

October 1978



# **REPORT ABSTRACTS**

U.S. ENVIRONMENTAL PROTECTION AGENCY  
Health Effects Research Laboratory  
Research Triangle Park, North Carolina 27711



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
HEALTH EFFECTS RESEARCH LABORATORY  
RESEARCH TRIANGLE PARK  
NORTH CAROLINA 27711

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# **TECHNICAL REPORT DATA**

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1. REPORT NO. EPA-600/1-78-037c		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE HUMAN SCALP HAIR: AN ENVIRONMENTAL EXPOSURE INDEX FOR TRACE ELEMENTS. III. Seventeen Trace Elements in Birmingham, Alabama and Charlotte, North Carolina (1972)				5. REPORT DATE July 1978	
7. AUTHOR(S) John P. Creason, Thomas A. Hinners and Joseph E. Bumgarner				6. PERFORMING ORGANIZATION CODE	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Health Effects Research Laboratory and Environmental Monitoring and Support Laboratory Office of Research and Development Research Triangle Park, N.C. 27711				8. PERFORMING ORGANIZATION REPORT NO.	
12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711				10. PROGRAM ELEMENT NO. 1AA601	
				11. CONTRACT/GRANT NO.	
				13. TYPE OF REPORT AND PERIOD COVERED	
				14. SPONSORING AGENCY CODE EPA 600/11	
15. SUPPLEMENTARY NOTES Dr. Creason's telephone number is (919) 541-2389					
16. ABSTRACT Seventeen trace elements - arsenic (As), barium (Ba), boron, (B), cadmium, (Cd), chromium (Cr), copper (Cu), Iron (Fe), lead (Pb), lithium (Li), manganese (Mn), mercury (Hg), nickle (Ni), selenium (Se), silver (Ag), tin (Sn), vanadium (V), and Zinc (Zn) - were measured in human scalp hair in two southeastern United States communities - Birmingham, Alabama and Charlotte, North Carolina. Of the seven for which dustfall trace element measurements were available (lead, nickle, cadmium, copper, zinc, chromium and manganese) lead showed a significant positive relationship with male and female children's scalp hair levels, while copper was significantly related to female childrens' and male adults' scalp hair concentrations, and cadmium levels were significantly related to scalp hair levels in male adults. Only four out of sixty tests of significance were significant when housedust was used as an environmental exposure index for fifteen trace elements. This result is about what one would expect by chance if no differences actually existed. Therefore it appears that housedust is not an effective index of exposure if in fact scalp hair levels are indicators of body burdens of trace elements. Several personal covariates were assessed for influences on scalp hair trace element levels for male and female children and adults. These covariates are evaluated as potential confounding factors in future use of hair as an environmental index.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
trace elements hair indexes (ratios) environmental surveys		Charlotte North Carlina Birmingham Alabama		06 T, F	
18. DISTRIBUTION STATEMENT RELEASE TO PUBLIC		19. SECURITY CLASS (This Report) UNCLASSIFIED		21. NO. OF PAGES 44	
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TECHNICAL REPORT DATA		
<i>Please read instructions on the reverse before completing</i>		
1. REPORT NO. EPA-600/1-78-043	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE COMPARISON OF METHODS FOR THE ANALYSIS OF PANEL STUDIES	5. REPORT DATE June 1978	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) Victor Hasselblad	8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Statistics and Data Management Office Health Effects Research Laboratory Research Triangle Park NC 27711	10. PROGRAM ELEMENT NO. 1AA601	11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, NC 27711	13. TYPE OF REPORT AND PERIOD COVERED	
	14. SPONSORING AGENCY CODE EPA 600/11	
15. SUPPLEMENTARY NOTES Mr. Hasselblad's telephone number is (919) 541-2337		
16. ABSTRACT <p>Three different methods of analysis of panels were compared using asthma panel data from a 1970-1971 study done by EPA in Riverhead, New York. The methods were (1) regression analysis using raw attack rates; (2) regression analysis using the ratio of observed attacks to expected attacks; and (3) discriminant analysis where repeated attacks were ignored. The first two methods were found to have serious serial correlation problems. The third method eliminated this problem, but reduced the effective sample size considerably.</p> <p>A more appropriate method was suggested for larger panels over shorter periods of time. The analyses of the Riverhead data showed that any sulfate effect on asthmatics was confounded with seasonal trends.</p>		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field Group
statistical analysis epidemiology asthma		06 F 12 A
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# TECHNICAL REPORT DATA

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1. REPORT NO. EPA-600/1-78-051	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE Population at Risk to Various Air Pollution Exposures: Data Base "Popatrisk"	5. REPORT DATE June 1978	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) Sandor J. Freedman Joseph D. Wilson Elsa Lewis-Heise Albert V. Hardy	8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS System Sciences, Inc. P. O. Box 2345 Chapel Hill, North Carolina 27514	10. PROGRAM ELEMENT NO. 1AA601	11. CONTRACT/GRANT NO. Contract No. 68-02-2269
12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, North Carolina 27711	13. TYPE OF REPORT AND PERIOD COVERED Final report covering Oct. 1975 Dec. 1977	14. SPONSORING AGENCY CODE EPA 600/11

## 15. SUPPLEMENTARY NOTES

Project Officer is Dr. William Nelson (919-541-2330)

## 16. ABSTRACT

The work reported herein was undertaken to provide the EPA with a user-oriented data base containing recent county-based information, for all counties in the contiguous United States, on population demographics, population mobility, climatology, emissions, air quality, and age-adjusted death rates.

The completed data base, called "POPATRISK," contains approximately 27.5 million characters and is in SYSTEM 2000, Version 2.80 format, facilitating access with minimal user computer training. Population demographics are as of the 1970 Census; population mobility is described spanning the years 1965 to 1970 for 6 sex-race categories in 7 age groupings for both "in" and "out" migrants; climatology information contains county summaries of temperature, precipitation and hours of sunshine; county point and area source emission estimates are provided for 5 criteria pollutants--TSP, SO<sub>2</sub>, NO<sub>2</sub>, CO, and Ozone--based on the NEDS-USER file; air quality information is based on 1974 data contained in SAROAD; age-adjusted death rates were computed for the combined years 1969, 1970, and 1971 for 4 sex-race categories in 50 groupings of ICDA categories (8th revision).

17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
data file air quality demography population mortality	Population at risk	05A 09B 06F
18. DISTRIBUTION STATEMENT Release to Public	19. SECURITY CLASS (This Report) Unclassified	21. NO. OF PAGES 140
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TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)		
1. REPORT NO. EPA-600/1-78-053	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE BIOLOGICAL INDICATOR OF SUMMATIONAL EXPOSURES TO LEAD Tooth Lead in Children Living in Cleveland and its Suburbs		5. REPORT DATE August 1978
		6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) Margaret A. Kelsall and Ruth E. Hunter		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Ohio Mental Health and Mental Retardation Research Center 1708 Aiken Avenue Columbus, Ohio		10. PROGRAM ELEMENT NO. 1AA601
		11. CONTRACT/GRANT NO. R-804632
12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711		13. TYPE OF REPORT AND PERIOD COVERED
		14. SPONSORING AGENCY CODE EPA 600/11
15. SUPPLEMENTARY NOTES Project Officer is Warren Galke (919-541-2862)		
16. ABSTRACT  An epidemiologic study of the distribution of lead absorption in the Cleveland Metropolitan Area was carried out by analyzing the lead content of shed or extracted deciduous teeth of 11,241 children. Mean amounts of lead in teeth of children living in some suburbs were as high as those for children living within the city of Cleveland. Levels of lead in teeth declined with increasing age at tooth loss. Efforts were made to relate tooth lead levels to various environmental sources of lead. Also teacher evaluations of children's school performance and behavior were assessed in regard to tooth lead level and environmental exposure.		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
lead teeth children epidemiology	Cleveland	06 F, T
18. DISTRIBUTION STATEMENT RELEASE TO PUBLIC	19. SECURITY CLASS (This Report) UNCLASSIFIED	21. NO. OF PAGES 169
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1. REPORT NO. EPA-600/1-78-054	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE Chromosomal Aberrations in Peripheral Lymphocytes of Students Exposed to Air Pollutants	5. REPORT DATE August 1978	
	6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) Charles D. Scott and John A. Burkart	8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Utah Biomedical Test Laboratory University of Utah Research Institute 520 Wakara Way Salt Lake City, Utah 84108	10. PROGRAM ELEMENT NO. 1AA601	
	11. CONTRACT/GRANT NO. 68-02-1730	
12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711	13. TYPE OF REPORT AND PERIOD COVERED	
	14. SPONSORING AGENCY CODE EPA-600/11	
15. SUPPLEMENTARY NOTES Project Officer is Dr. Dorothy C. Calafiore (919-541-2676)		
16. ABSTRACT <p>This research program was initiated with the overall objective of determining whether or not photochemical air pollutants have the potential to cause chromosome breakage in environmentally exposed individuals; if so, could chromosomal changes be used as a biological indicator of exposure to certain environmental conditions in the Los Angeles, CA basin.</p> <p>256 incoming Freshmen students at the University of So. California were selected, matched, and grouped by home address into in-basin males and females, and out-of-basin males and females. Blood samples were collected from them at the following sampling time: October 1974, February, May and October 1975, and May 1976. All slides were analyzed in a double blind fashion, with 100 cells per student per sampling time being scored. All 100 cells were analyzed for chromosome and chromatid aberrations; however, only 25 cells of this 100 were counted for aneuploidy. Overall, in-basin males had significantly more abnormal cells, breaks, and gaps than out-of-basin males. Females showed the same trends but only for abnormal cells were the results borderline statistically significant. Differences between the two groups of students were more pronounced at both October evaluations than at the February and May evaluations. Chromosome abnormalities in general showed increases from October 1974 through May 1975 and then decreased by October 1975. These changes followed similar trends in levels of carbon monoxide, nitrogen oxides, and ozone.</p>		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS carbon monoxide nitrogen oxides ozone chromosome abnormalities air pollution	b. IDENTIFIERS/OPEN ENDED TERMS students Los Angeles California	c. COSATI Field/Group 06, F
18. DISTRIBUTION STATEMENT RELEASE TO PUBLIC	19. SECURITY CLASS <i>(This Report)</i> UNCLASSIFIED	21. NO. OF PAGES 177
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TECHNICAL REPORT DATA (Please read instructions on the back of the form before completing)		
1. REPORT NO. EPA-600/1-78-055	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE EPIDEMIOLOGIC STUDY OF THE EFFECTS OF AUTOMOBILE TRAFFIC ON BLOOD LEAD LEVELS	5. REPORT DATE August 1978	
		6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) D. Johnson, R. Prevost, J. Tillery, K. Kimball, J. Hosenfeld	8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Southwest Research Institute 3600 Yoakum Blvd. Houston, Texas 77006	10. PROGRAM ELEMENT NO. 1AA601	
	11. CONTRACT/GRANT NO. 68-02-2227	
12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, NC 27711	13. TYPE OF REPORT AND PERIOD COVERED	
	14. SPONSORING AGENCY CODE EPA 600/11	
15. SUPPLEMENTARY NOTES Project Officer is Warren Galke (919-541-2862)		
16. ABSTRACT This study investigated the absorption of lead by persons of different age-sex groups exposed to automobile emissions of lead at traffic densities from less than 1,000 cars per day to 25,000 cars per day. The relationships between traffic density and lead in various environmental samples were also examined. A house-to-house survey based on a strict set of selection criteria was used to recruit study participants. At each house a series of environmental measurements were taken: traffic volume, tap water, paint-interior and exterior, housedust and window sill wipes. Two blood samples were taken a week apart. In the range of traffic exposures studied no relationship with blood lead levels was observed (maximum mean air lead < 2.0 µg/m <sup>3</sup> ). A positive relationship between smoking and blood lead levels was found for both males and females. This relationship was statistically significant for females but not for males.		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS lead blood analysis toxicity automobiles vehicular traffic epidemiology environmental surveys	b. IDENTIFIERS/OPEN ENDED TERMS Dallas Texas	c. COSATI Field/Group 06 F, T
18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report) UNCLASSIFIED	21. NO. OF PAGES 378
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TECHNICAL REPORT DATA (Please read instructions on the reverse side before completing)		
1. REPORT NO. EPA-600/1-78-056	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE TERATOLOGY OF GUTHION	5. REPORT DATE August 1978	
	6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) Robert D. Short, Jan L. Minor, Timothy M. Unger, and Cheng-Chun Lee	8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Midwest Research Institute 425 Volker Blvd. Kansas City, MO 64110	10. PROGRAM ELEMENT NO. 1EA615	11. CONTRACT/GRANT NO. 68-02-2746
12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory U.S. Environmental Protection Agency Office of Research and Development Research Triangle Park, N.C. 27711	RTP, NC	13. TYPE OF REPORT AND PERIOD COVERED
		14. SPONSORING AGENCY CODE EPA 600/11
15. SUPPLEMENTARY NOTES Project Officer is Dr. Ronald L. Baron (919-541-2655)		
16. ABSTRACT The purpose of this study was to assess the effects of Guthion, a pesticide with anticholinesterase activity, on development in rats and mice. A preliminary toxicity study with Guthion indicated that a 35 LD <sub>50</sub> dose for virgin rats and a 10 day LD <sub>50</sub> dose for virgin mice was between 4 and 8 mg/kg/day for both species. On the basis of this data, doses of 0, 1.25, 2.5, and 5.0 mg/kg/day were selected for the developmental study, which consisted of two phases. During the first phase, pregnant rats and mice were treated for 10 days starting on gestational day 6. The high dose affected maternal welfare only in rats. Guthion did not significantly increase in a dose-related manner any of the specific anomalies observed in either rats or mice. During the second phase, pregnant rats were treated from gestational day 6 to post-partum day 21. Dams in the high dose group were more sensitive to Guthion later in gestation with the result that deaths and signs of anticholinesterase toxicity increased during this time. Guthion also adversely affected maternal welfare in this group. As a result of Guthion toxicity, only one litter survived until weaning. The inability to dissociate toxicity in adult and developing animals suggests that Guthion has little primary effect on the development of rats or mice.		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS pesticides cholinesterase inhibitors	b. IDENTIFIERS/OPEN ENDED TERMS Guthion teratology	c. COSATI Field/Group 06 T
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1. REPORT NO. EPA-600/1-78-059		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Follow-up of Patients Receiving Diagnostic Doses of 131 Iodine During Childhood				5. REPORT DATE September 1978	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) Benjamin S. H. Harris, III, Martha L. Smith, Mildred I. Holt				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Research Triangle Institute P. O. Box 12194 Research Triangle Park, N. C. 27709				10. PROGRAM ELEMENT NO. 1FA628	
				11. CONTRACT/GRANT NO. Contract No. 68-02-1213	
12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, North Carolina 27711				13. TYPE OF REPORT AND PERIOD COVERED Final report covering 6/73-5/77	
				14. SPONSORING AGENCY CODE	
15. SUPPLEMENTARY NOTES Project Officer is Dr. William Nelson (919-541-2330)					
16. ABSTRACT <p>This report documents the data collection methodology and procedures of a follow-up survey conducted of persons under 16 years old who received diagnostic Iodine 131 for evaluation of thyroid function at nine clinical centers prior to December 31, 1960. The intent of this data collection effort is to estimate the dose response curve for the development of thyroid neoplasms in young adults who received low diagnostic doses of Iodine 131 as children.</p> <p>Of 2,287 potential study subjects identified, some medical record was reviewed and abstracted for 1,999 or some 87 percent. With study activities incomplete, of 186 private physicians and other referral sources contacted for supplemental data, only three or less than two percent declined to participate; of 1,362 patients who were determined eligible and entered the survey phase, some final resolution (completed questionnaire, death certificate, or refusal) was obtained for 1,065 or some 78 percent.</p> <p>The statistical analysis of these data will be performed under a related project sponsored by the U. S. Food and Drug Administration.</p>					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
thyroid iodine diagnostic dose follow-up		Follow-up study			
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TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)		
1. REPORT NO. EPA-600/1-78-060	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE  Toxaphene Composition and Toxicology	5. REPORT DATE September 1978	
	6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) John E. Casida and Mahmoud Abbas Saleh	8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Pesticide Chemistry and Toxicology Laboratory Department of Entomological Sciences University of California Berkeley, CA 94720	10. PROGRAM ELEMENT NO. 1EA615	
	11. CONTRACT/GRANT NO. R-803913	
12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711	13. TYPE OF REPORT AND PERIOD COVERED	
	14. SPONSORING AGENCY CODE EPA 600/11	
15. SUPPLEMENTARY NOTES Project Officer is Dr. Ronald L. Baron (919-541-2655)		
16. ABSTRACT  <p>The composition and metabolism of Toxaphene have been examined to aid in understanding the conditions under which this insecticide can be most effectively and safely used. Each of 8 Toxaphene samples manufactured by Hercules Chemical Co. from 1949 to 1975 shows the same 29 major peaks and in almost identical ratios. About 85% of the total peak area is accounted for by these 29 peaks which individually vary from 1 to 8% of the total. The 8 Toxaphene samples were easily differentiated from 12 samples of chlorinated terpenes from other manufacturers in the United States and abroad. There is surprisingly little variation in the acute toxicity of any sample.</p> <p>Five major Toxaphene components (2,2,5-endo,6-exo,8,9,10-heptachlorobornane (I) and its 3-exo-chloro-, 8-chloro-, 9-chloro- and 10-chloro-derivatives) collectively account for up to 23% of the technical grade Toxaphene and up to 34% of those of chlorinated 2-exo,10-dichlorobornane. Chlorination of 2-exo,10-dichlorobornane provides a convenient source of I and other chlorinated bornanes. The toxicity to mice, houseflies and goldfish of the octachlorobornanes formed by introducing chlorine substituents into I, relative to I itself, generally decreases in the order: 9-chloro &gt; 8-chloro &gt; no added chlorine (i.e. I) &gt; 3-exo-chloro, 5-exo-chloro or 10-chloro.</p> <p>Fat from chickens and mammals treated orally with Toxaphene contains products similar in GLC characteristics to Toxaphene itself whereas liver and feces contain Toxaphene-derived products of greatly altered GLC properties. Toxaphene preparations and related chlorinated terpenes are mutagens in the histidine-requiring <i>Salmonella typhimurium</i> assay. The most potent mutagenic components, which are not identified, reside in the polar fractions on crystallization or column chromatography.</p>		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
insecticides metabolism composition(property) toxicity	Toxaphene	07 C 06 A, T
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## TECHNICAL REPORT DATA

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1. REPORT NO.		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE  POTENTIAL EXPOSURE FROM SMOKING PARATHION-CONTAMINATED CIGARETTES				5. REPORT DATE	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S)  S.W. Comer, A.L. Robbins and D.C. Staiff				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS  Field Studies Section, Environmental Toxicology Div. Health Effects Research Laboratory Office of Research and Development Research Triangle Park, N.C. 27711				10. PROGRAM ELEMENT NO.  1EA615	
				11. CONTRACT/GRANT NO.	
12. SPONSORING AGENCY NAME AND ADDRESS  Health Effects Research Laboratory RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711				13. TYPE OF REPORT AND PERIOD COVERED	
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15. SUPPLEMENTARY NOTES  Published in: Arch. Environ. Contam. Toxicol. 6:103-110, 1977					
16. ABSTRACT  Pesticide workers usually contaminate their cigarettes with less than 100 $\mu$ g per cigarette by handling them, but in some instances such contamination has been found to be over 200 $\mu$ g. To obtain values for potential exposure resulting from smoking contaminated filter tip and non-filter cigarettes, from 10 to 200 $\mu$ g of parathion was applied to the cigarette surface are found to be most often contaminated by hands. This was followed in two separate experiments by simulated smoking using a special apparatus to determine (1) passage of toxic material through cigarettes in mainstream smoke, (2) amount found in sidestream smoke, (3) amount trapped in the filter or equivalent butt end, and (4) amount recovered in ashes. The amount of parathion passing through cigarettes as a potential for inhalation exposure ranged up to 28% of dosing levels. No paraoxon or S-ethyl parathion was detected. Although there was an indication that slightly more pesticide was recovered from filters than from equivalent butt ends, the amount recovered in mainstream smoke of filter type cigarettes was not significantly lower than for nonfilter cigarettes. Location of contamination on a cigarette had minimal effect on the amount found in mainstream smoke.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
contamination toxicity chemical analysis		Parathion cigarette smoking		06, T 07, C	
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4. TITLE AND SUBTITLE EFFECT OF OZONE ON LEUKOCYTE FUNCTION IN EXPOSED HUMAN SUBJECTS		5. REPORT DATE
		6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) M.L. Peterson, S. Harder, Nicholas Rummo, and D. House		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Clinical Studies Division Health Effects Research Laboratory Office of Research and Development Research Triangle Park, N.C. 27711		10. PROGRAM ELEMENT NO. 1AA601
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15. SUPPLEMENTARY NOTES Published in: Environ. Res. 15:485-493, 1978		
16. ABSTRACT Evidence from animal studies indicates that ozone (O <sub>3</sub> ), the major component of environmental photochemical smog, depresses various intracellular hydrolytic enzymes and increases susceptibility to microbial infections. It would appear possible that O <sub>3</sub> induced alterations in normal leukocyte functions might underlie some of these reported alterations in human response to infectious agents. A study was designed to assess the effect of O <sub>3</sub> on peripheral blood leukocytes from 21 healthy young human males exposed to 784 µg/m <sup>3</sup> of ozone for 4 hr. The capability of polymorphonuclear neutrophils to phagocytize and kill microorganisms of respirable size was evaluated and phagocytic and bactericidal rates were determined. A significant decrease in intracellular killing was seen at 72 hr. postexposure (p < 0.001). A decrease in phagocytic ability was also noted at 72 hr (p < 0.05). These findings indicate that O <sub>3</sub> in low concentrations has a transient effect on leukocyte functions in humans. Such an effect may be mediated by alterations in cell membrane, opsonization functions, and/or interference with intracellular enzyme synthesis.		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSAT: Field/Group
ozone immunity lymphocytes environmental tests		06 F
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1. REPORT NO.		2.	3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE  EXPOSURE OF FERTILIZER MIXING PLANT WORKERS TO DISULFOTON			5. REPORT DATE	
			6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S)  H.R. Wolfe, D. C. Staiff, J.F. Armstrong, and J.E. Davis			8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Field Studies Section, ETD Health Effects Research Laboratory Office of Research and Development Research Triangle Park, N.C. 27711			10. PROGRAM ELEMENT NO.  1EA615	
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12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory      RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711			13. TYPE OF REPORT AND PERIOD COVERED	
			14. SPONSORING AGENCY CODE  EPA 600/11	
15. SUPPLEMENTARY NOTES  Published in: Bull. Environ. Contam. Toxicol. 20:79-86, 1978				
16. ABSTRACT  The potential hazard to workers exposed to the organophosphorus pesticide, disulfoton, in fertilizer-pesticide mixing plants was studied. Potential dermal and respiratory exposure, as well as levels of pesticide in air near certain work stations, was determined. Exposure was found to be much higher during dry mixing of granular pesticide with pelletized fertilizer than during the wet mixing process involving injection of liquid concentrate pesticide into the system to evenly impregnate the fertilizer. Calculations based on the highest exposure values obtained indicate that a worker may be subjected to as much as 4.3% of a toxic dose per hour of exposure during dry mix operations, but only 0.4% of a toxic dose per hour of exposure during wet mix operations. Levels of disulfoton in most of the air samples taken in the plant during dry mix operations exceeded the 0.1 mg/M <sup>3</sup> threshold limit value for that compound; however, none of the samplings during wet mix operations exceeded that level. Although none of the values obtained for blood cholinesterase were below the low normal values for the general population, some of the workers involved in dry mix operations did show a gradual decrease in their red cell values with time of exposure. It is suggested that workers exposed longer than three months be given special attention as far as medical surveillance is concerned.				
17. KEY WORDS AND DOCUMENT ANALYSIS				
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group
fertilizers pesticides environments safety		disulfoton organophosphorus compounds		06 F, T
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1. REPORT NO.		2.	3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Analytical Methodology for the Determination of Kepone(R) Residues in Fish, Shellfish, and Hi-Vol Air Filters			5. REPORT DATE	
			6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) David W. Hodgson, Edward J. Kantor, and J. Bruce Mann			8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Environmental Toxicology Division Health Effects Research Laboratory Office of Research and Development Research Triangle Park, N.C. 27711			10. PROGRAM ELEMENT NO. 1EA615	
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12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, NC 27711			13. TYPE OF REPORT AND PERIOD COVERED	
			14. SPONSORING AGENCY CODE EPA 600/11	
15. SUPPLEMENTARY NOTES Published in: Arch. Environ., Contam. Toxicol. 7:99-112, 1978				
16. ABSTRACT <p>The recent discovery of the pollution of the environment with Kepone has resulted in a tremendous interest in the development of residue methodology for the compound. Current multiresidue methods for the determination of the common organochlorinated pesticides do not yield good quantitative analytical results for Kepone. The extracting solvents are usually of insufficient polarity to extract Kepone from the various media. This article describes some of the recently developed methodology for Kepone in air filters, finfish, finfish livers and entrails, shellfish, and archival oyster samples.</p> <p>The finfish and archival oyster samples were Soxhlet extracted using diethyl ether/petroleum and ether (1:1 v/v) as the extracting solvent. The finfish livers and entrails were macerated in a Duall tissue grinder containing acetonitrile followed by partitioning of the Kepone into benzene. Shellfish samples were analyzed after extracting the sample with acetonitrile and partitioning the Kepone into benzene. The Hi-Vol air samples were extracted with methanol/benzene (1:1 v/v). The coextracting contaminants were removed by micro-Florisil column chromatography and/or acid digestion. The procedural recovery of Kepone from fortified samples averaged 82%.</p>				
17. KEY WORDS AND DOCUMENT ANALYSIS				
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group
pesticides chemical analysis biological extracts air		Kepone(R)		06, F 07, C
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1. REPORT NO.		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE INFLUENCE OF CADMIUM, NICKEL, AND CHROMIUM ON PRIMARY IMMUNITY IN MICE				5. REPORT DATE	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) J.A. Graham, F.J. Miller, M.J. Daniels, E.A. Payne, and D.E. Gardner				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Clinical Studies Division Health Effects Research Laboratory Office of Research and Development Research Triangle Park, N.C. 27711				10. PROGRAM ELEMENT NO. 1AA601	
				11. CONTRACT/GRANT NO.	
12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711				13. TYPE OF REPORT AND PERIOD COVERED	
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15. SUPPLEMENTARY NOTES Published in: Environ. Res. 16:77-87, 1978					
16. ABSTRACT The effects of metals on the primary humoral immune system of mice were investigated using a hemolytic plaque technique to determine the number of specific antibody-producing spleen cells. Inhalation of $\text{NiCl}_2$ for 2 hr resulted in a significant negative linear dose response, the lowest effective concentration tested being 250 $\mu\text{g}$ of $\text{Ni}/\text{m}^3$ . Following a 2 hr aerosol exposure to $\text{NiCl}_2$ , the lung cleared Ni on a first-order kinetics basis. A significant reduction in the number of plaques per $10^6$ cells was also observed with exposure to 190 $\mu\text{g}$ of $\text{Cd}/\text{m}^3$ . Analyses of the data from intramuscularly exposed mice indicated that concentrations greater than or equal to 3.90 $\mu\text{g}$ of Ni/g body weight (as $\text{NiSO}_4$ ) and greater than or equal to 9.25 $\mu\text{g}$ of Ni/g body weight (as $\text{NiCl}_2$ ) resulted in significant immunosuppression. Intramuscular treatments with $\text{NiO}$ , $\text{CdCl}_2$ , and $\text{CrCl}_3$ had no effect at the concentrations tested.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
cadmium nickel chromium immunity				06 F	
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1. REPORT NO.		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE MASS SPECTROMETRIC ANALYSIS AND CHARACTERIZATION OF KEPONE IN ENVIRONMENTAL AND HUMAN SAMPLES				5. REPORT DATE	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) R.L. Harless, D.E. Harris, G.W. Sovocool, R.D. Zehr, N.K. Wilson, and E.O. Oswald				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Environmental Toxicology Division Health Effects Research Laboratory Office of Research and Development Research Triangle Park, N.C. 27711				10. PROGRAM ELEMENT NO. 1EA615	
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12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711				13. TYPE OF REPORT AND PERIOD COVERED	
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15. SUPPLEMENTARY NOTES Published in: Biomed. Mass Spectrometry 5(3):232-237, 1978					
16. ABSTRACT <p>A specific portion of our environment has been contaminated with Kepone, or chlordecone. Additionally, some specific human exposures to high concentrations of Kepone have been confirmed. Gas chromatography mass spectrometry involving chemical ionization and high resolution mass spectrometry were used to detect, identify and confirm the presence of Kepone, Kepone photoproducts and a reduction product of Kepone in environmental and human samples. Field desorption, field ionization and electron impact mass spectrometric methods, as well as infrared and nuclear magnetic resonance techniques were used to characterize and identify Kepone hydrate and hemiketal in benzene and methanol solutions, respectively.</p>					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
pesticides chemical analysis biological extracts		Kepone		06, F 07, C	
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1. REPORT NO.		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE EXPOSURE OF PESTICIDE FORMULATING PLANT WORKERS TO PARATHION				5. REPORT DATE	
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7. AUTHOR(S) H.R. Wolfe, D.C. Staiff and J.F. Armstrong				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Field Studies Section, ETD Health Effects Research Laboratory Office of Research and Development Research Triangle Park, N.C. 27711				10. PROGRAM ELEMENT NO. 1EA615	
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12. SPONSORING AGENCY NAME AND ADDRESS Health Effects Research Laboratory RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711				13. TYPE OF REPORT AND PERIOD COVERED	
				14. SPONSORING AGENCY CODE EPA 600/11	
15. SUPPLEMENTARY NOTES Published in: Bull. Environ. Contam. Toxicol. 20:340-343, 1978					
16. ABSTRACT The potential hazard to workers exposed to the organophosphorus pesticide, parathion, in formulating plants was studied. Potential dermal and respiratory exposure near certain work stations was determined. Calculations were based on the use of minimum protection (no respirator, shirt with short sleeves and open collar, no hat, no gloves, and with the assumption that the clothing worn gave complete protection of body areas covered). This was to arrive at values that might reflect the maximum potential exposure that could occur in different work situations where proper protective gear was not utilized. Mean dermal exposure for all workers was 67.3 mg/hr and the mean respiratory value was 0.62 mg/hr of work activity. Workers at the bagging machine were subjected to greater exposure than mixers or workers who stacked filled bags on pallets, operated the bag closing machine, or packed filled bags in cardboard cartons for storage or shipment. Considerable variation was found in the range of exposure values for each work activity. Such variations were thought to be due to several factors, including worker carelessness and bagging equipment malfunction. The results indicated that workers in formulating plants exposed under conditions similar to those found in the study should not become lax in the use of approved protective gear or in following other safety precautions that prevent excess exposure to highly toxic pesticides. Relatively high values obtained during a few of the test exposure periods indicated that even minor lapses in adherence to safety precautions might be sufficient to allow poisoning to occur.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
pesticides safety protection environment clothing		Parathion		06 F, Q	
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1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE		5. REPORT DATE
SUBSTITUENT EFFECTS AND ADDITIVITY IN THE CARBON-13 NUCLEAR MAGNETIC RESONANCE SPECTRA OF CHLORINATED NAPHTHA- LENES AND THEIR CHLORINATED NAPHTHOL METABOLITES		6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)		8. PERFORMING ORGANIZATION REPORT NO.
Nancy K. Wilson and Robert D. Zehr		
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT NO.
Environmental Toxicology Division Health Effects Research Laboratory Office of Research and Development Research Triangle Park, N.C. 27711		1EA615
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Health Effects Research Laboratory RTP, NC Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711		
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15. SUPPLEMENTARY NOTES		
Published in: J. Org. Chem. 43(9):1768-1773, 1978		
16. ABSTRACT		
<p>Carbon-13 and proton nuclear magnetic resonance spectra were obtained for 12 chlorinated naphthalenes and six chlorinated naphthols, some of which are metabolites of the naphthalenes. The validity of the use of additivity of chlorine and hydroxyl substituent effects to predict <math>^{13}\text{C}</math> chemical shifts in these compounds was examined. Deviations from the additivity predictions resulted from per and ortho substituent interactions, both steric and hydrogen bonding. Despite these deviations, additive substituent parameters could be used to assign <math>^{13}\text{C}</math> spectra correctly and to distinguish uniquely between similar isomers.</p>		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
nuclear magnetic resonance proton magnetic resonance carbon isotopes naphthalenes naphthols chemical analysis	Carbon-13 chlorinated naphthalenes	07, C 06, F
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1. REPORT NO.		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE  THE IDENTIFICATION OF POLYCHLORINATED TERPHENYLS AT TRACE LEVELS IN HUMAN ADIPOSE TISSUE BY GAS CHROMATOGRAPHY/ MASS SPECTROMETRY				5. REPORT DATE	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S)  L.H. Wright, R.G. Lewis, H.L. Crist, G.W. Sovocool, and J.M. Simpson				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS  Environmental Toxicology Division Health Effects Research Laboratory Office of Research and Development Research Triangle Park, N.C. 27711				10. PROGRAM ELEMENT NO.  1EA615	
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12. SPONSORING AGENCY NAME AND ADDRESS  Health Effects Research Laboratory Office of Research and Development U.S. Environmental Protection Agency Research Triangle Park, N.C. 27711  RTP, NC				13. TYPE OF REPORT AND PERIOD COVERED	
				14. SPONSORING AGENCY CODE  EPA 600/11	
15. SUPPLEMENTARY NOTES  Published in: Journal of Analytical Toxicology 2:76-79, 1978					
16. ABSTRACT  Pooled samples of human adipose extracts representative of the general population of the United States were examined by gas chromatography-mass spectrometry. The use of gel permeation chromatography for cleanup was found to offer a significant improvement in detection capability. In addition to previously documented organo-chlorine residues, numerous polychlorinated terphenyls and three additional components of technical chlordane were identified.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
chemical analysis bioassay tissue extracts		gel permeation chromatography polychlorinated terphenyls		07 C	
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