Source: www.pcbinschools.org

HARVARD
School of Public Health

PCBs in Schools- Still a Problem

Legacy PCBs in construction materials used in schools

Robert F. Herrick

We acknowledge support from the Harvard NIEHS Center for Environmental Health, Grant number P30ES000002

At the end of 9 minutes you will know:

PCBs were commonly used in building materials from about 1950 to about 1980

Those materials release PCBs to the environment

People who work, live and go to school in those buildings are exposed to PCBs

They have elevated levels of PCBs in their blood from exposure in these buildings

Who was first?

Benthe Chr., B. Heinzow, H. Jessen, S. Mohr, W. Rotard: Polychlorinated Biphenyls. Indoor air contamination due to thiokol-rubber sealants in an office building. Chemosphere 1481- 1486, 1992

Studies in the US

SOURCES OF TOXIN REVEALED AT BOURNE SCHOOL

Author(s): Shirley Leung, Globe Staff **Date:** March 21, 1996 **Page:** 92 **Section:** METRO

The US Army Corps of Engineers said yesterday that joint caulking and wood fiber ceiling material and paint are the sources of a known toxin found at a Bourne elementary school last September.

The Clayton E. Campbell School on the Massachusetts Military Reservation has been shut down since the beginning of the school year because of environmental problems Tests conducted at the school revealed levels of polychlorinated biphenyls (PCBs), a probable carcinogen, that were 2,000 times greater than acceptable under state rules.

The school, built in 1965 by the Housing & Home Finance Agency for the children of personnel stationed at Otis Air Force Base, closed in the early 1970s because of budget cuts but was to open last fall to 250 third and fourth graders.

It is one of four schools on the military reservation, a federal Superfund site. There was no contamination found at the other schools

Perform a new search

PCBs in Building Materials – Boston Area

Building Type	Aroclor 1254 (ppm) in Caulking
Government office	35,600
Government office	25.2
University housing	36,200
University dorm	70.5
University classroom	26,400
Elementary school	7,740
Middle school	5,010
High School	5,970
Synagogue	8,240

Source: Environmental Health Perspectives Vol 112, No. 10, July 2004

- Of the 24 buildings sampled, 13 contained caulking material in which detectable levels of PCBs were measured.

- Of these 13, eight buildings contained caulking that exceeded the 50 ppm EPA criteria, in some cases by a factor of nearly 1000 (range 70.5-36,200 ppm; mean 15,645 ppm).

PCBs in Schools

- URI Closes Building on Kingston Campus
  (URI News Bureau, URI, 12/23/00)
- Tests Reveal High PCB Levels at French Hill School
  (N. County News, Yorktown Heights, NY, 9/14/05)
- Science Library Closed Temporarily for PCB Testing
  (In the Loop, UMass-Amherst, 9/6/06)
- PCBs in Caulking and Soils in Westchester County Schools
  (N. County News, Yorktown Heights, NY, 5/24/06)
- Mahar Hall at SUNY Oswego Tested Positive for PCB Material in Caulking
  (SUNY Construction Fund, Albany, NY, 10/07/05)
- Some Caulking May be Linked to Cancer, Harvard Study Finds
  (The Boston Globe, Boston, MA, 7/21/04)

Tainted Soil to Be Removed Next to Westchester School

By BARBARA WHITAKER for The New York Times

Published: July 4, 2005

In what state health officials call the first cleanup of its kind in the state, a school district in Westchester County is planning to remove soil next to an elementary school in Yorktown Heights because the soil is contaminated by PCB's from caulking in the school's windows.

Dr. Daniel Lefkowitz requested tests on scraps of caulk left after maintenance at French Hill Elementary School, where his son, Evan, is a student. The tests found PCB's at 350 times above the federal limit.

PCB Levels in Caulk and Air in Schools

Location	PCB in caulk (range, ppm)	PCB in air		reference
		mean/median (ng/m^3)	range (ng/m^3)	
Germany	124,000 and 327,000 ppm	nr (not reported)	1,000 and greater	Burkhardt 1990
Germany	500,000 (approx)	nr	3,643-13, 561	Gabrio 2000
Sweden	70-120,000 schools	nr	0-37	Corner 2002
US	Nondetected-33,000	nr	< 38.2-393	Coughlan 2002
US	1,830 – 29,400	432 median	299 – 1,800	Macintosh 2012
US	<1-440,000	318 median	<49-953	Thomas 2012

EPA/NYC Pilot Project

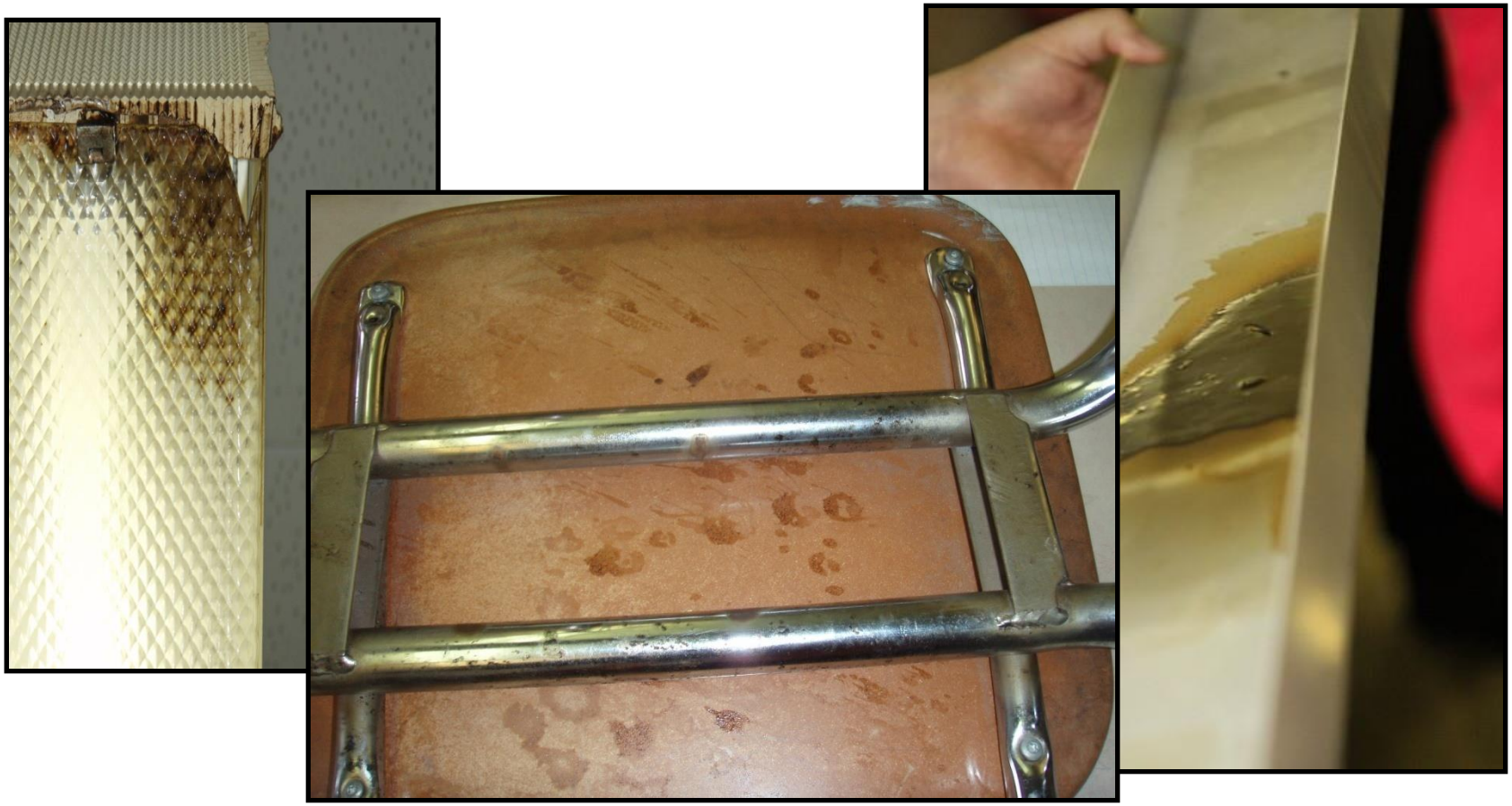
- January 2009- Evaluated PCBs in caulk
- Summer 2010- Air, dust and soil samples
- Levels above health-based benchmarks

Source: PCBs in Lighting Fixtures in NYC Schools

Presentation by Judith Enck, EPA Regional Administrator, US EPA Region 2

Ballast Location

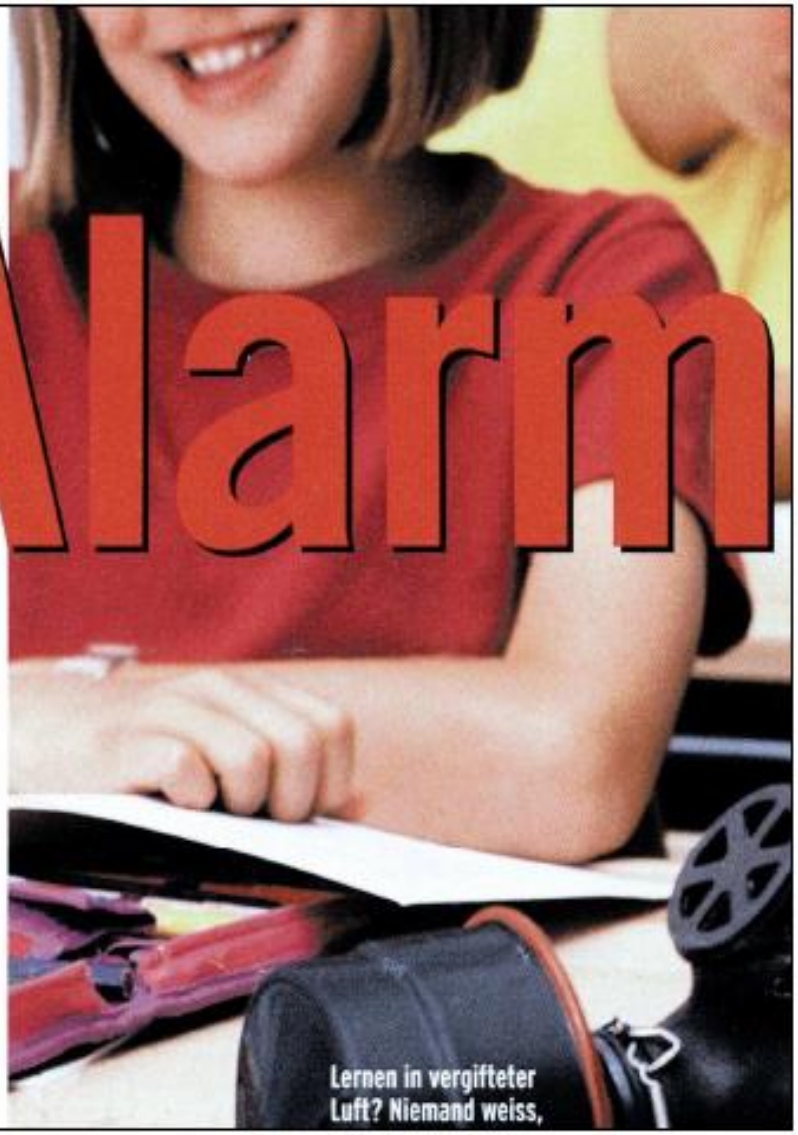
Oily Stains



PCB in Schulen

Gift-Alarm

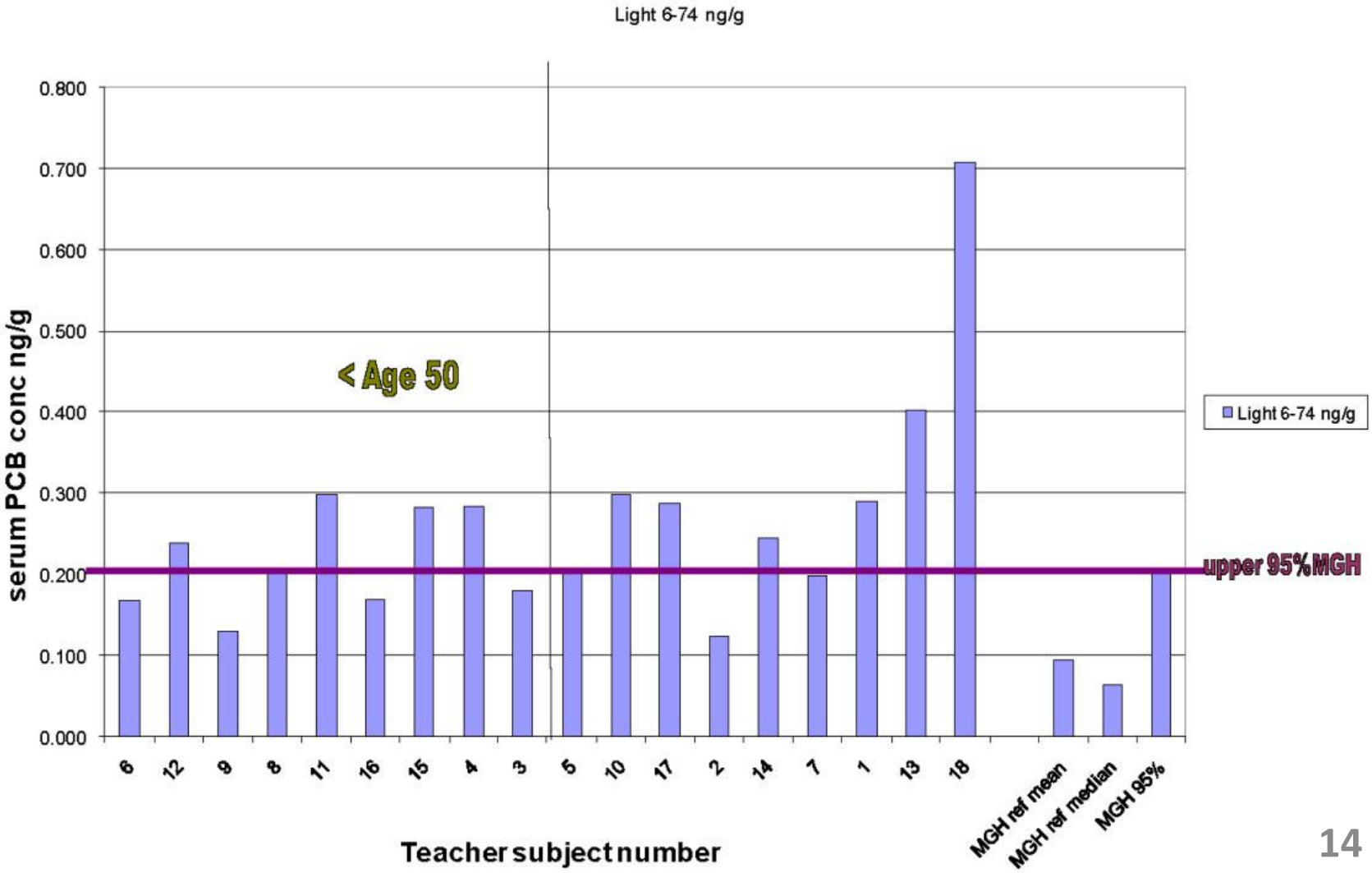
PCBs sind hochgiftig, Krebs fördernd und deshalb verboten. Die Behörden entwarnten vor sieben Jahren: In der Schweiz gebe es in Innenräumen keine PCBs. Doch die Stichprobe des Puls-Tip zeigt: In 6 von 10 untersuchten Schulhäusern hat es PCB-Fugenkitt in den Wänden.



Lernen in vergifteter Luft? Niemand weiss,

Picture taken from [1]

Serum PCB concentrations – teachers compared to referents



More Information

A comprehensive summary is at www.pcbinschools.org

Center for Health, Environment and Justice at http://chej.org/campaigns/cehp/projects/pcbs-in-schools/

USEPA at http://www.epa.gov/pcbsincaulk/

Malibu Unites for healthy schools at http://malibuunites.com/

References

Burkhardt U, et al., “Indoor Air Pollution by Polychlorinated Biphenyl Compounds in Permanently Elastic Sealants,” Offentl Gesundheitweis 52, 10 (1990):567-574.

Coghlan KM, Chang MP, Jessup DS, Fragala MA, McCrillis K, and Lockhart TM. (2002). Characterization of Polychlorinated Biphenyls in Building Materials and Exposures in the Indoor Environment. Proceedings: Indoor Air 2002. The 9th International Conference on Indoor Air Quality and Climate, Monterey, CA, USA, June 30-July 5, 2002.

Corner R, et al., “PCB in Indoor Air and Dust in Buildings in Stockholm,” in Indoor Air 2002, proceedings from the 9th International Conference on Indoor Air Quality and Climate, Monterey, California, June 30–July 5 (2002) 4: 141-146.

Gabio T, Piechotowski I, Wallenhorst T, Klett M, Cott L, Friebel P, Link B, Schwenk M. (2000). PCB-Blood Levels in Teachers, Working in PCB-Contaminated Schools. Chemosphere, 40:1055-1062.

Herrick RF, McClean MD, Meeker JD, Baxter LK, and Weymouth GA. (2004). An Unrecognized Source of PCB Contamination in Schools and Other Buildings. Environ Health Perspect, 112(10):1051-1053.

Herrick RF, Meeker JD, Altshl L. (2011). Serum PCB Levels and Congener Profiles Among Teachers in PCB-Containing Schools: A Pilot Study. Environ Health, 10:56.

S. Leung, “Source of Toxin Revealed at Bourne School,” Boston Globe, March 21, 1996.

MacIntosh DL, Minegishi T, Fragal MA, Allen JG, Coghlan KM, Stewart JH, McCarthy JF. (2012). Mitigation of Building-related Polychlorinated Biphenyls in Indoor Air of a School. Environ Health, 11:24, 1-10

U.S. Environmental Protection Agency “Polychlorinated Biphenyls (PCBs) in School Buildings: Sources, Environmental Levels, and Exposures” Au:Kent Thomas, Jianping Xue, Ronald Williams,Paul Jones, Donald Whitaker; EPA/600/R-12/051| September 30, 2012