

Studies on analytical method and environmental behavior of polybrominated diphenyl ethers

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Summary

Polybrominated diphenyl ethers (PBDEs) are widely used flame-retardants, which are persistent and bioaccumulative and have been shown to alter thyroid homeostasis in animal studies. However, only limited information is available regarding the levels of PBDEs in human/environmental samples in Japan and its adjacent regions. Although the use of highly bioaccumulative penta-BDE technical mixture has been voluntarily stopped in Japan since early 1990's, the levels of penta-BDE related congeners (e.g., 2,2',4,4'-TeBDE) in archived Japanese breast milk and other human/environmental samples did not show apparent decrease trend (Fig. 1). A part of these pollutions may originate from secondary sources such as leakage from discarded household electrical products and/or formation from photolytic debromination of highly brominated products (octa-BDE and deca-BDE) in the environment. In this study, we try to clarify the time-trend of environmental and human PBDE levels and contribution of secondary pollution source by using the developed analytical methods and model experiences.

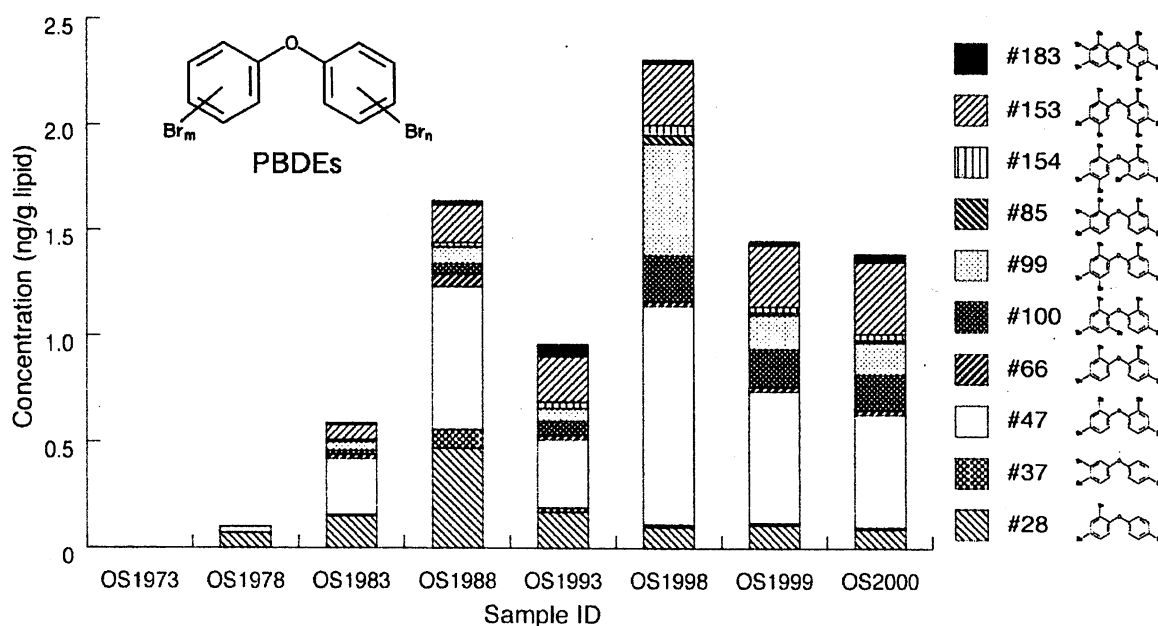


Fig. 1. Time-trend of PBDE concentrations in pooled milk samples collected from mothers living in Osaka between 1973 and 2000. (Akutsu, K., et al., 2003, *Chemosphere*, **53**, 645-654)