

Saturday, June 15th Session 2B (15-2B)

Oral introduction: 15:40-16:50, Poster viewing: 16:50-17:50 Chair: NAKAI Satoshi
15-2B-17

Behaviors of HBCD and its lower brominated derivatives in aquatic environment.

JungKeun OH*, Masahiro TOKUMURA*, Satoshi MANAGAKI**, Shigeki MASUNAGA*

**Graduate School of Environment and Information Sciences, Yokohama National University, Yokohama 240-8501 Japan*

***Faculty of Environmental Science, Musashino University, Tokyo 135-8181 Japan*

Hexabromocyclododecane (HBCD) has been produced in quantity and used as an additive flame retardant in polystyrene foams and textile products. Technical grade HBCD mainly consists of three diastereomeric pairs of enantiomers (α -, β -, and γ -HBCD). While HBCD isomers are regarded as PBT (persistent, bioaccumulative, and toxic) chemicals identified by Stockholm Convention on Persistent Organic Pollutants, the category of "Persistent" for this compound is becoming controversial in recent years due to some observations of HBCD degradation in abiotic/biotic compartments. Research on enantiomeric patterns of HBCD and their degradation products and in the environment is still in its early stage. It is important to scrutinize the behavior of enantiomers from three diastereomers to understand the fate of HBCD in the aquatic environment. In this study, riverine sediment samples from three Japanese rivers were analyzed to provide information on diastereomeric/enantiomeric patterns and to investigate the correlation between enantiomeric fractions of HBCD diastereomers and the formation rates of its lower brominated derivatives in the wastewater sludge. The mean enantiomeric fractions for γ -HBCD in sediments of three rivers ranged from 0.357 (0.023) to 0.472 (0.014), indicating that there was stereoselective transformation into (-) enantiomer of γ -HBCD in the Japanese aquatic environment.