



Comments to EPA

COMMENTS OF THE  
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH  
ON  
THE ENVIRONMENTAL PROTECTION AGENCY  
PROPOSED RULE ON  
POLYCHLORINATED BIPHENYLS; EXCLUSIONS, EXEMPTIONS AND USE AUTHORIZATIONS

40 CFR Part 761  
Docket No. OPTS-62053

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control  
National Institute for Occupational Safety and Health

September 4, 1987

REPRODUCED BY  
U.S. DEPARTMENT OF COMMERCE  
NATIONAL TECHNICAL  
INFORMATION SERVICE  
SPRINGFIELD, VA 22161

The National Institute for Occupational Safety and Health (NIOSH) has reviewed the Environmental Protection Agency (EPA) proposed rule (PR) on polychlorinated biphenyls (PCB's); exclusions, exemptions and use authorizations and has comments on the following issues.

Based on existing evidence, NIOSH recommends that PCB's be regarded as potential human carcinogens and that worker exposure to PCB's be controlled to the lowest feasible limit [1]. Measures for controlling exposure to PCB's include good work practices, routine monitoring for PCB's, use of protective equipment, and worker training [2].

1. Rescindment of the requirement for use of protective gloves made of Viton® by workers exposed to heat transfer and hydraulic fluids contaminated with polychlorinated biphenyls (PCB's). (Page 25842, column 2, III.A.4, a through c).

NIOSH agrees that recommending only the use of Viton® gloves is overly restrictive and not warranted based on recent research findings conducted for NIOSH by the Los Alamos National Laboratory (LANL) [3]. The original permeation research performed for NIOSH by LANL in 1981 [4] indicated that Viton® was the only glove material to offer protection against neat (undiluted) PCB's. Thus, only Viton® was recommended in this report [4] for use against exposure to PCB's. However, because of analytical anomalies, the study was redone and subsequent research [3] indicated that gloves made from nitrile, Viton®, Viton SF®, and Teflon® all provided good protection against a PCB mixture (52% Aroclor® 1254 in 48% trichlorobenzene) for at least eight hours.

Another recent study [5] concluded that:

"...dermal and dermal/oral routes of worker exposures to PCB's are major contributors to total PCB body burden, in the group of transformer maintenance and repair personnel studied...and demonstrate the critical role of work practices in determining PCB exposure. These hypotheses challenge the long-held notion of the pre-eminent importance of respiratory exposures to PCB's."

Therefore, NIOSH believes the use of protective gloves should be required when handling materials potentially contaminated with PCB's. Furthermore, NIOSH believes that, in addition to Viton®, other effective and less expensive glove materials, such as butyl, neoprene, Saranex Tyvek®, nitrile, Viton SF®, and Teflon®, should be permitted to help control dermal exposure to slightly contaminated fluids (i.e., less than 5000 ppm Aroclor® or Aroclor®-like contamination).

2. EPA's concern for PCB contamination of investment casting waxes.  
(Page 25845, III.D.).

Since EPA's 10 ppm estimate for the average PCB contamination of casting waxes is based upon a mathematical model which uses data from one industry source, NIOSH recommends that PCB levels be monitored initially to assure the validity of the contamination estimate.

3. EPA's concern for decomposition products of incomplete combustion of PCB's to polychlorinated dibenzofurans (PCDF's). (III.E., 1 through 4).

EPA proposes to "restrict used oil recycling activities by prohibiting the burning of used oil containing any quantitative level of PCB's in non-industrial boilers" (page 25847, column 2, paragraph 3). NIOSH shares EPA's concern that burning of used oils, containing PCB's, in inefficient combustion facilities, might promote the formation of highly toxic polychlorinated dibenzofurans (PCDF's) [1]. PCDF production during the combustion of PCB's and their extreme toxicity have been well documented in the literature [1].

NIOSH agrees with EPA that "because burning is the dominant end use for recycled used oil, ...the greatest potential for human exposures to PCB's arises from these operations." (Page 25848, column 3, paragraph 4).

NIOSH has no comments on the other issues in the PR.

5 Attachments (References)

**Enclosures and/or attachments that are not included are available free of charge from the NIOSH Docket Office (513/533-8450).**

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## REFERENCES

1. NIOSH (1986). Current intelligence bulletin 45 - Polychlorinated biphenyls (PCB's): Potential health hazards from electrical equipment fires or failures. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 86-111.
2. NIOSH (1977). Criteria for a recommended standard...occupational exposure to polychlorinated biphenyls (PCBs). U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health, DHEW (NIOSH) Publication No. 77-225.
3. Stampfer JF, McLeod MJ, Betts MR, Martinez AM, Berardinelli SP (1984). Permeation of polychlorinated biphenyls and solutions of these substances through selected protective clothing materials. Am Ind Hyg Assoc J 45(9):634-641.
4. NIOSH (1981). Permeation of protective garment material by liquid halogenated ethanes and a polychlorinated biphenyl. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 81-110.
5. Lees PSJ, Corn M, Breysse PN (1987). Evidence for dermal absorption as the major route of body entry during exposure of transformer maintenance and repairmen to PCBs. Am Ind Hyg Assoc J 48(3):257-264.

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<b>REPORT DOCUMENTATION PAGE</b>		1. REPORT NO.	2.	3. PB91-169219
4. Title and Subtitle NIOSH Testimony on Polychlorinated Biphenyls; Exclusions, Exemptions and Use Authorization by R. A. Lemen, September 4, 1987		5. Report Date 1987/09/04		
6.				
7. Author(s) NIOSH		8. Performing Organization Rept. No.		
9. Performing Organization Name and Address NIOSH		10. Project/Task/Work Unit No.		
		11. Contract (C) or Grant(G) No. (C) (G)		
12. Sponsoring Organization Name and Address		13. Type of Report & Period Covered		
		14.		
15. Supplementary Notes				
<p>16. Abstract (Limit: 200 words) This testimony concerns the proposed rule from the Environmental Protection Agency on polychlorinated biphenyls; exclusions, exemptions and use authorizations. NIOSH recommends that polychlorinated biphenyls (PCBs) be regarded as potential human carcinogens and that worker exposure to PCBs be controlled to the lowest feasible limit. Measures for controlling exposure to PCBs include good work practices, routine monitoring for PCBs, use of protective equipment, and worker training. NIOSH believes that the use of protective gloves should be required when handling materials potentially contaminated with PCBs. NIOSH also believes that in addition to Viton, other effective and less expensive glove materials such as butyl, neoprene, Saranex Tyvek, nitrile, Viton-SF, and Teflon should be permitted to help control dermal exposure to slightly contaminated fluids. Two other concerns are also noted: concern for PCB contamination of investment casting waxes, and concern for decomposition products of incomplete combustion of PCBs to polychlorinated dibenzofurans.</p>				
17. Document Analysis a. Descriptors				
<p>b. Identifiers/Open-Ended Terms NIOSH-Publication, NIOSH-Author, NIOSH-Testimony, Lemen-R-A, Chlorinated-hydrocarbons, Environmental-contamination, Electrical-equipment, Protective-clothing</p>				
c. COSATI Field/Group				
18. Availability Statement		19. Security Class (This Report)	21. No. of Pages 3	
		22. Security Class (This Page)	22. Price	

