

Polybrominated Diphenyl Ethers Contamination of United States Food

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Elevated levels of polybrominated diphenyl ethers (PBDEs), a type of brominated flame retardant, were recently detected in U.S. nursing mothers' milk. These halogenated compounds chemically and toxicologically resemble others such as polychlorinated biphenyls (PCBs), whose route of intake is almost exclusively through food of animal origin. This study is the first to report the levels of PBDEs in U.S. foods in a market basket survey of 30 food types (total of 32 food samples) from three major supermarket chains in Dallas, TX. Food samples were almost exclusively foods of animal origin: meat, fish, and dairy products. Thirteen PBDE congeners were measured for each sample. Levels were then compared to existing PBDE food studies from other countries where available. In this study, levels of PBDEs are highest in fish, then meat, and lowest in dairy products; median levels were 1725 (range 8.5–3078), 283 (range 0.9–679), and 31.5 (0.2–1373), parts per trillion (ppt), or pg/g, wet weight, respectively. Nonfat milk did not have any detectable PBDE levels. In fish, PBDE congener 47 (2,2',4,4'-tetraBDE) contributes up to 70% of the total PBDEs, followed by congeners 100 (2,2',4,4',6) and 99 (2,2',4,4',5). In meat congener 99 predominates, followed by 47. In dairy, BDE 47 predominates followed by 99. U.S. food PBDE levels measured in this study are higher than reported in two other published market based studies from Spain and Japan. Although these findings are preliminary and will be updated with analyses of new samples, they suggest that food is a major route of intake for PBDEs.