

Long-lasting pollutant found in fertilizer, fish

By Keith Mulvihill

NEW YORK, Jul 11 (Reuters Health) - Biosolids, the treated sewage sludge that is spread on cropland as a fertilizer, contain "high concentrations of an environmentally persistent class of organic pollutants" called brominated diphenyl ethers (BDEs), study results indicate.

And the researchers report that they found BDEs in 87% of fish sampled from Virginia waters, with one fish close to setting a world record for contaminant levels.

"This finding indicates that significant environmental release of these pollutants is occurring in the United States and that humans may be exposed to them through their diet," according to Dr. Robert C. Hale and colleagues from the Virginia Institute of Marine Science in Gloucester Point.

BDEs are added to polyurethane, the synthetic foam used to make seat cushions and many other materials, as a fire retardant. The European Commission plans to ban BDEs due to mounting concerns about their potential health risks and a recent study that found concentrations of BDEs on the rise in human breast milk, Hale explained in an interview with Reuters Health.

"What's new here is the fact that BDEs are a persistent pollutant--meaning that it does not readily break down in the environment--and they have not been well studied," Hale told Reuters Health.

Notably, Hale pointed out that concentrations in US biosolids exceed those typically found in European biosolids by a factor of 10 to 100.

In the study, published in the July 12th issue of the journal *Nature*, the researchers analyzed 11 samples of treated biosolids from California, New York, Virginia and Maryland.

The total concentration of BDEs in the biosolids was 1,100 to 2,290 micrograms per kilogram of dry weight, "suggesting that input was high and consistent, regardless of the region of origin and irrespective of pre-application treatment," the authors write.

The researchers found BDEs in 87% of 334 fish from Virginia waters that they tested. In fact, a carp from one stream in Virginia contained 47,900 micrograms per kilogram of total BDEs, "rivaling the highest fillet burdens reported in the world so far," the report indicates.

"The jury is still out about how toxic [BDEs] are, but the fact remains--they do bio-accumulate and they are persistent," Hale said.

Hale also noted that BDEs are "quite similar [in structure] to the drug thyroxine" and said that the chemicals may mimic the drug's activity in humans.

Thyroxine is used in the treatment of thyroid disorders and helps regulate growth and cell metabolism.

Over half the sewage sludge produced annually in the United States is applied to land, amounting to roughly 4 million tons in 1998, the authors note.

SOURCE: *Nature* 2001;412:140-141.

Copyright © 2001 Reuters Limited. All rights reserved. Republication or redistribution of Reuters content is expressly prohibited without the prior written consent of Reuters.

Reuters shall not be liable for any errors or delays in the content, or for any actions taken in reliance thereon.