

OPPT-2009-0757

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To: Johnh Smith/DC/USEPA/US@EPA
Cc: Dan Bench/R8/USEPA/US@EPA
Date: 04/07/2011 09:20 AM
Subject: Polychlorinated Biphenyls (PCBs); Reassessment of Use Authorizations

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Dear Mr. Smith,

On behalf of Environmental Working Group, I am submitting with this email our comments on the latest science on PCB toxicity to people, for the docket EPA-HQ-OPPT-2009-0757. We also also Ccing our comments to Mr. Dan Bench, EPA Region 8 PCB Coordinator.

Thank you very much,

With best regards,

Olga Naidenko

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April 7, 2011

Mr. John H. Smith
Office of Pollution Prevention and Toxics
Environmental Protection Agency
1200 Pennsylvania Avenue, N. W. Mail Code: 7404T
Washington, DC 20460

Re: Polychlorinated Biphenyls (PCBs); Reassessment of Use Authorizations

Dear Mr. Smith,

We are pleased to provide to you our summary of the latest research on the adverse effects of polychlorinated biphenyls (PCBs) on the health of people and the environment. To briefly introduce our past and current work on the subject of toxic chemicals and human health, Environmental Working Group is a non-profit public health, environmental research and advocacy organization with offices in Washington, DC; Ames, Iowa; and Oakland, Calif. Our staff scientists conduct research and analysis on an array of public health and environmental issues including chemical contamination of food, water, consumer products and the environment.

Since 1981 the U.S. government's Report on Carcinogens has classified PCBs as "reasonably anticipated to be a human carcinogen" based on clear evidence of PCB carcinogenicity in laboratory animals. Follow up research has further supported and bolstered this original finding. The latest studies of PCB carcinogenicity, carried out by the National Toxicology Program (NTP) confirmed the same results, finding significant PCB-related increases in the incidences of bile duct cancer (cholangiocarcinoma) and liver cancer (hepatocellular adenoma) (NTP 2010).

While the epidemiological studies of cancer risk in people exposed to PCBs are not in full agreement with each other, a number of recent publications have pointed to the significance of this link, particularly for non-Hodgkin's lymphoma (Bertrand 2011; Maifredi 2011). Additionally, among workers exposed to PCBs at the capacitor manufacturing plants, an elevated mortality from stomach and intestinal cancer and an association with liver and thyroid cancer have been observed (Prince 2006).

In addition to the increased risk of cancer, numerous studies found an association between PCB exposure and a wide spectrum of health effects in both humans and laboratory animals. Adverse impact of PCBs on the thyroid hormone levels, neurodevelopment and the immune function in different animal species have been known for decades. Latest literature clearly demonstrates that these findings are relevant to human health, as outlined below.

Adverse effects of PCBs on the neurodevelopment in infants and children

Sagiv SK, Nugent JK, Brazelton TB, Choi AL, Tolbert PE, Altshul LM, et al. 2008. Prenatal organochlorine exposure and measures of behavior in infancy using the Neonatal Behavioral Assessment Scale (NBAS). Environ Health Perspect 116(5): 666-73.

Sagiv SK, Thurston SW, Bellinger DC, Tolbert PE, Altshul LM, Korrick SA. 2010. Prenatal organochlorine exposure and behaviors associated with attention deficit hyperactivity disorder in school-aged children. *Am J Epidemiol* 171(5): 593-601.

Lower thyroid hormone levels during pregnancy in mothers with higher PCB exposure

Chevrier J, Eskenazi B, Holland N, Bradman A, Barr DB. 2008. Effects of exposure to polychlorinated biphenyls and organochlorine pesticides on thyroid function during pregnancy. *Am J Epidemiol* 168(3): 298-310.

Infertility in daughters of mothers with high PCB exposure

Cohn BA, Cirillo PM, Sholtz RI, Ferrara A, Park JS, Schwingl PJ. 2011. Polychlorinated biphenyl (PCB) exposure in mothers and time to pregnancy in daughters. *Reprod Toxicol*: in press.

Fewer male children born to women with high PCB exposure

Hertz-Picciotto I, Jusko TA, Willman EJ, Baker RJ, Keller JA, Teplin SW, et al. 2008. A cohort study of in utero polychlorinated biphenyl (PCB) exposures in relation to secondary sex ratio. *Environ Health* 7: 37.

Smaller birth weight in children of mothers with higher PCB concentrations

Murphy LE, Gollenberg AL, Buck Louis GM, Kostyniak PJ, Sundaram R. 2010. Maternal serum preconception polychlorinated biphenyl concentrations and infant birth weight. *Environ Health Perspect* 118(2): 297-302.

PCB effects on the immune system in young children – weaker response to vaccinations.

Heilmann C, Budtz-Jorgensen E, Nielsen F, Heinzow B, Weihe P, Grandjean P. 2010. Serum concentrations of antibodies against vaccine toxoids in children exposed perinatally to immunotoxicants. *Environ Health Perspect* 118(10): 1434-8.

Smaller size of thymus in children born to mothers with higher PCB exposure

Park HY, Hertz-Picciotto I, Petrik J, Palkovicova L, Kocan A, Trnovec T. 2008. Prenatal PCB exposure and thymus size at birth in neonates in Eastern Slovakia. *Environ Health Perspect* 116(1): 104-9.

Human epidemiological studies on PCB carcinogenicity

Mallin K, McCann K, D'Aloisio A, Freels S, Piorkowski J, Dimos J, et al. 2004. Cohort mortality study of capacitor manufacturing workers, 1944-2000. *J Occup Environ Med* 46(6): 565-76.

Prince MM, Ruder AM, Hein MJ, Waters MA, Whelan EA, Nilsen N, et al. 2006. Mortality and exposure response among 14,458 electrical capacitor manufacturing workers exposed to polychlorinated biphenyls (PCBs). *Environ Health Perspect* 114(10): 1508-14.

Bertrand KA, Spiegelman D, Aster JC, Altshul LM, Korrick SA, Rodig SJ, et al. 2010. Plasma organochlorine levels and risk of non-Hodgkin lymphoma in a cohort of men. *Epidemiology* 21(2): 172-80.

Maifredi G, Donato F, Magoni M, Orizio G, Gelatti U, Maiolino P, et al. 2011. Polychlorinated biphenyls and non-Hodgkin's lymphoma: a case-control study in Northern Italy. Environ Res 111(2): 254-9.

Adverse effects of PCBs on the immune system and resistance to infections in marine mammals
Sormo EG, Larsen HJ, Johansen GM, Skaare JU, Jenssen BM. 2009. Immunotoxicity of polychlorinated biphenyls (PCB) in free-ranging gray seal pups with special emphasis on dioxin-like congeners. J Toxicol Environ Health A 72(3-4): 266-76.

Recent studies demonstrating PCB carcinogenicity in laboratory animals
National Toxicology Program (NTP). 2006. NTP Toxicology and Carcinogenesis Studies of a Binary Mixture of 3,3',4,4',5-Pentachlorobiphenyl (PCB 126) (CAS No. 57465-28-8) and 2,3',4,4',5-Pentachlorobiphenyl (PCB 118) (CAS No. 31508-00-6) in Female Harlan Sprague-Dawley Rats (Gavage Studies). Natl Toxicol Program Tech Rep Ser(531): 1-218.
National Toxicology Program (NTP). 2010. Toxicology and carcinogenesis studies of 2,3',4,4',5-pentachlorobiphenyl (PCB 118) (CAS No. 31508-00-6) in female harlan Sprague-Dawley rats (gavage studies). Natl Toxicol Program Tech Rep Ser(559): 1-174.

In conclusion, EWG strongly supports the policy steps that the Environmental Protection Agency has proposed that would protect the health of the American public and the environment from lingering exposures to PCBs. The latest research on the adverse health effects of these materials clearly warrants strong and decisive action on addressing the remaining sources of PCBs.

With best regards,

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