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Child health: House dust sometimes polluted Early results from 600 households with children

Which pollutants are in the house dust of family homes with children? Updated information on the topic can be found in the Federal Environment Agency's (UBA) report on house dust (*Hausstaub*), carried out as part of the German Environmental Survey of Children (GerES IV). Researchers detected substances whose production and uses in some cases have been banned for years on account of their harmfulness. They include the mosquito repellent Dichloro-Diphenyl-Trichloroethane (DDT), or the wood preservative Pentachlorophenol (PCP). DDT was found in 39 per cent, and PCP in as many as 83 per cent of house dust samples. UBA collected the data between May 2003 and 2006 from 600 households with children. UBA will evaluate and publish data on other pollutants, as the researchers seek to identify the other pollutants that house dust is contaminated with and what the possible sources are.

In addition to "dirt", house dust contains a whole range of chemicals that are introduced from furnishings such as flooring or everyday goods like insect sprays. Since children are very curious they tend to put a lot of things in their mouths. The result of this typical "hand-to-mouth" behaviour is that children can ingest harmful substances contained in the house dust. UBA analyses covered DDT and PCP as well as other pesticides, e.g. HCB (hexachlorobenzene) and several polychlorinated biphenyls (PCB), which are classified as indoor space pollutants. Production and use of these substances has in some cases been banned for a long time on grounds of problematic properties affecting health. DDT is a persistent pollutant that affects the central nervous system and is one of the substances that impact the human endocrine system. PCP is classified similarly to DDT as a "possible human carcinogen". These substances used to be an ingredient in wood preservatives used indoors. Due to foreign production they still enter indoor spaces and house dust today. The substance contents of house dust are an important indicator of the presence of non-volatile chemicals in the indoor environment. The latest results will serve to assess other related studies. The analysis of house dust acts as a screening instrument.

The new report clearly describes the contents of house dust in tables. Data is grouped according to residential region of families (West or East Germany), socio-economic status (parents' income, education and professional status), and year the building was constructed. It

is UBA's experience that these factors are key to tracing house dust pollution. It shows, for example, what the level of dust contamination is in the new and old federal states, namely that the mosquito repellent DDT is more frequent in house dust in the new federal states, whereas PCP, which was contained in wood preservatives until 1989, was detected by the experts more frequently in the old federal states (West Germany). Some of the PCBs, used till 1989 in such things as capacitors and caulking materials, are more often found in house dust in the old federal states.

The German Environmental Survey of Children (GerES IV) is the first federal survey devoted only to children. From 2003 to 2006 GerES IV was conducted in close cooperation with the Robert Koch Institute (RKI) and randomly selected a sub-sample of 1,790 children aged 3-14 from 150 locations in Germany. GerES IV is a module of the National Health Interview and Examination Survey for Children and Adolescents (German acronym *KiGGS*) conducted by the Robert Koch Institute (RKI). The German Federal Ministry for Environment, Nature Conservation and Nuclear Safety and the Ministry for Education and Research sponsored GerES IV.

The report can be downloaded free at <http://www.umweltdaten.de/publikationen/fpdf-l/3356.pdf>. The current status of other publications related to the Environmental Survey of Children is at <http://www.umweltbundesamt.de/survey/>.

Dessau-Roßlau, 22 February 2008