

Memo to: Environmental Protection Agency

From: NCEH/ATSDR, Centers for Disease Control and Prevention

Regarding: Interagency review of EPA's Final Draft Toxicological Review and IRIS Summary for pentachlorophenol

Date: August 27, 2010

CDC's National Center for Environmental Health (NCEH) and the Agency for Toxic Substances and Disease Registry (ATSDR) have reviewed the final draft Toxicological Review and IRIS Summary for pentachlorophenol (PCP). We appreciate the opportunity to comment on these documents as well as the report from EPA's External Peer Review Meeting. We have three comments related to the Toxicological Review for PCP:

1. - Toxicokinetics Section 3.1 (PDF page 21 line 28): "Sex differences were not noted for the PCP serum levels in log home residents, but age differences were observed." We suggest the addition of 3 references that provide additional information on the questions related to potential sex differences.
 - Braun WH, Sauerhoff MW. The pharmacokinetic profile of pentachlorophenol in monkeys. *Toxicol Appl Pharmacol.* 1976; 38:525–33.
 - Braun WH, Young JD, Blau GE, et al. The pharmacokinetics and metabolism of pentachlorophenol in rats. *Toxicol Appl Pharmacol.* 1977; 41:395–406.
 - Braun WH, Blau GE, and Chenoweth MB. The metabolism/pharmacokinetics of pentachlorophenol in man, and a comparison with the rat and monkey. Deichmann WE, ed. *Toxicol and Env Med.* NY Elsevier 1979; 289–96.

2. - Table 3-1 on PDF page 31 is extremely useful. We suggest the addition of a column to identify differences of toxicokinetics parameters by sex. Because there are differences in health outcomes for males and females (as identified later in the EPA report), it may be useful to include this information here.

3. - We suggest these additional references on biomonitoring data that EPA might use to explore more deeply the relationship between air levels of PCP and exposure.
 - ATSDR 2007 (Zarus G, Rosales-Guevara L.) Health consultation: Exposure investigation for pentachlorophenol in the air and urine of a community from wood treatment, Meredith, East Point, Georgia. Atlanta: US Department of Health and Human Services. Aug 2007.

This reference includes air levels as well as urine levels of PCP, and its findings show that women have more PCP in urine. This could help support the association between air levels and urine levels –to help develop an internal dose calculation.

- Dahlgren J, Warshaw R, Horsak RD, Parker FM, Takhar H. Exposure assessment of residents living near a wood treatment plant. *Environmental Research*. 2003;92:99-109.

This study indicates that there is little dioxin exposure despite air emissions of PCP in the past.

- Dahlgren J, Schechter A, Phillips DH, Hewer A, Takhar H, Paepke O, Warshaw R, Kotlerman J. PAH-DNA Adduct, and Dioxin Levels in Nearby Residents of a Wood Treatment Plant. *Dioxin 2004*. 24th International Symposium on Halogenated Environmental Organic Pollutants and POPs. Berlin, Germany. September 6-10th, 2004.

This study finds low blood results of PCP for individuals living adjacent to wood treatment plant.

- Dahlgren J, Harpreet, T, Schechter, A, Schmidt, R, Horshak, A, et al. Residential and biological exposure assessment of chemicals from a wood treatment plant. [doi:10.1016/j.chemosphere.2006.05.109](https://doi.org/10.1016/j.chemosphere.2006.05.109). (2006)

This study contrasts dioxin levels in residents exposed to PCP in air with levels in former woodworkers. It may be useful to contrast this with Karouna-Reiner et al (2007).

- Madge DT, Allan RH, Gundy G, Smith W, Barr DB, and Needham L. Estimating pesticide dose from urinary pesticide concentration data by creatinine correction in the Third National Health and Nutrition Examination Survey (NHANES-III). *J Expos Anal Environ Epidemiol*. 2004; 14:457–65.

This report estimates PCP for the general population based on NHANES-III.

- Wyllie JA, Gabica J, Benson WW, et al. Exposure and contamination of air and employees of a pentachlorophenol plant, ID, 1972. *Pest Monitor J*. 1975; 9:150–53.

This study includes both air and biological levels of PCP.

- Murphy RS, Kutz FW, Strassman SC. Selected pesticide residues or metabolites in blood and urine specimens from the general population survey. *Environ Health Perspect*. 1983; 48:81–86.

This report estimates PCP for the general population.

- Argus. Developmental toxicity (embryo-fetal toxicity and teratogenic potential) study of pentachlorophenol administered orally via gavage to Crl:CD BR VAF/Plus presumed pregnant rats. Horsham PA: Argus Research Laboratories, Inc. (unpublished, 1993).
- Argus. Oral (gavage) two-generation (one litter per generation) reproduction study of pentachlorophenol in rats. Horsham PA: Argus Research Laboratories, Inc. (unpublished; 1997).

