

Are our classrooms contaminated?

Posted on Sunday 24th August 2008

New research from the University of Birmingham has shown that dust in British primary school classrooms is contaminated with relatively high levels of polluting compounds that could pose a risk to human health.

The results, which will be presented today (Thursday 21st August) at the Dioxin 2008 conference showed that dust contained concentrations of HBCD, TBBP-A, PFOS, and PFOA.

All are persistent organic pollutants (POPs), chemicals that do not degrade in the environment. POPs can accumulate over time in human or animal tissue creating potential risks to human health and the environment.

HBCD is commonly used in wall insulation, electronics and fabric coating, whilst TBBP-A is a flame retardant used in electronic equipment like computers. In sufficient quantities both chemicals have been shown to have toxic effects on the human hormone system. PFOS and PFOA are chemicals widely used to stainproof fabrics and carpets.

The researchers took samples from 20 primary school classrooms across the West Midlands using a specially modified vacuum cleaner. The samples of dust were then chemically analysed in the laboratory.

The results showed that levels of HBCD in classroom dust were significantly higher than that from samples in offices and homes. Levels of TBBP-A were similar to those found in dust from homes, but higher than samples taken from cars and offices. Too little is yet known about concentrations of PFOS and PFOA in indoor dust to evaluate how classroom levels compare with those in other indoor environments.

Emma Goosey who will be presenting the research comments: "Our results show that classrooms contain significant levels of these compounds.

We already know that children are more likely than adults to be exposed to persistent organic pollutants by consuming dust. We also know that they are also more susceptible to the effects of such chemicals.

The levels in classrooms seem to be higher than some other common environments probably because of the high numbers of computers and fire / stain retardants used in furniture.

Because they can accumulate in the body it is important that we monitor levels of exposure across our lifespan."

The team used their findings to calculate a child's likely exposure from ingesting dust. Their calculations showed that exposure to HBCD and TBBP-A is significant (0.015 µg/kg bw/d for PFOS and 0.0024 µg/kg bw/d for PFOA)..However, the levels of classroom exposure to PFOS and PFOA are below the advised levels set by the UK government.

Dr Stuart Harrad adds: "Dust seems to be a major source of childhood exposure to these compounds. Our initial work suggests that exposure in classrooms is within safe levels for some chemicals, but may not be for other widely used chemicals, and more work is needed to assess how exposure from various sources accumulates – particularly as these chemicals remain within the body.

Health risks are likely to occur from prolonged exposure from several sources, so one area that we are currently looking into is children's exposure to compounds that could metabolise into POP chemicals within the body."

For further information or to request a copy of the paper contact: Ben Hill, Press Officer, University of Birmingham, Tel 0121 4145134, Mob 07789 921 163

NOTES TO EDITOR

DUST FROM PRIMARY SCHOOL AND NURSERY CLASSROOMS IN THE UK: ITS SIGNIFICANCE AS A PATHWAY OF EXPOSURE OF YOUNG CHILDREN TO PFOS, PFOA, HBCDs, AND TBBP-A

Goosey Emma, Abou-Elwafa Abdallah Mohamed and Harrad Stuart – will be presented at the Dioxin 2008 symposium at 4.15pm on Thursday August 21st.

Dioxin 2008

The 28th International Symposium on Halogenated Persistent Organic Pollutants will be welcoming approximately 800 delegates from 46 countries to the ICC. There will be 250 platform and 400 poster presentations in five parallel sessions, plus a major trade exhibition, with the Lord Mayor and Lady Mayoress of Birmingham welcoming delegates at a Civic Reception at the Birmingham Museum and Art Gallery.

For more information visit the Dioxin [website. \(http://www.dioxin2008.org/\)](http://www.dioxin2008.org/)

The website includes full information about the scientific programme at the event.

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