieldrin, methoxychlor, lindane, aldrin, endrin, DDT and its analogs. Additional analyses were accomplished for polychlorinated biphenyls (PCB's), di-n-butyl phthalate (DBP), and di(2-ethylhexyl) phthalate (DOP). The data indicate that PCB's were found at levels as high or higher than DDT in Lake Michigan water, sediment, and fish.

DESCRIPTORS: *Water pollution, *Pesticides, *Lake Michigan, Residues, Fishes, Sediments, Water supply, Chlorohydrocarbons, Biphenyl, Dieldrin, Organic compounds, Sampling, Endrin, DDT, Salmon, Trout, Perch, Water quality, Carp

IDENTIFIERS: Biphenyl/chloro, Pesticide residues, NTISEPAORD

PB-245 150/8ST NTIS Prices: PC\$4.25/MF\$2.25

Hazardous Emission Characterization of Utility Boilers

Midwest Research Inst., Kansas City, Mo.*National Environmental
Research Center, Research Triangle Park, N.C. Control Systems Lab. (230 350)

Final rept. Nov 73-Jul 75

AUTHOR: Cowherd, Chatten Jr, Marcus, Mark, Guenther, Christine M.,
Spigarelli, James L.

C5391A2 FLD: 13B, 68A, 97 GRAI7524

Jul 75 185p

CONTRACT: EPA-68-02-1324

PROJECT: EPA-ROAP-21AUZ-002

MONITOR: EPA/650/2-75/066

ABSTRACT: The report gives results of a field sampling program aimed at quantifying potentially hazardous pollutants in the waste streams of a representative coal-fired utility boiler: a 125-MW boiler (fired with pulverized coal and equipped with a mechanical fly ash collector) at TVA'S Widows Creek steam electric generating station. The combustion products identified as potentially hazardous air pollutants included 22 trace elements, nitrates, sulfates, polycyclic organic compounds, and polychlorinated biphenyls. The waste streams sampled included pulverized coal, furnace bottom ash, superheater ash, collection ash, and flue gases at the fly ash collector inlet and outlet. Acceptable mass balance was achieved for about half of the elemental pollutants. Trace metal enrichment was measured. Study results include recommended modifications of sample collection and preparation methods: larger and more frequent samples of coal and bulk ash streams are expected to improve sample representativeness; development of methodologies for estimating bulk ash flows will permit internal checks on mass balances; and routine chemical analysis of NBS standard coal and fly ash will improve quality assurance of the analytical methods.

DESCRIPTORS: *Air pollution, *Boilers, *Combustion products, *Industrial wastes, *Electric power plants, Coal, Hazards, Trace elements, Inorganic nitrates, Sulfates, Concentration(Composition), Polycyclic aromatic hydrocarbons, Halohydrocarbons, Fly ash, Gas sampling

IDENTIFIERS: Biphenyl/chloro, Stationary sources, NTISEPAORD

PB-245 017/9ST NTIS Prices: PC\$7.00/MF\$2.25

Development of Sampling Procedures for Polycyclic Organic Matter and Polychlorinated Biphenyls

Langston Labs., Inc., Leawood, Kans.*Environmental Protection Agency, Washington, D.C. Office of Research and Development.

Final rept.

AUTHOR: Hermann, T. S.

C5173C1 FLD: 07D, 99A, 68A GRAI7521

Aug 74 110p

CONTRACT: EPA-68-02-1255

MONITOR: EPA/650/2-75/007

ABSTRACT: After a review of the most promising sampling trains for collecting PCB, BAP and other POM from stationary sources, a decision was made to evaluate the EPA Method 5 train, a train with a cartridge filter and a train developed by Hangebrauck, Von Lehmden and Meeker. Arochlor 1242, pyrene, anthracene, benzo (alpha) pyrene, benzo (alpha) anthracene and coronene were selected to determine collection efficiencies. Based on the results from laboratory evaluations, a modified train was developed and subjected to further studies. The results of critical laboratory and field experiments indicate the sampling train developed on this program could be used to efficiently and conveniently collect BAP, POM, and PCB's simultaneously. In the field studies POM materials were detected, identified and quantified in emissions from several stationary sources, including incinerators, a coal burning steam generating plant and a charcoal burning restaurant.

DESCRIPTORS: *Pyrenes, *Samples, *Particles, *Air pollution sampling, *Polycyclic compounds, *Gas sampling, Chlorine aromatic compounds, Gas chromatography, Gas analysis

IDENTIFIERS: *Biphenyl/chloro, Benzopyrenes, Stationary sources, Carcinogens, Impingers, NTISEPAORD

PB-243 362/1ST NTIS Prices: PC\$5.25/MF\$2.25

Experiments on Some Possible Effects of Tire Reefs on Pinfish '*Logodon rhomboides*' and Black Sea Bass '*Centropristis striata*'

National Marine Fisheries Service, Beaufort, N.C. Atlantic Estuarine Fisheries Center.

AUTHOR: Stone, R. B., Coston, L. C., Hoss, D. E., Cross, F. A.

C5164C3 FLD: 13B, 06C, 86Q GRAI7521

Mar 75 4p

REPT NO: MFR-Paper-1128

MONITOR: NOAA-75042901-3

Included in Marine Fisheries Review, v37 n3 p18-20 Mar 75.

ABSTRACT: A simulated tire reef was constructed in a 2,000-liter circular fiberglass tank to determine if pollutants would leach from the tires and affect pinfish (*Logodon rhomboides*) or black sea bass (*Centropristis striata*), two fishes commonly associated with artificial reefs on the Atlantic and Gulf Coasts of the United States. Periodic samples of these fishes from both control and experimental tanks showed no significant increase in concentrations of zinc, organochlorine insecticides, or polychlorinated biphenyls (PCB's) in either pinfish or black sea bass.

DESCRIPTORS: *Water pollution, *Reefs, *Marine fishes, Tires, Bass, Leaching, Coasts, Zinc, Insecticides, Chlorine organic compounds, Biphenyl, Chlorohydrocarbons, Atlantic Coast(United States), Gulf Coast(United States)

IDENTIFIERS: *Artificial reefs, *Logodon rhomboides*, *Centropristis striata*, Water pollution effects(Animals), NTISCOMNOA

COM-75-50185-03-03/ST NTIS Prices: (Order as COM-75-50185-03)

Chlorinated Hydrocarbons in the Lake Ontario Ecosystem (IFYGL)

Wisconsin Univ., Madison. Water Chemistry Program.*National Environmental Research Center, Corvallis, Oreg.

Final rept.

AUTHOR: Haile, C. L., Veith, G. D., Lee, G. F., Boyle, W. C.

C5053H1 FLD: 06F, 08H, 57H, 68D, 68E USGRDR7519

Jun 75 35p

GRANT: EPA-R-800608

MONITOR: EPA/660/3-75-022

Paper copy also available from GPO.

ABSTRACT: Lake Ontario fish, water, sediment, net plankton, Cladophora, and benthos were examined for DDT group pesticides, dieldrin, and PCBs. Endrin, BHC group pesticides, and heptachlor were also identified in some fish samples. Average concentrations ranged from 28 ng/l (t-DDT), 4.8 ng/l (dieldrin), and 55 ng/l (PCBs as Aroclor 1254 equivalent) for water to 1.40 micrograms/g (t-DDT), 0.07 micrograms/g (dieldrin), and 5.15 micrograms/g (PCBs) for whole fish. DDE levels were generally similar to t-DDT values. PCB/t-DDT ratios averaged 2.6 for all samples except for sediment (7.0) and benthos (5.3).

DESCRIPTORS: *Lake Ontario, *Chlorohydrocarbons, *Pesticides, Ecology, Fishes, Plankton, Sediments, Tables(Data), Recommendations, Lakes, Dieldrin, Chlorine aromatic compounds, Algae, Benthos

IDENTIFIERS: *Ecosystems, *Water pollution effects(Animals), Biphenyl/chloro, Cladophora, NTISEPAORD

PB-243 364/7ST NTIS Prices: PC\$3.75/MF\$2.25

Extraction and Separation of Polychlorinated Biphenyls from Pesticide Monitoring Samples

Army Environmental Hygiene Agency Aberdeen Proving Ground Md (038150
)

Entomological special study

AUTHOR: Heller, Jack M.

C4874E4 FLD: 7D, 6F, 99A, 68E USGRDR7517

15 Apr 75 10p

REPT NO: USAEHA-44-042-74/75

MONITOR: 18

ABSTRACT: A new method was tested for the removal of polychlorinated biphenyls (PCB's) from biological samples. These industrial chemicals are ubiquitous in biological samples such as fish and bird adipose tissue. Based on retention characteristics they can easily be misidentified as organochlorine pesticides. The PCB's are partially or completely recovered from a Florisil column using the multiresidue methodology for organochlorine pesticides. A silic acid column was spiked with a solution of 4 PCB's and 11 insecticides. Performance of the method was judged by percent recovery of pesticides along with their complete separation from the PCB's and p,p-DDE. The method performed well with respect to the above-mentioned criteria.

DESCRIPTORS: *Ccolumn chromatography, *Chromatography, Chlorine compounds, Body fluids, Tissues(Biology), Extraction, Separation, Pesticides, Test methods

IDENTIFIERS: *Biphenyl/chloro, *Chlorine aromatic compounds, Evaluation, NTISDODA

AD-A011 242/5ST NTIS Prices: PC\$3.25/MF\$2.25

Accumulation of Dietary Polychlorinated Biphenyls (Aroclor 1254) by Rainbow Trout ('Salmo gairdneri')

Oregon State Univ., Corvallis. Dept. of Food Science and Technology.*National Oceanic and Atmospheric Administration, Rockville, Md. Office of Sea Grant. (272 265)

AUTHOR: Lieb, Andrew J., Bills, Donald D., Sinnhuber, Russell O.

C4715I4 FLD: 06T, 57Y, 98F, 86M USGRDR7514

4 Oct 73 8p

REPT NO: ORESU-R-74-011

GRANT: NOAA-04-3-158-4

MONITOR: NOAA-75040716

Also pub. as Oregon State Univ., Corvallis. Agricultural Experiment Station, Technical Paper-3672. Pub. in Agricultural and Food Chemistry, v22 n4 p638-642 1974.

ABSTRACT: The accumulation of PCB's (Aroclor 1254) by a Mt. Shasta strain of rainbow trout (*Salmo gairdneri*) from a dietary level of 15 ppm was determined using a gas chromatograph equipped with an electron capture detector. The relative concentration (parts per million) of PCB's in the fish stabilized while absolute quantities (micrograms of PCB/fish) increased as the fish grew. The total retention of PCB's from the diet was 68% for a 32-week feeding period. The distribution of PCB's was fairly constant in the lipid portion of various tissues. PCB's did not appear to be eliminated from the trout after PCB exposure ceased even when the fish were starved. The fish did not appear to be adversely affected by the PCB's and no mortalities were attributed to PCB toxicity.

DESCRIPTORS: *Trout, *Toxicology, Fishes, Chlorine aromatic compounds, Gas chromatography, Lipids, Physiological effects, Metabolism, Diets, Food chains

IDENTIFIERS: Reprints, *Salmo gairdneri*, Sea Grant program, *Biphenyl/chloro, Bioaccumulation, NTISCOMNOA

COM-75-10547/8ST NTIS Price: PC\$3.25

Identification and Determination of Trace Amounts of Organic and Inorganic Contaminants in the Delaware River and Bay and the Fresh Water Lakes of Delaware

Delaware State Coll., Dover. Dept. of Chemistry.*Office of Water Research and Technology, Washington, D.C.

Completion rept. Jul 71-Jun 74

AUTHOR: Seidel, George R., Wilkinson, Donald

C4662H4 FLD: 13B, 68D USGRDR7513

Nov 74 29p

CONTRACT: DI-14-31-0001-3508, DI-14-31-0001-3808

PROJECT: OWRT-A-019-DEL

MONITOR: OWRT-A-019-DEL(1)

ABSTRACT: The waters and bottom water of Delaware River and Bay and fresh water bodies were analyzed for chlorinated insecticides and metallic ions. The results of the analysis are included in the report.

DESCRIPTORS: *Water pollution, *Trace elements, *Insecticides, *Delaware River, *Delaware Bay, Inorganic compounds, Chlorohydrocarbons, Organic compounds, Chlorine aromatic compounds, Biphenyl, Mass spectroscopy

IDENTIFIERS: NTISDIOWRT

PB-241 059/5ST NTIS Prices: PC\$3.75/MF\$2.25

The Effects of PCB's and Selected Herbicides on the Biology and Growth of 'Platymonas subcordiformis' and Other Algae

Maine Univ., Orono. Land and Water Resources Inst.*Office of Water Resources Research, Washington, D.C.

Project completion rept. 1 Jul 72-30 Jun 73

AUTHOR: Vadas, Robert L.

C4662H1 FLD: 06F, 13B, 57P, 68E, 68D USGRDR7513

30 Jun 73 38p

REPT NO: 2-74

PROJECT: OWRR-A-027-ME

MONITOR: OWRR-A-027-ME(1)

ABSTRACT: Growth rates and carrying capacities for *Platymonas subcordiformis* were determined using various concentrations of the PCB, Aroclor 1254, and the organophosphate, Malathion. Growth was slightly and completely inhibited by 100 and 1000 ppb respectively of Aroclor 1254. With Malathion growth inhibition was temporary or complete at 50 ppm or greater. At alkaline pH's the recovery of growth, especially at 50 ppm, took 3 to 5 days. At higher concentrations of Malathion recovery took longer if occurring at all. The inhibitory effects of Malathion, Aroclor, and chlorinated hydrocarbons are modified by inoculum densities, phase of algal growth at which the substance is added and in the case of the former possibly by the pH of the media.

DESCRIPTORS: *Algae, *Herbicides, Pesticides, Plants(Botany), Chlorine aromatic compounds, Growth, Phosphorus organic compounds, Malathion, pH, Chlorohydrocarbons, Inhibitors, Water pollution

IDENTIFIERS: *Platymonas subcordiformis*, Biphenyl/chloro, NTISDIOWRT

PB-241 056/1ST NTIS Prices: PC\$3.75/MF\$2.25

Theoretical Model and Solubility Characteristics of Aroclor (Trade Mark) 1254 in Water: Problems Associated with Low-Solubility Compounds in Aquatic Toxicity Tests

National Environmental Research Center, Corvallis, Oreg.

Final rept.

AUTHOR: Schoor, W. Peter

C4525B4 FLD: 07D, 99F, 68D USGRDR7511

Sep 74 38p

REPT NO: EPA-660/3-74-013

MONITOR: 18

ABSTRACT: A theoretical model of the behavior of substances having low water-solubility is presented and discussed with respect to aqueous bioassay. Ultracentrifugal techniques were used in an attempt to study size distributions of Aroclor 1254 aggregates in aqueous emulsions. Results indicate strong adsorption from emulsion by surfaces and a water-solubility at 20C of less than 0.1 microgram/l in distilled water and approximately 40% of that value in water containing 30 g/l NaCl. Implications with regard to aqueous bioassay are discussed.

DESCRIPTORS: *Chlorine aromatic compounds, *Solubility, *Water chemistry, Colloids, Emulsions, Adsorption, Water pollution

IDENTIFIERS: *Biphenyl/chloro, Aroclor 1254, NTISEPAORD

PB-240 550/4ST NTIS Prices: PC\$3.75/MF\$2.25

Chlorinated Hydrocarbons in the Sargasso Sea Atmosphere and Surface Water

Rhode Island Univ., Kingston. Dept. of Food and Resource Chemistry.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration.

AUTHOR: Bidleman, T. F., Olney, C. E.

C4521E1 FLD: 04A, 08J, 68A, 68D USGRDR7511

Aug 73 5p

GRANT: NSF-GX-33777

MONITOR: NSF/IDOE-75-8

Also pub. as Rhode Island Agricultural Experiment Station, Contrib-1500.

Pub. in Science, v183 p516-518, 8 Feb 74.

ABSTRACT: Polychlorinated biphenyls (PCB), DDT, and chlordane concentrations were measured in air sampled from a tower on the south shore of Bermuda and in Sargasso Sea surface water approximately 80 to 320 kilometers south of Bermuda. The atmospheric chlorinated hydrocarbons appeared to be gaseous, and the DDT concentration was two orders of magnitude higher than previously reported particulate values. The PCB and DDT were enriched in the surface microlayer (150 micrometers) relative to their concentrations in water at a depth of 30 centimeters. Atmospheric residence times for PCB and DDT of 40 to 50 days, calculated from the concentrations in the air and water, are 20 times shorter than values previously estimated for DDT from rainfall and DDT production data.

DESCRIPTORS: *Chlorine aromatic compounds, *Air pollution, *Atmospheric composition, *Water pollution, Air water interactions, Sea water, Bermuda, DDT, Chlordon

IDENTIFIERS: Residence time, Biphenyl/chloro, Reprints, NTISIDOE, NTISNSF

PB-239 980/6ST NTIS Prices: Not available NTIS

The Fate of Select Pesticides in the Aquatic Environment

Illinois Univ., Urbana.*National Environmental Research Center,
Corvallis, Oreg.*Illinois State Natural History Survey, Urbana. (175
750)

Ecological research series (Final)

AUTHOR: Sanborn, James R.

C4461B2 FLD: 06F, 13B, 68E, 68D, 57H, 48E USGRDR7510

Dec 74 93p

GRANT: EPA-R-800736

MONITOR: EPA/660/3-74-025

Paper copy available from GPO, Stock no. 5501-00995.

ABSTRACT: In this study, 17 organic pesticides and five industrial chemicals were examined in a terrestrial-aquatic model ecosystem in an effort to determine their persistence and accumulation by the organisms of this system. Several classes of pesticides are represented as one or more insecticides, herbicides, miticides or plasticizers were investigated in this system. The use of this system for examining uptake and persistence of widely used agricultural chemicals provides the necessary data for comparison of field data to provide a framework which can be used to assess the potential environmental impact of new pesticides before they are given a recommendation for generalized use. The data obtained from this work suggest that this model ecosystem is useful for the determination of the uptake and persistence of pesticides by the organisms. In general, it was found that most chemicals, with the exception of the persistent soil insecticide, dieldrin, underwent extensive degradation under the experimental conditions of the system.

DESCRIPTORS: *Pesticides, *Biodeterioration, *Water pollution, *Soil chemistry, Fungicides, Accumulation, Residues, Herbicides, Insecticides, Culicidae, Daphnia, Algae, Chemical composition, Soil chemistry, Decomposition, Fishes, Snails, Carbamates, Chlorine aliphatic compounds, Chlorine aromatic compounds, Parathione, Soil microorganisms

IDENTIFIERS: *Ecosystems, Water pollution effects (Animals), *Pesticide residues, Bux Ten insecticide, Carbaryl, Carbofuran, Dieldrin, Lindane, Biphenyl/chloro, Orthene, Alachlor, Propachlor, Bladex, Bentazon, Dicamba, D 2-4 herbicide, Pyrazon, Trifluralin, NTISEPAORD

PB-239 749/5ST NTIS Prices: PC-GPO/MF\$2.25-NTIS

Report to International Joint Commission, United States and Canada.
Great Lakes Water Quality Status of Pertinent EPA Research

National Environmental Research Center, Corvallis, Oreg.
AUTHOR: Bartsch, A. F., Frank, Charles L., Peterson, Spencer
C4391D2 FLD: 13B, 68D USGRDR7509
Dec 74 22p
REPT NO: EPA/660/9-74-002
MONITOR: 18

ABSTRACT: The report summarizes major segments of research activities that the U.S. Environmental Protection Agency has completed or now has under way that relate to nitrilotriacetate, viruses, disinfection of municipal wastewater and the effects of polychlorinated biphenyls on fish and fish products. The summary highlights research areas which may have impact on objectives of the International Joint Commission and recommended in its 1973 annual report and should not be considered inclusive of all activities presently funded by EPA in the above subject areas.

DESCRIPTORS: *Water pollution, *Great Lakes, Water quality, Viruses, Biphenyl, Chlorine aromatic compounds, Acetic acid, Municipalities, Waste water, Disinfection, Fishes, Toxicity, Potable water

IDENTIFIERS: Biphenyl/chloro, Acetic acid/nitrilo-tri, NTISEPAERC

PB-239 260/3ST NTIS Prices: PC\$3.25/MF\$2.25

Sublethal Effects of Oil, Heavy Metals and PCBs on Marine Organisms

Texas A and M Univ., College Station. Dept. of Biology.*National Science Foundation, Washington, D.C. Office for the International Decade of Ocean Exploration. (402 267)

AUTHOR: Anderson, J. W., Neff, J. M., Petrocelli, S. R.

C4165K2 FLD: 06F, 08A, 57H, 48A, 68D USGRDR7506

1974 48p

GRANT: NSF-GX-37344,

NSF-GX-37347

MONITOR: NSF/IDOE-74-37

Presented at a Symposium Organized by the American Society of Zoologists Entitled The Mechanisms of Survival in Toxic Environments, held at Academic Press on December, 1974.

ABSTRACT: The review describes what has been and is now being done in the study of the sublethal effects of three major classes of pollutants commonly found in the estuarine environment. Heavy metals and chlorinated hydrocarbons are in general accumulated to a greater extent and bound to organisms much more firmly than petroleum hydrocarbons. Retention of petroleum derived hydrocarbons by animals in clean water may vary from several days to approximately two months, and is species dependent. The class of petroleum hydrocarbons accumulated to the greatest extent and retained the longest is the 'Naphthalenes'. Inorganic mercury, Aroclor 1254 and petroleum hydrocarbons have been shown to effect the respiratory rate and chloride ion regulation of selected marine animals. There is some indication that the levels of petroleum hydrocarbons in the animal tissues may act to temporarily alter the regulatory ability of the test individuals.

DESCRIPTORS: *Water pollution, *Aquatic animals, *Metals, *Oils, *Chlorohydrocarbons, Hydrocarbons, Bays, Estuaries, Naphthalene, Iron, Cadmium, Manganese, Cobalt, Zinc, Mercury(Metal), Toxicity

IDENTIFIERS: *Water pollution effects(Animals), Oil pollution, International Decade of Ocean Exploration, Biphenyl/chloro, NTISIDOE

PB-238 514/4ST NTIS Prices: PC\$3.75/MF\$2.25

Pesticide Residue Analysis in Water (103.1) Training Manual

Environmental Protection Agency, Cincinnati, Ohio. Office of Water Program Operations.

Final rept.

AUTHOR: Hallbach, Paul E.

C4163G2 FLD: 07C, 14B, 99A*, 68E*, 68D USGRDR7506

Sep 74 282p*

REPT NO: EPA/430/1-74-012

MONITOR: 18

ABSTRACT: The report presents outlines of material for the conduct of a training course on analysis of pesticide residues in the aquatic environment. General extraction, chromatographic, spectroscopic, and analytical techniques are included as well as specific analyses for selected pesticides. Sampling and analyses of water, biological tissues, and industrial effluents are described.

DESCRIPTORS: *Pesticides, *Water analysis, Solvent extraction, Gas chromatography, Chromatographic analysis, Spectroscopic analysis, Industrial wastes, Sampling, Cholinesterase inhibitors, Carbamates, Ureas, Chlorine aromatic compounds, Triazines, Phosphorus organic compounds, Chemical analysis, Tissues(Biology), Laboratory equipment

IDENTIFIERS: *Water pollution detection, Biphenyl/chloro, D 2-4 herbicide, NTISEPAOWP

PB-238 072/3ST NTIS Prices: PC\$8.75/MF\$2.25

Resource Evaluation Studies on the Matagorda Bay Area, Texas

Texas A and M Univ., College Station.*National Oceanic and Atmospheric Administration, Rockville, Md. Office of Sea Grant. (347 350)

AUTHOR: Ahr, Wayne M., Harry, Harold W., Holliday, Barry, Miloy, John, Vetter, Larry

C3975E4 FLD: 13B, 48B, 68D, 86M USGRDR7503

Sep 73 170p

REPT NO: TAMU-SG-74-204

GRANT: NOAA-04-3-158-18

MONITOR: NOAA-74092303

Report on Sea Grant Program.

ABSTRACT: The study was designed for finding answers to the following: (1) What are the water circulation patterns of Matagorda Bay and how does water circulation affect processes such as coastline change and pollution dispersal among others; (2) what is the chronic pesticide and PCB (polychlorinated biphenyls) level in bay sediments and what are the physical-chemical variables that govern the distribution and retention of chlorinated hydrocarbons in the sediments; (3) what are the occurrences and distribution patterns of selected benthic microfauna and will data on microfaunal populations elucidate processes of coastal change, pollution and water circulation; and (4) what is the economic structure of the Matagorda Bay area.

DESCRIPTORS: *Marine resources, *Coastal zone management, *Land use, *Water pollution, Grants, Policies, Circulation, Pesticides, Matagorda Bay, Chlorohydrocarbons, Biphenyl, Environmental impacts, Water consumption, Sediments, Benthos, Water economy, Texas

IDENTIFIERS: Sea Grant program, *Water circulation, Water use, Biphenyl/chloro, NTISCOMNOA

COM-74-11706/OST NTIS Price: PC\$6.25/MF\$2.25

Precisely Deactivated Adsorbents Applied to the Separation of Chlorinated Hydrocarbons

National Marine Fisheries Service, La Jolla, Calif. Southwest Fisheries Center.

AUTHOR: McClure, Vance E.

C0104A4 PLD: 7D, 59A, 86Q USGRDR7302

20 Mar 72 4p

GRANT: NSF-GH-52

MONITOR: NOAA-72101012

Prepared in cooperation with Scripps Institution of Oceanography, La Jolla, Calif.

Pub. in Jnl. of Chromatography, v70 p168-170 1972.

ABSTRACT: The method described in the report is applicable to adsorbents usually deactivated with water (Silica gel, magnesia, alumina and Florisil) and involves the equilibration of the activated adsorbent with a solution of a strongly adsorbed material in an appropriate solvent. The degree of deactivation can be specified by the composition of the deactivating solution. Elution must be performed only with solvents incapable of removing the strongly adsorbed species from the adsorbent bed. (Author)

DESCRIPTORS: (*Adsorption, *Chlorine organic compounds), (*Pesticides, Adsorption), Adsorbents, Silicon dioxide, Aluminum oxides, Deactivation, Magnesium oxides, DDT

IDENTIFIERS: Biphenyl/chloro

COM-72-11486 NTIS Prices: Reprint

Sampling of Glacial Snow for Pesticide Analysis

Massachusetts Univ., Amherst. Dept. of Chemistry. (400 721)

Water pollution control research series

AUTHOR: Stengle, T. R., Lichtenberg, J. J., Houston, C. S.

C0054K2 FLD: 6F, 57H, 68D USGRDR7301

Feb 71 25p

PROJECT: EPA-WQO-16020-GAG

MONITOR: EPA-WQO-16020-GAG-02/71

Prepared in cooperation with the Vermont Univ., Burlington. Dept. of Community Medicine.

Paper copy available from GPO \$0.35 as EP1. 16026-GAG-0271.

ABSTRACT: Snow samples were taken from the plateau glacier of Mt. Logan, Y. T., Canada during an investigation intent on demonstrating the feasibility of taking such samples from high altitude snowfields for pesticide analysis and developing sampling techniques devoid of contamination. Samples were also taken at a depth of 15 m to determine whether DDT concentration varied with the age of the snow. Pesticide analyses were performed using vapor phase chromatographic techniques. DDT was not detected within the limit of detectability (5 ng/l). Over half the samples were contaminated with PCB's which raised the detectability limit to 10-50 ng/l. The PCB contamination is believed to have come from the sampling auger, as an analysis of rinsings from it seemed to confirm. A sample taken from a depth of 1.5-2.5 m was acidified with distilled nitric acid, when thawed, and analyzed for 19 elements simultaneously using a direct reading emission spectrometer. Four elements were detected: boron at 4 ng/ml, cadmium at 9 ng/ml, chromium at 2 ng/ml, and iron at 47 ng/ml. The high levels of cadmium and especially iron suggest contamination from the alloy steels of the auger.

DESCRIPTORS: (*Pesticides, *Glaciers), Chlorine aromatic compounds, DDT, Snow, Sampling, Chemical analysis, Contamination, Alloy steels, Boron, Cadmium, Chromium, Iron, Water pollution, Sources

IDENTIFIERS: Biphenyl/chloro

PB-212 727/2 NTIS Prices: PC-GPO/MF\$0.95-NTIS

Polychlorinated Biphenyls (Pcb)- an Environmental Health Problem.
Experiments with the Synthesis of Tetrachlorobiphenyl (Labelled /Sup
14/C) for Toxicological and Method Studies

AUTHOR: Melvas, B.

A5861H4 FLD: 6T, 57Y, 68G NSA2709

MONITOR: 18

ABSTRACT: For abstract, see NSA 27 09, number 22009.

DESCRIPTORS: *Environment,

IDENTIFIERS: AEC

NRC-TT-1616 NTIS Prices: PC\$3.00/MF\$0.95

NO ABSTRACT AVAILABLE

Polychlorinated Biphenyls in Coho Salmon From Waters of Lake Michigan
Michigan State Univ., East Lansing. Inst. of Water Research.

Completion rept.

AUTHOR: Leeling, Norman C.

A5495E2 FLD: 7C, 13B, 59A, 68D USGRDR7224

Sep 72 9p

CONTRACT: DI-14-01-0001-3222

PROJECT: OWRR-A-044-MICH

MONITOR: OWRR-A-044-MICH(1)

ABSTRACT: The objectives were two fold: To determine the level of polychlorinated biphenyl residues present in Coho salmon from Lake Michigan; and To chemically characterize the major individual components. Various physical and chemical methods used in attempts to separate the DDT complex, especially DDE, from polychlorinated biphenyls (PCB's) proved unsuccessful on a quantitative basis. These methods included high-speed liquid column chromatography, sulfuric and permanganate oxidation, and derivatization with tetraphenyl cyclopentadienone. (Author)

DESCRIPTORS: (*Chlorine organic compounds, Separation), (*Water pollution, Chlorine organic compounds), Pesticides, Chromatographic analysis, DDT, Great Lakes, Chemical reactions, Oxidation

IDENTIFIERS: Biphenyl/chloro, *DDE pesticide, Lake Michigan

PB-212 588 NTIS Prices: PC\$3.00/MF\$0.95

DDT in Water. A Bibliography

Office of Water Resources Research, Washington, D.C. Water Resources Scientific Information Center.

A5393L1 FLD: 13B, 6F, 68D, 57H USGRDR7223

Oct 71 283p*

REPT NO: WRSIC-71-211

MONITOR: W72-14431

ABSTRACT: The bibliography on DDT in water contains 196 abstracts with full bibliographic details for selected reports, journal articles, and various documents published mostly since 1967. Produced from a computerized information base containing 32,719 abstracts at the time of search, the bibliography is representative of the information on DDT in water contained in the journal 'Selected Water Resources Abstracts' through October 15, 1971 (Volume 4, Number 20). A significant descriptor index is given of representative weighted terms that best describe the information content of the abstracted items. A comprehensive index is also given that represents all descriptors and identifiers used to index the various papers and documents represented by the abstracts in the bibliography. (Author)

DESCRIPTORS: (*Water pollution, *DDT), (*Bibliographies, DDT), Adsorption, Algae, Toxicology, Water analysis, Aquatic plants, Aquatic animals, Fishes, Chlorine organic compounds, Dieldrin, Ecology, Insecticides, Phosphorus organic acid esters

IDENTIFIERS: DDD pesticide, DDE pesticide, Heptachlor, Water pollution effects(Plants), Water pollution effects(Animals), Biphenyl/chloro

PB-212 262 NTIS Prices: PC\$3.00/MF\$0.95

Sewage Sludge Incineration

Environmental Protection Agency, Washington, D.C. (390 139)

A5074F1 FLD: 13B, 68D, 68C, 68A USGRDR7219

Aug 72 95p*

REPT NO: EPA-R2-72-040

PROJECT: EPA-B-12043

MONITOR: W72-12631

ABSTRACT: The report presents the findings of a Task Force which was established to evaluate sludge incineration as an acceptable alternative to ocean disposal. Multiple-hearth and fluidized bed furnaces, containing scrubbing devices for particulate removal, were selected for performance evaluation. The sludge, particulate, stack gas, scrubbing liquid, and ash were sampled and analyzed for heavy metals, pesticides, and oxides of nitrogen and sulfur. The results indicated that incinerators are capable of achieving low emission concentrations for the common pollutants. Particulate samples showed a measurable concentration of lead. The ash samples normally showed a higher concentration of the heavy metals when compared with the sludge samples. The pesticides and PCB results indicated complete destruction.

DESCRIPTORS: (*Sludge disposal, *Incinerators), (*Sewage treatment, Sludge disposal), Fluidized bed processors, Furnaces, Air pollution control equipment, Waste disposal, Air pollution, Water pollution, Oceans, Performance evaluation, Abatement, Metals, Pesticides, Trace elements, Particles, Sulfur dioxide, Nitrogen oxides, Lead, Mercury, Chlorine organic compounds, Scrubbers, Ashes, Combustion products

IDENTIFIERS: *Air pollution control, *Water pollution abatement, *Solid waste disposal, Ocean waste disposal, Biphenyl/chloro

PB-211 323 NTIS Prices: PC\$3.00/MF\$0.95

Noncombustible Hydraulic Fluids

Foreign Technology Div., Wright-Patterson AFB, Ohio. (141 600)

AUTHOR: Hyska, Karol

A4765E3 FLD: 11H, 71K USGRDR7216

3 Mar 70 11p

REPT NO: FTD-HT-23-104-70

PROJECT: FTD-7230178

Edited trans. of Ropa a Uhlie (Czechoslovakia) v11 n3 p159-162 1969,
by H. Peck. Distribution Limitation now Removed.

ABSTRACT: Czech fire-resistant hydraulic fluids, based mainly on
chlorinated byphenyl, are discussed. The properties and applications
of these fluids are compared with medium pydraul F-9. (Author)

DESCRIPTORS: (*Hydraulic fluids, *Halogenated hydrocarbons), (
*Diphenyl, Hydraulic fluids), Viscosity, Fire resistant materials,
Chlorine compounds, Czechoslovakia, Translations

IDENTIFIERS: Chlorine arcmatic compounds

AD-868 456 NTIS Prices: PC\$3.00/MF\$0.95

Polychlorobiphenyls (PCBs) and Related Chlorophenyls: Effects on Health and Environment. I. Bibliography---1881-1971

Oak Ridge National Lab., Tenn. Toxicology Information Response Center.

AUTHOR: Quinby, Griffith E.

A4551E3 FLD: 6F, 6T, 13B, 68A, 68D, 57H, 57Y USGRDR7214

Apr 72 141p*

REPT NO: TIRC-1, ORNL-EIS-72-20

ABSTRACT: Medical and public health interest in polychlorobiphenyls (PCBs) in the United States was meager before 1970. The expanding literature since then has reflected the realization of the importance of these substances as environmental pollutants. The analytical confusion of PCB with DDT and other chlorinated hydrocarbon pesticides prior to 1969 is of special interest. The concern over PCBs was heightened in 1971 by the recognition of gross contamination of certain animal feeds and of trace contamination of some human foods. The 870 articles cited in this bibliography are believed to cover the majority of articles in all languages available through January, 1972. (Author)

DESCRIPTORS: (*Air pollution, Chlorine aromatic compounds), (*Chlorine aromatic compounds, *Bibliographies), (*Water pollution, Chlorine aromatic compounds), Biphenyl, Chromatographic analysis, Toxicology, Insecticides, Biochemistry, Food contamination, Public health, Ecology, Lubricating oils, Insulating oil

IDENTIFIERS: *Biphenyl/chloro

PB-209 944 NTIS Prices: PC\$3.00/MF\$0.95

The Mass Spectra of Polychlorinated Biphenyls

National Research Council of Canada Halifax (Nova Scotia) Atlantic Regional Lab (045500)

AUTHOR: Safe, S., Hutzinger, O.

A4491C1 PLD: 7D, 59G USGRDR7214

17 Sep 71 7p

Availability: Pub. in Jnl. of the Chemical Society, p685-691 1972.

ABSTRACT: The mass spectra of several di- and tetra-chlorobiphenyls suggested randomization of chlorine over both phenyl rings in the molecular ion prior to fragmentation. The exceptions, 2,2'- and 2,6-dichloro-, 2,2',4,4'-, 2,2',5,5'-, 2,3,5,6-, and 2,2',6,6'-tetrachloro-biphenyls, all contain two or more chlorine atoms ortho to the Ph-Ph bond and their metastable ion intensities which result from the M to M - Cl₂ reaction are markedly different from those of the other isomers. The primary ion spectra of most isomeric compounds are similar, with successive losses of Cl radical from the molecular ion. This process is often accompanied by expulsion of HCl from the lower chlorine homologues. The ion kinetic energy spectra of the di- and tetra-chloroisomers confirm the suggested fragmentation pathways. (Author)

DESCRIPTORS: (*Diphenyl, Mass spectrum), (*Halogenated hydrocarbons, *Mass spectrum), Chlorine compounds, Gas ionization, Chemical bonds, Dissociation, Canada

IDENTIFIERS: *Chlorine aromatic compounds, *Biphenyl/chloro

AD-742 588 NTIS Price: Not available NTIS

PCBs and the Environment

Interdepartmental Task Force on PCBs, Washington, D.C.

Final rept.

A4214J1 FLD: 13B, 6F, 6T, 68A, 68D, 57Y, 57H, 65D, 57U, 86A

USGRDR7211

20 Mar 72 192p*

REPT NO: ITF-PCB-72-1

ABSTRACT: The report is the product of a six month review of the chemicals known as PCBs--polychlorinated biphenyls--by five Federal agencies, with participation by other agencies. The task force made nine findings, conclusions, and recommendations, primarily pointing out that PCBs should be restricted to essential or nonreplaceable uses which would minimize the likelihood of human exposure or leakage to the environment. Supplementing the 20-page report are eight appendices detailing current knowledge about various aspects of PCBs, including their use and replaceability; occurrence, transfer, and cycling in the environment; occurrence and sources in food; and PCBs effects on man and animals. (Author)

DESCRIPTORS: (*Chlorine aromatic compounds, *Pollution), (*Air pollution, Chlorine aromatic compounds), (*Water pollution, Chlorine aromatic compounds), (*Toxicology, Chlorine aromatic compounds), Environmental surveys, Insulating oil, Industrial wastes, Lubricant additives, Plasticizers, Biphenyl, Public health, Economic factors, Government policies, Chemical properties, Food, Epidemiology, Humans, Animals, Ecology

IDENTIFIERS: *Biphenyl/chloro

COM-72-10419 NTIS Prices: PC\$6.00/MF\$0.95

PCB in Water: A Bibliography

Office of Water Resources Research, Washington, D.C. Water Resources Scientific Information Center.

A3801A4 FLD: 13B, 6F, 68D, 57H USGRDR7207

Jan 72 43p*

REPT NO: WRSIC-72-201

MONITOR: W72-04439

ABSTRACT: The bibliography contains a collection of 25 abstracts for selected reports and journal articles published in 1969, 1970, and 1971 on polychlorinated biphenyls (PCB). The abstracts include full bibliographical citations and a set of descriptors from the Water Resources Thesaurus. A significant descriptor index is given of representative weighted terms that best describe the information content of the abstracted items.

DESCRIPTORS: (*Water pollution, *Chlorine organic compounds), (*Bibliographies, Water pollution), (*Pesticides, Water pollution), Insecticides, Chlorine aromatic compounds, Biphenyl, Aquatic biology, Water analysis, Plasticizers, Oceans, Industrial wastes, Toxicology, Biodeterioration, DDT, Dieldrin, Ecology

IDENTIFIERS: *Biphenyl/chloro, *Water pollution effects(Animals), Water pollution detection

PB-206 534 NTIS Prices: PC\$3.00/MF\$0.95

Marine Studies of San Pedro Bay, California. Part VII. Sediment Investigations. Sediment Compositions in Los Angeles-Long Beach Harbors and San Pedro Basin

University of Southern California, Los Angeles. Allan Hancock Foundation.*National Oceanic and Atmospheric Administration, Rockville, Md. Office of Sea Grant. (400 911)

AUTHOR: Chen, Kenneth Y., Lu, James C. S.

C3914L4 FLD: 13B, 8G, 68E, 47E, 86M USGRDR7502

Aug 74 191p

REPT NO: USC-SG-8-74

GRANT: NOAA-04-3-158-145

MONITOR: NOAA-74102209

See also Part 6, COM-74-11558.

ABSTRACT: Most surface sediments in the Los Angeles-Long Beach Harbors and nearby San Pedro Basin are grossly contaminated, with the exception of a few localities. Restricted dredging of polluted sediments from fractional areas of the harbor complex is probably beneficial to the ecosystem if the polluting substances can be properly disposed of. The Los Angeles County Sanitation District sewer outfall at White's Point is found to contribute substantial amounts of trace metals and chlorinated pesticides to the San Pedro Basin, while the harbor complex is found to be an important source of polychlorinated biphenyls into the San Pedro Basin. Interrelationships of pollution parameters are presented.

DESCRIPTORS: *Water pollution, *Harbors, *Sediments, *San Pedro Bay, Pesticides, Outfall sewers, Dredging, Metals, Chlorohydrocarbons, Chlorine aromatic compounds, Biphenyl, California

IDENTIFIERS: Sea Grant program, *Trace metals, San Pedro (California), Los Angeles Harbor, Long Beach Harbor, Ecosystems, NTISCOMNOA

COM-74-11748/2SL NTIS Prices: PC\$7.00/MF\$2.25

Estimation of Polychlorinated Biphenyls in the Presence of DDT-Type Compounds

Baird-Atomic, Inc., Bedford, Mass. (388 786)

Environmental monitoring series (Final)

AUTHOR: Brownrigg, J. T., Hornig, A. W.

C3283B3 FLD: 7C, 6F, 13B, 68E, 99A USGRDR7419

Jun 74 100p

CONTRACT: EPA-68-01-0082

PROJECT: EPA-ROAP-09ABZ-013

MONITOR: EPA-670/4-74-004

ABSTRACT: Earlier studies suggested that the low temperature luminescence properties of PCB's (polychlorinated biphenyls) and DDT compounds could be used to identify these compounds singly or in mixtures. The present investigation was undertaken to develop a relatively simple, rapid method for estimating these compounds in water. The emphasis in this procedure has been on the inherent sensitivity and specificity of luminescence, avoiding chemical separation where possible. The present procedure involves collection of grab samples followed by extraction, drying, concentration, and redilution in a second solvent suitable for luminescence measurement at 77K. Studies include the determination of recoveries and detection sensitivities for some of the compounds of interest and also analyses of several environmental waters. (Modified author abstract)

DESCRIPTORS: *Water analysis, *DDT, *Luminescence, Surface waters, Cryogenics, Sensitivity, Pesticides, Spectroscopic analysis, Emission spectra, Solvent extraction

IDENTIFIERS: *Biphenyl/chloro, *Water pollution detection, NTISEPAERC

PB-233 599/0 NTIS Prices: PC\$4.00/MF\$1.45

Premature Births in California Sea Lions: Association with High
Organochlorine Pollutant Residue Levels

National Marine Fisheries Service, Seattle, Wash. Marine Mammal Div.
AUTHOR: DeLong, Robert L., Gilmartin, William G., Simpson, Joan G.

C2461F1 FLD: 6F, 86Q USGRDR7408

30 Jan 73 5p

MONITOR: NOAA-74012311

Revision of report dated 16 Oct 72.

Pub. in Science, v181 p1168-170, 21 Sep 73.

ABSTRACT: Premature pupping in California sea lions has been noted on the breeding islands since 1968. Organochlorine pesticides and polychlorinated biphenyl residues were two to eight times higher in tissues of premature parturient females and pups than in similar tissues of full-term parturient females and pups collected on San Miguel Island in 1970. The mean total DDT residues in the blubber and liver of premature parturient females were 8.0 and 3.8 times greater, respectively, than the concentrations in the same tissues of normal parturient cows. The brains of premature pups contained twice the residue concentrations as the brains of full-term pups. The (PCB) levels in blubber, liver, and brain of the premature parturient group were 6.6, 4.4 and 2.4 times higher than those in the full-term group. In neither blubber nor liver did the ranges of residue values of total DDT or PCB in premature and full-term groups overlap. Dieldrin residues were not detected in all samples and when present, were low. (Modified author abstract)

DESCRIPTORS: *Seals(Mammals), *Pesticides, *Chlorine organic compounds, Dieldrin, DDT, Pregnancy complications, California, Histology, Pathology, Brain, Liver

IDENTIFIERS: Sea lions, Water pollution effects (Animals), *Biphenyl/chloro, NOAA

COM-74-10457/1 NTIS Prices: Reprint

Adsorption of Chlorinated Hydrocarbons from Seawater by a Crosslinked Polymer

Woods Hole Oceanographic Institution, Mass. (381 000)

AUTHOR: Harvey, George R.

C2393L1 FLD: 7D, 8J, 13B, 99A*, 68D, 47C USGRDR7407

Mar 73 35p*

REPT NO: WHOI-Contrib-2798

PROJECT: EPA-16020GCQ

MONITOR: EPA-R2-73-177

Paper copy available from GPO \$0.55 as EP1.23/2:73-177.

ABSTRACT: A synthetic resin, Amberlite XAD-2, has been evaluated as an adsorption medium for chlorinated hydrocarbons dissolved in seawater. The resin was found to be very efficient and the method was developed into a routine analytical procedure for the monitoring of seawater. (Author)

DESCRIPTORS: *Adsorption, *Chlorine organic compounds, *Sea water, *Water analysis, Performance evaluation, DDT, Insecticides, Dieldrin

IDENTIFIERS: Amberlite XAD-2 resin, *Water pollution detection, Biphenyl/chloro, EPAO

PB-227 349/8 NTIS Prices: PC-GPO/MF\$1.45-NTIS

Organochlorine Residues from Plankton

Institute for Marine Environmental Research Edinburgh (Scotland)
Oceanographic Lab (408290)

AUTHOR: Williams, R., Holden, A. V.

C2124K2 FLD: 8A, 13B, 68D USGRDR7404

1973 3p

MONITOR: 18

Prepared in cooperation with the Department of Agriculture and Fisheries for Scotland, Pitlochry.

Availability: Pub. in the Marine Pollution Bulletin v4 n7 p109-111 Jul 73.

ABSTRACT: Concentrations of PCBs, DDT and dieldrin in plankton at a number of stations from Gourock in the Firth of Clyde to the International Ocean Weather Station India 400 miles west of Scotland show an unexpected gradient from the polluted estuary to the open ocean levels. The results are consistent with the general assumption that there is progressive concentration of these residues in marine food chains. (Author)

DESCRIPTORS: *Plankton, *Residues, *Chlorine compounds, DDT, Dieldrin, Accumulation, Biphenyl, Water pollution, Atlantic Ocean, Gas chromatography, Great Britain

IDENTIFIERS: Zooplankton, *Chlorine organic compounds, Biphenyl/chloro, SD

AD-771 349/8 NTIS Price: Not available NTIS

Environmental Distribution and Metabolic Fate of Key Industrial
Pollutants and Pesticides in a Model Ecosystem

Illinois Univ., Urbana. Water Resources Center.

Research rept.

AUTHOR: Metcalf, Robert L., Lu, Po-Yung, Kapoor, Inder P.

C2105K1 FLD: 13B, 6F, 68E*, 99B, 57H USGRDR7403

Jun 73 102p*

REPT NO: WRC-RR-69

CONTRACT: DI-14-31-0001-3273

PROJECT: OWRR-B-050-ILL

MONITOR: OWRR-B-050-ILL(1)

ABSTRACT: The contamination of water supplies with toxic substances liberated into the environment either accidentally as industrial or household wastes or purposefully as pesticides and food additives is an important problem in environmental quality. Radiolabeled contaminants used in a laboratory model ecosystem provide an elegant method for determining the degradative fate of potential pollutants, indications of their toxic effects to a variety of food chain organisms, and measurement of their ecological magnification in food chain organisms. The results have been expressed in terms of ecological magnification and biodegradability index, and have been examined for correlation with such physio-chemical properties as water solubility, and partition coefficient, and for relationships to electron distribution. (Modified author abstract)

DESCRIPTORS: *Organic wastes, *Chemical industry, *Biodeterioration, *Pesticides, *Water pollution, Industrial wastes, Methodology, Toxicity, Food chains, Carbamates, Organic phosphates, Statistical data, Models, Solubility, Isotopic labeling, Plasticizers, Chlorine organic compounds, Phthalates, Accumulation, Food chains

IDENTIFIERS: *Ecosystems, *Path of pollutants, Biphenyl/chloro, OWRR

PB-225 479/5 NTIS Prices: PC\$4.25/MF\$1.45

Biological Models of Freshwater Communities

Washington Univ., Seattle. Coll. of Fisheries. (403 974)

Final rept.

AUTHOR: Taub, Frieda B.

C1992C3 FLD: 6F, 57H, 68D USGRDR7401

Aug 73 80p

PROJECT: EPA-16050-DXM

MONITOR: W74-00925

Paper copy available from GPO \$1.05 as stock no. EP1.23:660-73-008.

ABSTRACT: Data from continuous cultures of an alga (*Chlamydomonas reinhardtii*) and protozoan (*Tetrahymena vorax*) have been used to construct a model of algal standing crop over ranges of light intensity, dilution rate, and nutrient concentration both in the absence and presence of predation by the protozoa. The model predicts that predation can reduce algal standing crop only within certain ranges of the environmental variables. The comparative toxicities of Aroclor 1242, a polychlorinated biphenyl, and DDT, were tested on the alga and protozoan, and also on daphnids, ostracods, and guppies. (Modified author abstract)

DESCRIPTORS: (*Fresh water biology, Models), (*Pesticides, Toxicity), Algae, Protozoa, Ciliata, Water pollution, Bacteria, Primary biological productivity, Luminous intensity, Computerized simulation, DDT, Stress (Physiology), Cultures (Biology), Chlorine aromatic compounds

IDENTIFIERS: Chemostats, *Tetrahymena vorax*, *Chlamydomonas reinhardtii*, Biphenyl/chloro, *Eutrophication, EPAORM

PB-225 029/8 NTIS Prices: PC-GPO/MF\$1.45-NTIS

Chlorinated Hydrocarbons in Plankton from the Gulf of Mexico and Northern Caribbean

Texas A and M Univ., College Station. (347 350)

AUTHOR: Giam, C. S., Wong, M. K., Hanks, A. R., Sackett, W. M., Richardson, R. L.

C1983G2 FLD: 13B, 8A USGRDR7401

1973 8p

MONITOR: IDOE-73-42

Pub. in the Bulletin of Environmental Contamination and Toxicology, v9 n6 p376-382 1973.

ABSTRACT: During 1971 and 1972 a baseline study of pollutants in the open Gulf of Mexico and Northern Caribbean was conducted. Plankton samples were collected and analyzed for DDT, its metabolites and PCBs. The results showed that DDTs and PCBs are widely spread, although the level is generally low. There are few discernible geographic trends in the sampled areas. It was noted, however, that of the six samples containing PCB's above 100 microgram wet weight, four are near coastal areas, including the two samples with the highest PCB values. About 70% of the samples had higher PCB than DDT values. No definite trend can be observed from the PCB/DDT ratio of the samples analyzed. Generally, the total DDT and PCB levels in plankton samples is comparable to that in small whole fish and muscle of some larger fish.

DESCRIPTORS: (*Water pollution, *Mexico Gulf), (*Pesticides, Mexico Gulf), Chlorine organic compounds, Chlorine aromatic compounds, DDT, Plankton, Caribbean Sea, Concentration(Composition), Chlorohydrocarbons, Residues

IDENTIFIERS: Baseline measurements, PCB, Biphenyl/chloro, IDOE

PB-224 521/5 NTIS Prices: Not available NTIS

DDT, DDE and Polychlorinated Biphenyls in Biota from the Gulf of Mexico and Caribbean Sea, 1971

Texas A and M Univ., College Station. (347 350)

AUTHOR: Giam, C. S., Hanks, A. R., Richardson, R. L., Sackett, W. M., Wong, M. K.

C1983F3 FLD: 13B, 8A USGRDR7401

Dec 72 7p

MONITOR: IDOE-73-39

Pub. in the Pesticides Monitoring Jnl., v6 n3 p139-143 Dec 72.

ABSTRACT: Residue levels of DDT, DDE, and PCB's were determined in various species of fish, shrimp, crabs, and other biota from the Gulf of Mexico and Caribbean Sea. Samples were collected from the Gulf during two Gulf-wide cruises in May and October 1971 and from part of the Caribbean Sea during the October cruise. DDT, DDE, and PCB's were found widely distributed in all biota; however, samples from coastal areas generally had higher levels than samples from the open waters. (Author)

DESCRIPTORS: (*Water pollution, *Mexico Gulf), (*Pesticides, Mexico Gulf), Marine fishes, Shrimps, Crabs, Residues, DDT, Caribbean Sea, Bioassay, Chlorine organic compounds, Chlorine aromatic compounds, Chlorohydrocarbons

IDENTIFIERS: DDE Pesticide, PCB, Biphenyl/chloro, IDOE

PB-224 515/7 NTIS Prices: Not available NTIS

Recommended Methods of Reduction, Neutralization, Recovery, or Disposal of Hazardous Waste. Volume XIV. Summary of Waste Origins, Forms, and Quantities

TRW Systems Group, Redondo Beach, Calif. (354 595)

Final rept.

AUTHOR: Ottinger, R. S., Blumenthal, J. L., Dal Porto, D. F., Gruber, G. I., Santy, M. J.

C1901L1 FLD: 13B, 68 USGRDR7324

Aug 73 160p

REPT NO: TRW-21485-6013-RU-00-Vol-14

CONTRACT: EPA-68-03-0089

MONITOR: EPA-670-2-73-053-n

Paper copy also available from NTIS \$72.00/set of 16 reports as PB-224 593-SET.

ABSTRACT: This volume provides information on the origins, forms, and quantities of 13 groups of hazardous waste stream constituents, including pesticides, mercury and mercury compounds, arsenic and arsenic compounds, cadmium and cadmium compounds, lead compounds, soluble copper compounds, selenium and selenium compounds, boron hydrides, chromium compounds, inorganic cyanides, hydrofluoric and fluoboric acids, specific organic chemicals, explosive propellant and chemical warfare materiel and radioactive material. Separate reports on paint wastes and wastes from battery manufacture and the electroplating industry are also presented.

DESCRIPTORS: (*Wastes, *Hazardous materials), (*Pollution, Hazardous materials), (*Industrial wastes, Hazardous materials), Classifications, Paints, Pigments, Electroplating, Storage batteries, Lead, Cadmium, Chromates, Cyanides, Selenium, Mercury, Metal finishing, Copper, Chromium, Radioactive wastes, Pesticides, Herbicides, Fungicides, Plant location, Geography, Chlorine organic compounds, Mercury inorganic compounds, Flue dust, Metal industry, Arsenic inorganic compounds, Phosphoric acid, Lead inorganic compounds, Lead organic compounds, Petroleum industry, Printing inks, Textile industry, Xerography, Boron, Boron hydrides, Tanning materials, Iron and steel industry, Hydrofluoric acid, Fluoroboric acid, Acroleins, Aromatic polycyclic hydrocarbons, Phenols, Biphenyl, Explosives, Propellants, Military chemical agents, Water pollution, Air pollution, Inventories

IDENTIFIERS: Cacodylic acid, National Disposal Sites, Mine wastes, Chloropicrin, NERC

PB-224 593/4 NTIS Prices: PC\$4.75/MF\$1.45

Study of Electron Capture Behavior of Substituted Aromatics by Plasma Chromatography

Waterloo Univ (Ontario) Dept of Chemistry (407896)
AUTHOR: Karasek, Francis W., Tatone, Oswald S., Kane, David M.
C1864C2 FLD: 7D, 59G, 59A USGRDR7324
30 Jan 73 6p
MONITOR: 18
Revision of report dated 31 Oct 72.
Availability: Pub. in Analytical Chemistry, v45 n7 p1210-1214 Jun 73.

ABSTRACT: The plasma chromatograph can observe experimentally the positive and negative charged species present in the electron capture detector and measure their response and mobility under changing parameters. Experimental evidence of dissociative electron capture is shown for halogenated aromatics with formation of a halogen ion. Aromatics with two different halogen atoms dissociate only the most reactive halogen ion in the order I Br Cl. Simple electron attachment with formation of a negative molecular ion occurs for nitrobenzene. Chloronitrobenzene and decachlorobiphenyl undergo both associative and dissociative electron capture. (Author)

DESCRIPTORS: (*Aromatic compounds, *Electron capture), (*Chromatographic analysis, *Plasma medium), (*Halogenated hydrocarbons, Electron capture), (*Dissociation, Electron capture), Diffusion, Benzenes, Toluenes, Ionization, Chlorine compounds, Fluorine compounds, Bromine compounds, Iodine compounds, Canada

IDENTIFIERS: *Plasma chromatography, Biphenyl, SD

AD-769 011/8 NTIS Price: Not available NTIS

The Use and Effect of Mixed Standards on the Quantitation of Polychlorinated Biphenyls

National Marine Fisheries Service, Seattle, Wash. Pacific Fishery Products Technology Center.

AUTHOR: Beezhold, F. Lee, Stout, Virginia F.

C1792H1 FLD: 7C, 59A, 99A, 86Q USGRDR7323

1973 7p

MONITOR: NOAA-73080101

Pub. in Bull. of Environmental Contamination and Toxicology, v10 n1 p10-15 1973.

ABSTRACT: A study was made of the problems encountered when the chromatogram of a sample being analyzed for polychlorinated biphenyls via GLC cannot readily be compared to a particular Aroclor standard. The use of mixed Aroclor standards was proposed and a study made of the effect of mixed standards on the analytical results. It was found that the choice of a standard could alter the values by more than a factor of 2. In addition, the particular mixture used as a standard should be reported along with resulting values. (Author)

DESCRIPTORS: (*Chlorine aromatic compounds, *Gas chromatography), Quantitative analysis, Chromatographic analysis, Standardization

IDENTIFIERS: *Biphenyl/chloro, NOAA

COM-73-11574/3 NTIS Prices: Reprint

DDT, DDE, and Polychlorinated Biphenyls in Biota from the Gulf of Mexico and Caribbean Sea--1971

Texas A and M Univ., College Station. (347 350)

AUTHOR: Giam, C. S., Hanks, A. R., Richardson, R. L., Sackett, W. M., Wong, M. K.

C1652J1 FLD: 6F, 57H, 52G USGRDR7321

1972 6p

MONITOR: NSF/IDOE-73-25

Pub. in Pesticides Monitoring Jnl., v6 n3 p139-143 Dec 72.

ABSTRACT: Residue levels of DDT, DDE, and PCB's (polychlorinated biphenyls) were determined in various species of fish, shrimp, crabs, and other biota from the Gulf of Mexico and Caribbean Sea. Samples were collected from the Gulf during two Gulf-wide cruises in May and October 1971 and from part of the Caribbean Sea during the October cruise. DDT, DDE, and PCB's were found widely distributed in all biota; however, samples from coastal areas generally had higher levels than samples from the open waters. (Author)

DESCRIPTORS: (*DDT, Aquatic animals), (*Pesticides, *Aquatic animals), Residues, Marine fishes, Crabs, Shrimps, Squids, Crustacea, Gas chromatography, Sharks, Tunas, Chemical analysis

IDENTIFIERS: *Pesticide residues, Biphenyl/chloro, DDE pesticide, Caribbean Sea, Mexico Gulf, IDOE

PB-223 205/6 NTIS Prices: Not available NTIS

Chlorinated Hydrocarbons in Open-Ocean Atlantic Organisms

Woods Hole Oceanographic Institution, Mass. (381 000)

AUTHOR: Harvey, George R., Bowen, Vaughan T., Backus, Richard H., Grice, George D.

C165214 FLD: 8A, 13B, 78A USGRDR7321

1972 12p

REPT NO: WHOI-Contrib-2786

GRANT: NSF-GX-28334

MONITOR: NSF/IDOE-73-23

Report on International Decade of Ocean Exploration.

Pub. in Nobel Symposium 20, The Changing Chemistry of the Oceans, p177-186 1972.

ABSTRACT: PCB has been readily demonstrable in all, and DDT in most of a series of organisms collected from the open North Atlantic Ocean. No strong evidence was obtained of an east-west gradient in concentration between the Cape Verde Islands and Bermuda. The data are compatible with a systematic increase in concentration along food chains, although details of the patterns suggest that the mechanisms of uptake may be different for PCB than for DDT. A group of fish and crustacea which feed near the sea surface at night but migrate to considerable depths during the day show DDT and PCB concentrations not greatly different from those of predaceous organisms whose lives are spent mostly in the upper layers. We believe this shows that biological removal processes may help to control chlorinated hydrocarbon concentrations in the open ocean.

DESCRIPTORS: (*Water pollution, *Atlantic Ocean), Food chains, Absorption(Biology), Chlorine organic compounds, DDT, Collecting methods, Sampling, Concentration(Composition)

IDENTIFIERS: Path of pollutants, Biphenyl/chloro, IDOE

PB-223 204/9 NTIS Prices: Not available NTIS.

Environmental Applications of Advanced Instrumental Analyses:
Assistance Projects, FY 69-71

Environmental Protection Agency, Athens, Ga. Southeast Environmental
Research Lab.

Environmental protection technology series

AUTHOR: Keith, Lawrence H., Hercules, Shirley H.

C1644J2 FLD: 7C, 13B, 59A, 99A, 68D USGRDR7321

May 73 92p

PROJECT: EPA-16020-GHZ

MONITOR: EPA-R2-73-155

Paper copy available from GPO \$1.25 as stock no. EPI.23/2:73-155.

ABSTRACT: A multitude of analyses using gas chromatography-mass spectrometry (GC-MS), nuclear magnetic resonance (NMR), infrared, and fluorescence spectroscopy to identify and measure organic pollutants in water are discussed under eleven project categories. In most cases these analyses have helped to solve, or at least understand more clearly, the related pollution incident and in some cases provided for enforcement of regulatory legislation. Projects included identification of pesticides and PCB's (polychlorinated biphenyls) from natural waters, organics from industrial wastewaters and landfill runoffs, organics from paper mill wastewaters and foam, and analyses of oils from oil spills and suspect sources.

DESCRIPTORS: (*Gas chromatography, Water analysis), (*Mass spectra, Water analysis), (*Nuclear magnetic resonance, *Water analysis), (*Infrared spectra, Water analysis), (*Emission spectra, Water analysis), (*Water pollution, Identifying), Pesticides, Chlorine organic compounds, Oils, Industrial wastes, Paper industry, Organic compounds, Earth fills, Fluorescence, Odors, Rubber industry, Petroleum refining, Chemical industry

IDENTIFIERS: Oil pollution, Biphenyl/chloro, Oil spills, Oil pollution detection, Fishkill, Petrochemical industry, ORM

PB-222 938/3 NTIS Prices: PC-GPO/MF\$1.45

Rule Making on Polychlorinated Biphenyls

Food and Drug Administration, Washington, D.C. (140 700)

Final environmental impact statement.

C0195B4 PLD: 13B, 68 USGRDR7303

18 Dec 72 31p*

MONITOR: ELR-5804

Supersedes report dated 8 May 72, PB-208 960-D.

ABSTRACT: The statement discusses the effects of comprehensive regulations designed to limit human exposure to polychlorinated biphenyls (PCB's) from dietary sources by dealing with known sources and causes of PCB contamination of food. Specifically, the action involves establishments involved in the handling and processing of animal feeds, food, and food-packaging materials; and those reclaiming pulp fiber for food-packaging use. No adverse effects are foreseen except to industries using PCB's and having no immediate substitute or to those whose product (such as recycled wood pulp) is contaminated and cannot be purified.

DESCRIPTORS: (*Environmental surveys, *Chlorine aromatic compounds), (*Government policies, Chlorine aromatic compounds), Food processing, Food packaging, Packaging materials, Biphenyl, Regulations, National government, Public health, Waste paper

IDENTIFIERS: *Environmental impact statements, *Biphenyl/chloro, Recycled paper

EIS-AA-72-5804-F NTIS Prices: PC\$3.75/MF\$0.95

Analysis of Chlorinated Aromatic Hydrocarbons by Exhaustive Chlorination: Qualitative and Structural Aspects of the Perchloro-Derivatives of Biphenyl, Naphthalene, Terphenyl, Dibenzofuran, Dibenzodioxin and DDE

National Research Council of Canada Halifax (Nova Scotia) Atlantic Regional Lab (045500)

AUTHOR: Hutzinger, O., Safe, S., Zitko, V.

C0742J2 FLD: 7C, 59D, 59A USGRDR7311

17 Apr 72 12p

MONITOR: NRC-12731

Availability: Pub. in Intern. J. Environ. Anal. Chem., v2 p95-106 1972.

ABSTRACT: A number of reagents for the exhaustive chlorination of aromatic compounds were investigated. Antimony pentachloride-iodine and the BMC reagent (sulfuryl chloride-aluminum chloride-disulfur dichloride) were found to be the most effective and convenient reagents. They are liquids which can be used without special precautions to prepare the perchloro-derivatives of biphenyl, terphenyl, naphthalene, dibenzofuran, dibenzodioxin and DDE. The structures, mass spectra and GLC properties of these compounds are discussed. (Author)

DESCRIPTORS: (*Aromatic compounds, *Chlorination), (*Insecticides, Chemical analysis), Synthesis (Chemistry), Chlorides, Antimony compounds, Iodine, Aluminum compounds, Sulfur compounds, Molecular structure, Mass spectrum, Gas chromatography, Canada

IDENTIFIERS: *Chlorine organic compounds, SD

AD-758 539 NTIS Price: Not available NTIS

Rule Making on Polychlorinated Biphenyls

Food and Drug Administration, Washington, D.C. (140 700)

Supplement to final environmental impact statement.

C1331J2 FLD: 13B, 68H* USGRDR7317

Jul 73 41p*

MONITOR: ELR-73-1141-F-S

See also report dated 18 Dec 72, EIS-AA-72-5804-F.

ABSTRACT: The statement discusses the effects of comprehensive regulations designed to limit human exposure to polychlorinated biphenyls (PCB's) from dietary sources by dealing with known sources and causes of PCB contamination of food. Specifically, the action involves establishments involved in the handling and processing of animal feeds, food, and food-packaging materials; and those reclaiming pulp fiber for food-packaging use. No adverse effects are foreseen except to industries using PCB's and having no immediate substitute or to those whose product (such as recycled wood pulp) is contaminated and cannot be purified.

DESCRIPTORS: (*Environmental impact statements, *Chlorine aromatic compounds), (*Government policies, Chlorine aromatic compounds), (*Food contamination, Government policies), Legislation, Biphenyl, Toxicity, Food packaging, Contamination, Waste paper, Public health, Regulations, Tolerances(Physiology)

IDENTIFIERS: Recycled paper, *Biphenyl/chloro, EIS

EIS-AA-73-1141-F-S NTIS Prices: PC\$3.75/MF\$1.45

PCB (Polychlorinated Biphenyls) in Water: A Bibliography

Office of Water Resources Research, Washington, D.C. Water Resources
Scientific Information Center.

C0721D4 FLD: 6F, 13B, 68D*, 57H USGRDR7310

Mar 73 150p*

REPT NO: WRSIC-73-201

MONITOR: W73-06501

Supersedes report dated Jan 72, PB-206 534.

ABSTRACT: This bibliography of 88 abstracts on polychlorinated biphenyls is another in a series of planned bibliographies in water resources produced from the information base comprising Selected Water Resources Abstracts (SWRA). At the time of search for this bibliography, the data base had 50,631 abstracts covering SWRA through December 15, 1972. Separate subject and author indexes are provided.

DESCRIPTORS: (*Water pollution, *Chlorine organic compounds), (*Bibliographies, Water pollution), (*Pesticides, Water pollution), Biphenyl, Chlorine aromatic compounds, Plasticizers, Insecticides, Aquatic biology, Water analysis, Oceans, Industrial wastes, Toxicity, Residues, Biodeterioration, DDT, Dieldrin, Ecology, Accumulation

IDENTIFIERS: *Biphenyl/chloro, *Water pollution effects (Animals), Water pollution detection, OWRR

PB-217 859/8 NTIS Prices: PC\$3.00/MF\$0.95

CIESM and Marine Pollution

Office of Naval Research London (England) (265000)

Conference rept.

AUTHOR: Leonard, John M.

C0673L1 FLD: 13B, 68D USGRDR7310

5 Feb 73 14p

REPT NO: ONRL-C-5-73

MONITOR: 18

ABSTRACT: A two-day session on Marine Pollution preceded the Plenary Congress of CIESM, held in Athens in November 1972. About 40 papers dealing with various aspects of pollution in the Mediterranean were given. In this report the writer lists presentations, discusses briefly those which seemed particularly interesting, and gives a mildly optimistic prognosis for pollution research in the Mediterranean. (Author)

DESCRIPTORS: (*Mediterranean Sea, *Water pollution), (*Symposia, Water pollution), Aerial photography, Bacteria, Wastes(Industrial), Wastes(Sanitary engineering), Disposal, Viruses, Metals, Toxicity

IDENTIFIERS: Oil pollution, Water pollution detection, Biphenyl/chloro, N

AD-757 988 NTIS Prices: PC\$3.00/MF\$0.95

Uptake of Toxic Water Pollutants (PCB) by Lake Trout

Northern Michigan Univ., Marquette. Dept. of Biology.

AUTHOR: Parejko, Ronald, Johnston, Raymond

C0485H1 FLD: 6F, 57H, 68D, 68E USGRDR7307

Jan 73 19p

CONTRACT: DI-14-01-0001-3522

PROJECT: OWRR-A-061-MICH

MONITOR: OWRR-A-061-MICH(1)

ABSTRACT: Lake trout taken from North America's largest oligotrophic lake, Lake Superior, were analyzed to determine the content of polychlorinated biphenyls (PCBs) in their tissue. These fish are used for human consumption and the potential contamination of humans with PCBs would exist if fish that contained these compounds would be consumed. Results from analysis of fish oil extracted from lake trout have demonstrated that these fish possess low but detectable concentrations of PCBs in their tissue. Some of the lake trout analyzed also contained significant concentrations of chlorinated pesticides such as DDT and/or its analogs. Statistical determinations made between mean PCB concentration and fish age, sex and geographical location of removal from Lake Superior.

DESCRIPTORS: (*Chlorine organic compounds, *Residues), (*Lake Superior, Water pollution), (*Trout, Residues), (*Water pollution, Chlorine organic compounds), Accumulation, Fresh water fish, Concentration(Composition), DDT, Gas chromatography

IDENTIFIERS: *Biphenyl/chloro

PB-214 768/4 NTIS Prices: PC\$3.00/MF\$0.95

An Evaluation of DDT and Dieldrin in Lake Michigan

Lake Michigan Enforcement Conference. Lake Michigan Interstate
Pesticides Committee.

Ecological research series.

C0485A4 FLD: 6F, 13B, 57H, 68D USGRDR7307

Aug 72 140p

PROJECT: EPA-16050-EYV, EPA-16050-EPV

MONITOR: EPA-R3-72-003

Paper copy available from GPO \$1.25 as EP1.23:72-003.

ABSTRACT: An investigational program was designed to provide information essential to evaluate the impact of pesticides on Lake Michigan. Data was collected from waters, wastewaters, invertebrate organisms, and fish; analysis of samples from open water for the purpose of developing general residue levels was impractical. Tributary streams to Lake Michigan discharge chlorinated hydrocarbon pesticides into the lake; urban and fruit-growing areas are the more significant contributors of pesticides. The polychlorinated biphenyls are present in sufficient quantity, with sufficient evidence of biological impact, to warrant independent evaluation. Resident fish appear to be the most reliable biological monitor. The biological magnification of chlorinated hydrocarbon insecticides in sport and commercially valuable fish species as well as other wild animals are discussed.

DESCRIPTORS: (*Water pollution, *Pesticides), (*Lake Michigan, Water pollution), (*Chlorine organic compounds, Water pollution), (*Ecology, Pesticides), Fresh water fishes, Invertebrates, DDT, Dieldrin, Surface water runoff, Indicator species, Residues, Accumulation, Birds, Economic analysis, Trout, Salmon, Public health, Phthalates, Industrial wastes, Sewage, Legislation

IDENTIFIERS: *Water pollution effects(Animals), *Water quality data, *Pesticide residues, *Biphenyl/chloro

PB-214 696/7 NTIS Prices: PC-GPO/MF\$0.95-NTIS

Adsorption of Chlorinated Hydrocarbons from Seawater by a Crosslinked Polymer

Woods Hole Oceanographic Institution, Mass. (381 000)

Technical rept.

AUTHOR: Harvey, George R.

C0285D1 FLD: 7C, 8J, 13B, 59A, 78B, 68D USGRDR7304

Nov 72 37p

REPT NO: WHOI-72-86

PROJECT: EPA-CQ-16020

MONITOR: 18

ABSTRACT: A synthetic resin, Amberlite XAD-2, has been evaluated as an adsorption medium for chlorinated hydrocarbons dissolved in seawater. The resin was found to be very efficient and the method was developed into a routine analytical procedure for the monitoring of seawater. (Author)

DESCRIPTORS: (*Adsorption, *Chlorine organic compounds), (*Ion exchange resins, *Adsorbents), (*Water analysis, Chlorine organic compounds), Concentrating, Styrene copolymers, Regeneration (Engineering), Sea water, Water pollution, Flow rate, Performance evaluation, DDT, Pesticides, Oceans

IDENTIFIERS: Amberlite polymers, Biphenyl/chloro

PB-213 954/5 NTIS Prices: PC\$3.00/MF\$0.95

Identification of Polychlorinated Biphenyls in the Presence of DDT-Type Compounds

National Environmental Research Center, Cincinnati, Ohio. Analytical Quality Control Lab.

C0284F4 FLD: 7C, 59A, 68D USGRDR7304

Oct 72 66p

REPT NO: EPA-R2-72-004

CONTRACT: EPA-68-01-0082

PROJECT: EPA-16020-GIY

MONITOR: W73-03515

Paper copy available from GPO \$1.25 as EP1.23/2:72-004.

ABSTRACT: Polychlorinated biphenyls (PCB's) interfere with gas chromatographic analyses of DDT and related compounds, necessitating a simple independent method for PCB determination. The purpose of the present study was to determine the applicability of low temperature (77K) luminescence methods to this problem. Basic studies included documentation of excitation/emission spectra of 6 pesticides (p, p' - and o,p'- DDE, DDD, and DDT), 7 PCB isomers, and 5 PCB mixtures (Aroclors). Although phosphorescence spectra of the DDD and DDT compounds are very similar, possible differences in lifetime and polarization measurements may aid in differentiation. Low temperature luminescence studies in various binary mixtures of Aroclor 1254 and p, p' -DDT indicate Aroclor 1254 may be identified and quantitated in the presence of DDT concentrations 100X greater.

DESCRIPTORS: (*Chlorine organic compounds, *Emission spectra), (*Spectroscopic analysis, Chlorine organic compounds), (*Pesticides, Spectroscopic analysis), DDT, Biphenyl, Excitation, Fluorescence, Chlorine aromatic compounds, Chlorine aliphatic compounds, Errors, Molecular isomerism, Water analysis, Cryogenics

IDENTIFIERS: *Biphenyl/chloro, DDD pesticide, DDE pesticide, *Water pollution detection

PB-213 900/0 NTIS Prices: PC-GPO/MF\$0.95-NTIS

Use and Replaceability of Polychlorinated Biphenyls

National Bureau of Standards, Washington, D.C. (240 800)

Final rept.

AUTHOR: Broadhurst, Martin G.

C0191L1 FLD: 11G, 13B, 68A, 68D, 71M, 86V USGRDR7303

1972 22p

MONITOR: 18

Pub. in Environmental Health Perspectives, p81-102 Oct 72.

ABSTRACT: The study has included consideration of the uses and replaceability in polychlorinated biphenyls (PCB's) in the following areas: Dielectric fluids for capacitors and transformers; Industrial fluids for hydraulic, gas turbine and vacuum pump uses; Heat transfer fluids; and Plasticizers and miscellaneous uses. (Author)

DESCRIPTORS: (*Chlorine aromatic compounds, Utilization), Dielectrics, Heat transfer, Plasticizers, Industrial wastes, Biphenyl

IDENTIFIERS: *Biphenyl/chloro

COM-72-51054 NTIS Prices: Not available NTIS

Transfer of Pesticides through Water, Sediments and Aquatic Life

Rhode Island Univ., Kingston.

Final rept.

AUTHOR: Olney, Charles E.

CO123A4 FLD: 13B, 6F, 68D, 57H USGRDR7302

1972 14p

CONTRACT: DI-14-31-0001-3240

PROJECT: OWRR-A-038-RI

MONITOR: OWRR-A-038-RI(1)

ABSTRACT: Analysis of water, sediment and fish from 32 ponds and rivers of Rhode Island indicate that residues of polychlorinated biphenyls (PCB's) have accumulated in the sediments and fish of most watersheds of the state. Residues of DDT and its metabolites were also found in most samples. Other chlorinated hydrocarbon insecticides found in some samples were chlordane, dieldrin, lindane, a-BHC, endosulfan I, and dacthal. With a few exceptions, where local contamination might be postulated, no residues exceeding 50 ppt PCB or 10 ppt pesticide were detected in water samples, while residues in whole fish (wet weight basis) and sediments (dry weight basis) were less than 500 ppb PCB, 500 ppb DDT, 50 ppb chlordane and 50 ppb dieldrin. (Author)

DESCRIPTORS: (*Water pollution, *Pesticides), (*Rhode Island, Water pollution), (*Chlorine organic compounds, Water pollution), DDT, Biphenyl, Biodeterioration, Insecticides, Chlordane, Dieldrin, Sediments, Fishes, Residues, Concentration(Composition)

IDENTIFIERS: *Pesticide residues, Biphenyl/chloro, Lindane, Endosulfan, DCPA herbicide

PB-213 172/0 NTIS Prices: PC\$3.00/MF\$0.95

Chlorinated Hydrocarbons in the Marine Environment

National Academy of Sciences-National Research Council, Washington,
D.C. Committee on Oceanography. (091 500)

A3415L2 FLD: 6F, 8B, 68D, 57H, 78 USGRDR7203

1971 47p*

PROJECT: EPA-WQO-16070

MONITOR: EPA-WQO-16070-00/71

ABSTRACT: The report discusses the fact that the oceans are the ultimate accumulation site for the persistent chlorinated hydrocarbons. The report presents material to support its recommendations: A massive effort should be made immediately to check the escape of persistent toxicants into the environment; Rates of entry of each pollutant into the marine environment be determined; and The laws relating to the registration of chemical substances and the release of production figures by the government be examined.

DESCRIPTORS: (*Water pollution, *Insecticides), (*Chlorine organic compounds, Water pollution), (*Oceans, Water pollution), Recommendations, DDT, Ecology, Biphenyl, Ocean currents, Fishes, Birds, Marine biology

IDENTIFIERS: Biphenyl/chloro

PB-204 738 NTIS Prices: PC\$3.00/MF\$0.95

The Use and Disposal of Electrical Insulating Liquids

National Industrial Pollution Control Council, Washington, D.C.

Sub-council rept.

A2402I3 FLD: 13B, 11H, 68D, 71K, 86A USGRDR7115

Jun 71 23p

Paper copy available from GPO \$0.25/copy as 5254-0028.

ABSTRACT: Electrical insulating liquids (EIL), their application and disposal were studied against a background of similar information relating to petroleum products in total. Naphthenic mineral oils are found to comprise over 80 percent by volume of the total usage of EIL. Polybutenes are second, at almost 10 percent. Thus, 90 percent of EIL are petroleum-based. Being relatively non-toxic and biodegradable, they represent no environmental threat when subjected to conventional secondary waste treatment. Furthermore, assistance in reclaiming or proper disposal of used mineral oils can usually be obtained from the suppliers of these products. The third largest-volume EIL group is the askarels, or polychlorobiphenyls. This group has some toxic properties and contains members which have recently become suspect ecologically. Accordingly, the report contains recommendations regarding the control and disposition of askarels. (Author)

DESCRIPTORS: (*Insulating oil, *Waste disposal), (*Mineral oils, Waste disposal), (*Chlorine aromatic compounds, Waste disposal), Electric insulation, Ecology, Water pollution, Toxicology, Naphthalene, Biphenyl, Decomposition, Water pollution, Incinerators, Recommendations

IDENTIFIERS: *Water pollution control

COM-71-50247 NTIS Prices: PC-GPO/MF\$0.95-NTIS

INTERBUREAU BY-LINES. VOLUME 6, NUMBER 6

Food and Drug Administration, Washington, D.C. (140 700)

AUTHOR: Reynolds, Helen L., Palmer, Nancy J., Kovach, Laura A., Blair, Alberta E., Mahoney, Dorothy H.

A0633K3 FLD: 60, 6H, 7D, 6M, 57Q, 52D, 59A, 57K, 57Y USGRDR7017

May 70 57p*

REPT NO: Consecutive-36

See also Volume 6, No. 5, PB-190 961.

ABSTRACT: Contents: Collaborative study of the determination of ammonia as an index of decomposition in crabmeat; Spectrofluorometric determination of Rauwolfia Serpentina tablets and whole root; Application of neutron activation analysis to food products: A bibliography; Polarographic determination of nitrates in aqueous media containing nitrites; Correlation of organoleptic evidence with pH, volatile bases, and indole as indices of decomposition in raw, frozen shrimp; Differential effects of DDT and polychlorinated biphenyls on the central nervous system; Microbiological contamination bibliography (Continued); Cumulative index to Interbureau By-Lines, Vols. 1-6.

DESCRIPTORS: (*Food, *Degradation), (*Seafood, Chemical analysis), (*Radioactivation analysis, Food), (*Nitrates, *Polarographic analysis), (*DDT, Central nervous system), (*Biological contamination, *Bibliographies), (*Rauwolfia alkaloids, Spectroscopy), Halogenated hydrocarbons, Diphenyl, Ammonia, Chlorine compounds, Phenols, Reserpine, Indexes, Crustacea, Insecticides, Microorganisms

IDENTIFIERS: *Crabs, *Shrimps, *Neutron activation analysis, *Chlorine aromatic compounds, Rauwolfia serpentina, Fluorometric analysis, *Spectroscopic analysis

PB-192 766 CFSTI Prices: HC\$3.00 MF\$0.65