

Methamphetamine labs and wastes

Methamphetamine (meth) is an illegal drug made from cold medicine and household chemicals.

Pseudoephedrine or ephedrine, found in non-prescription cold medicines, is converted to meth using variations of two main methods, the red phosphorous method and the anhydrous ammonia method. The anhydrous ammonia method has been more common in Minnesota.

During the “cook,” methamphetamine vapors and particles and other chemicals are deposited unevenly on surfaces throughout the building. Case studies of former meth labs in Minnesota have shown that meth also penetrates materials such as wood studs, latex-painted wallboard, and cement block.

Outdoor contamination

The production of meth can create environmental hazards. Waste from meth labs has generally been dumped into indoor plumbing (draining to either a city sewer or septic system), plumbing that drains directly onto soil, or burn or burial pits.

The primary environmental hazard is possible contamination of groundwater by volatile organic compounds used in the meth cooking process. In limited samplings to date, the Minnesota Pollution Control Agency (MPCA) has not yet identified levels of concern in groundwater due to meth lab-related wastes.

Minnesota legislation effective in 2005 placed restrictions on sales of the precursor drugs, ephedrine and pseudoephedrine, required to make meth. The number of new meth labs found in Minnesota has since fallen.

Indoor contamination

MPCA sampled former meth labs to characterize meth deposition and penetration of building materials. MPCA found wipe sampling of meth-contaminated materials to be problematic because sampling results from different building materials are difficult to compare.

The adopted “cleanup standard” of 1 microgram per square foot ($\mu\text{g}/\text{ft}^2$) is not a health-based or risk-based value; that is, levels of meth above or below $1 \mu\text{g}/\text{ft}^2$ cannot be said to be either “dangerous” or “safe.” Much work remains in evaluating “safe” exposure levels to residual meth and other contaminants in former meth labs. Because of this and the difficulties of interpreting sampling results, the Minnesota Department of Health (MDH) guidance “relies on a remediation process rather than achievement of a number ...” (MDH Guidance Section D, “Meth Risk Decisions,” p. 11).

MDH guidance provides steps to clean up meth wastes, including disposing of materials that cannot be cleaned (e.g., carpeting, ceiling tile, and wallpaper), double washing and rinsing all surfaces, and sealing with two coats of paint or polyurethane. Studies of former Minnesota meth labs have shown that cleaning and sealing will greatly reduce human exposure to meth. However, a wiper sample performed using the procedure recommended (MDH Guidance, Appendix C1) and analyzed in a lab will almost always show low-level meth residue. Because remediation effectiveness can’t be reliably demonstrated, the MDH doesn’t require sampling for meth before and after cleanup, if the remediation process is followed. (MDH Guidance, p. 12).

Despite the problems inherent in wipe sampling for meth, sampling may be required in some cases. Careful planning of sampling locations, choice of building materials to be sampled, and interpretation of results is necessary (MDH Guidance, Appendix C4).