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Standardized House Dust Aids Health Researchers

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[简评] February 1, 2007 - Chemists at the National Institute of Standards and Technology (NIST) have created a standardized form of common house dust to support environmental scientists studying one everyday exposure to a catalog of potentially hazardous chemicals.
[关键词] standardized dust chemicals

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Chemists at the National Institute of Standards and Technology (NIST) have created a standardized form of common house dust to support environmental scientists studying one everyday exposure to a catalog of potentially hazardous chemicals.

Although a "standard house dust" may sound funny, environmental scientists are quite serious about the potential for household grime to harbor harmful chemicals. A 2002 study by NIST and the Environmental Protection Agency (EPA), for example, found high concentrations of polybrominated diphenyl ethers (PBDEs) in household dust*. PBDEs were widely used as flame retardants in consumer products but have been phased out due to concerns over their toxicity. Polychlorinated biphenyls (PCBs), once commonly used in electr

Accurate assessments of everyday exposure to many of these contaminants are difficult because of both the complexity of the analysis and the small quantities involved. "PCBs," for example, is shorthand for dozens of chemically similar compounds that may be found in hundreds of combinations of only a few micrograms each in a kilogram of dust. To provide environmental scientists with an accurate baseline for calibrating their tests, NIST prepared a reference sample of typical house dust that has been certified for the concentration

The dust was collected, with assistance from the EPA, from vacuum cleaner bags collected from homes, cleaning services, motels and hotels in the states of North Carolina, Maryland, Ohio, New Jersey, Minnesota and Wisconsin during 1999 and 1984, and sorted, filtered, homogenized and analyzed. Each 35

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gram sample of Standard Reference Material 2585, "Organic Contaminants in House Dust," is certified by NIST for the concentrations of 33 selected polycyclic aromatic hydrocarbons (PAHs), 30 PCBs, four chlorinated pesticides and 15 PBDEs. Reference values –

measurements believed to be accurate but not meeting NIST criteria for a "certified" value –

are provided for 33 additional PAHs, 12 additional PCBs, 10 additional chlorinated pesticides and three additional PBDEs.

Standard Reference Materials (SRMs) are among the most widely distributed and used products from NIST. The agency prepares, analyzes and distributes well over a thousand different materials that are used throughout the world to check the accuracy of instruments and test procedures used in manufacturing, clinical chemistry, environmental monitoring, electronics, criminal forensics and dozens of other fields.

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