

Note: The following guidance has not yet been updated to reflect the changes in regulation. However, much of the information is still useful and relevant. Please use this document in conjunction with the regulations.



Colorado Department
of Public Health
and Environment

Methamphetamine (Meth) Lab Frequently Asked Questions

Introduction

Methamphetamine laboratories have been a growing problem throughout Colorado and across the United States. In Colorado alone, the number of meth lab seizures reported by the Colorado Bureau of Investigation has increased dramatically over the past several years: 150 in 1999, 264 in 2000, 452 in 2001, and the number exceeded 700 in 2002.

The Colorado Department of Public Health and Environment (the Department) regularly receives questions regarding the cleanup of former meth labs and other concerns. Many of these concerns have to do with the conditions resulting from meth lab activities. Property owners want to know what to do once the meth lab has been closed and the chemicals and equipment removed, neighbors are concerned for their personal safety, and potential future residents are concerned about their long-term health risks.

The Department has assembled the following answers to frequently asked questions to help local agencies and the general public understand how to best manage a property that has been used as a meth lab. The Department has also developed guidance on meth lab cleanup, which can be downloaded at <http://www.cdphe.state.co.us/hm/methlab.pdf>.

Frequently Asked Questions

1. What is methamphetamine?

Methamphetamine (referred to as “meth”) is a powerful, highly toxic, addictive drug that is illegally “cooked” in makeshift labs. Meth can be found in the form of pills, capsules, powder or chunks. It can be smoked, snorted, injected or eaten. Meth is also called crank, speed, crystal or ice.

Meth labs have dramatically increased over the past several years because meth recipes are more readily available, meth is relatively easy and cheap to make, and the resulting “high” lasts about 2 to 14 hours (versus about 15 minutes for a cocaine high).

2. How do I recognize a meth lab?

Meth labs may be set up at campgrounds, rest areas, homes, motel rooms, abandoned cars, garages, storage sheds and vacant buildings. A typical meth lab includes a collection of chemical bottles, glassware, hoses, and pressurized cylinders. The cylinders can take many forms, including modified propane tanks, fire extinguishers, scuba tanks and soda dispensers. The tanks usually contain anhydrous ammonia or hydrochloric acid – both highly poisonous and corrosive.

The most common chemicals used to start the meth-making process are over-the-counter cold and asthma medications that contain ephedrine or pseudoephedrine as decongestants or stimulants. Other common chemicals and equipment found at meth labs include:

- Red phosphorous
- Iodine
- Starter fluid (ethyl ether)
- Acetone, toluene, alcohol or paint thinner
- Camp stove fuel (naphtha)
- Anhydrous ammonia (in propane tanks or coolers)
- Drain cleaner containing sodium hydroxide (lye)
- Lithium batteries
- Sulfuric acid, muriatic acid, phosphoric acid
- Hydrogen peroxide
- Glass containers (cookware such as Pyrex or Corning ware)
- Plastic or rubber tubing
- Funnels
- Propane tanks (with corroded, bent or tampered valves)
- Coffee filters (with red stains or ephedrine residues)
- Camp stoves or hot plates
- Kitty litter

3. How can I tell if a meth lab is present near my residence?

Some of the warning signs of a suspected meth lab include:

- Strong or unusual odors (solvents, ammonia, ether-like, vinegar-like, pungent, acrid or sour)
- Unusual security systems or other devices
- Increased activity, especially at night
- Unusual structures
- Windows covered with plastic or tin foil
- Renters who pay landlords in cash
- Excessive trash
- Discoloration of structures, pavement and soil

4. What should I do if I suspect the presence of a meth lab?

DO NOT ENTER a site that you think may be used for cooking meth. Call your local law enforcement agency immediately. Meth labs present extreme dangers from fire, explosions and exposure to hazardous chemicals. Breathing chemical fumes or handling unknown substances can cause injury and even death.

Meth labs are considered hazardous waste sites and should only be entered by trained and properly equipped professionals (i.e., first responder Hazardous Material (hazmat) Teams). Never handle materials you suspect were used for making meth, such as contaminated glassware or needles. Skin contact can result in burns or chemical absorption into the skin. Handling items can also cause some of the chemicals to ignite or explode on contact with water or air.

5. How can I find out if a property has been used to make meth?

Currently, there is no comprehensive method for tracking or listing residential or commercial units that were used as meth labs. Local law enforcement agencies should be able to confirm if a seizure of chemicals or meth lab equipment took place at a particular address and may be able to provide the name of the hazardous materials contractor who removed the materials. The contractor should have information on what chemicals were present on the property. Additional information may be available from the county health department, building department, fire department, or the owner of the property.

If a former meth lab is suspected at a property, and no information regarding testing or cleanup of the property is available, sampling for meth residues may help to determine whether the property was used for meth manufacturing and if a cleanup is necessary.

6. How is meth manufactured?

The manufacture of methamphetamine is fairly simple. Generally, meth is made by using a “recipe” obtained from acquaintances, publications or other sources. The person manufacturing the drug literally “cooks” the ingredients. Hence these people are called “cooks.” Though there are a number of methods used to produce this drug, the two most common methods currently found in Colorado include the Red Phosphorous and Birch methods. Both use ephedrine or pseudoephedrine as a primary ingredient. These chemicals are present in many common over-the-counter cold and asthma medications.

7. What types of byproducts and contaminants result from meth labs?

Production of methamphetamine in pharmaceutical laboratories under controlled conditions results in the production of certain byproducts and contaminants, which are removed from the final product. But in an illegal meth lab, such controlled conditions do not exist. In addition to the normal wastes and byproducts, other unwanted byproducts may be produced under less than ideal conditions (e.g., overheating, under heating, and improper mixing).

Byproducts resulting from the Red Phosphorous and Birch methods, the most common production methods found in Colorado, include potentially flammable extraction process sludges, phosphine gas, hydriodic acid, hydrogen chloride gas, phosphoric acid, and yellow or white phosphorus. Identifying byproducts and intermediate stage compounds is made more difficult since there are different recipes for making meth and each method uses different ingredients. The making of meth can also be performed in different stages at different locations. In addition, many of the chemicals used in meth production are common chemicals and products found in most homes.

8. What are the general health risks associated with meth labs?

Methamphetamine and its associated chemicals can cause long-term health effects including cancer, damage to the central nervous system, liver, or kidneys, birth defects, and miscarriages. It can also cause memory loss, heart problems, aggression and violence. Meth causes health

problems not just for the users, but also for others who are unintentionally exposed to the meth or associated chemicals and byproducts.

People who enter a meth lab before it has been properly cleaned and ventilated may experience headaches, nausea, dizziness, fatigue, shortness of breath, coughing, chest pain, lack of coordination, burns and even death. Risk of injury or toxicity from chemical exposure varies, depending on the toxic properties of the chemicals or byproducts, their quantity and form, concentration, duration of exposure, and route of exposure. Possible routes of exposure to meth lab chemicals include:

1. Inhalation
2. Absorption through skin
3. Ingestion (swallowing)
4. Injection.

Acute (short-term) exposures to high concentrations of some meth lab chemicals, such as those law enforcement officers face when they first enter a lab, can cause severe health problems including lung damage and burns to different parts of the body. Chronic (long-term) exposures to low concentrations of meth lab chemicals can also cause health problems, such as cancer, and damage to the central nervous system, liver, or kidneys.

Health effects caused by use of meth include euphoria, increased alertness, paranoia, decreased appetite and increased physical activity. Other central nervous system effects include irritability, extreme nervousness, insomnia, confusion, tremors, anxiety, aggression, incessant talking, hyperthermia, and convulsions. Long-term effects caused by meth use include kidney and lung disorders, brain damage, liver damage, blood clots, chronic depression, hallucinations, violent and aggressive behavior, malnutrition, disturbed personality development, deficient immune system, and psychosis.

9. What is the exposure risk from active meth labs?

A functioning meth lab presents the greatest risk of adverse health effects for occupants, neighbors and law enforcement personnel. Fire and explosion present the greatest immediate risk due to the relatively large amounts of volatile solvents normally found at these sites. The cooking process also generates toxic gases such as phosphine gas, hydriodic acid gas, and hydrogen chloride gas.

In addition to inhalation or skin exposure risks, children living in a drug lab environment typically are in contact with the floor and other contaminated surfaces, and thus have a higher potential for exposure due to ingesting chemicals.

10. Why the concern about cleaning up illegal meth labs?

Typically after a lab is discovered by law enforcement, the bulk of any lab-related debris is removed. After removal of the illicit laboratory equipment and chemicals, residual amounts of meth, chemicals and byproducts may persist on interior surfaces and furnishings prior to cleanup.

Substances present in the active lab as gases or volatile solvents dissipate rapidly when ventilated, but can persist in interior areas if these materials are absorbed into the furnishings, carpets or walls. Depending on the cooking process used, the length of time the site was used, and the housekeeping practices of the cook, risk of exposure at a former meth lab can be significant until the area is cleaned up.

Potential areas of contamination can be divided into primary and secondary areas. Typical primary areas of contamination include:

- **Processing or "cooking" areas:** Significant contamination in these areas may be caused by spills, boil-overs, explosions, or by chemical fumes and gases created during the heating and distilling portions of the "cooking" process. Indoor areas affected may include floors, walls, ceilings, used glassware and containers, working surfaces, furniture, carpeting, draperies and other textile products, plumbing fixtures and drains, or heating and air-conditioning vents.
- **Disposal areas:** Indoor areas include sinks, toilets, bathtubs, floor drains, vents, vent fans and chimney flues. Outdoor areas may include soil, surface water, groundwater, dumpsters, sewer or storm systems, septic systems and cesspools.
- **Storage areas:** Contamination may be caused by leaks, spills or open containers.

Secondary areas of contamination may include:

- Locations where contamination has migrated, such as hallways or high-traffic areas.
- Common areas in multiple dwelling structures and adjacent apartments or rooms may also be contaminated.
- Common ventilation or plumbing systems in hotels and multiple dwellings.

11. Who is responsible for the clean up of illegal meth labs after seizure, and how can the property be cleaned up?

When cleanup of a property is required, the owner of the property is responsible. The property owner may want to contact his/her insurance carrier for advice and assistance regarding property cleanup and choosing a cleanup contractor. The removal of lab chemicals and equipment must be conducted by a properly trained and equipped hazardous materials (hazmat) cleanup team. After a site has been secured and no longer subject to criminal investigation, appropriately trained and equipped personnel should be hired to cleanup any remaining contaminated materials. To address cleanup of former meth labs in Colorado, the Department has developed a guidance document <http://www.cdphe.state.co.us/hm/methlab.pdf>, which outlines cleanup and testing procedures that should be used to ensure that a former meth lab is made safe for re-occupancy.

12. How do you clean up a former meth?

In most situations, cleanup/decontamination of structures that have been used as meth labs will involve one or more of the following measures:

- **Airing-Out:** Solvents and other chemicals may have soaked into the walls or furnishings and slowly volatilize back into the air. Proper ventilation may safely reduce contamination and decrease odors.
- **Removal:** Visibly contaminated (etched or stained) sinks, bathtubs, and toilets are difficult to clean and may need to be removed and replaced. Absorbent materials, such as carpeting, drapes, furnishings, wallpaper, clothing, etc., can absorb vapors and may collect dust and powder from the chemicals involved in the manufacturing process. Some absorbent materials can be washed or cleaned if they exhibit little to no odor or staining, but many stained materials or those with odors often have to be disposed of.
- **Detergent-Water Washing:** Nonporous and semi-porous surfaces (such as floors, counters, tiles, walls and ceilings) should be thoroughly cleaned with a detergent-water solution or steam cleaned. Methanol or isopropyl alcohol may also be used for cleaning, but should only be used in a well-ventilated area.

Cleaning of porous materials that are not discarded will usually consist of vacuuming using a machine equipped with a HEPA filtration system, followed by hot water detergent scrubbing. Non-washable materials, such as lined curtains, that are not heavily contaminated may be steamed-cleaned.

- **Ventilation System:** All air filters in the ventilation system should be replaced, vents should be removed and cleaned, the system's ductwork should be cleaned, and surfaces near inlets and outlets should be cleaned.
- **Encapsulation or Sealing:** Interior surfaces (e.g., walls, wood flooring, ceilings, and paneling) should be painted with an oil-based paint, epoxy, or other material suitable to create a physical barrier capable of preventing volatilization of contaminants.
- **Plumbing:** If staining is noted around sinks, toilets or tubs, or if a strong chemical odor is coming from household plumbing, the plumbing system should be flushed with generous amounts of water to reduce the concentration of residual chemicals.
- **Personal Belongings:** If residents of the structure need to remove personal items, they should do so only after the items have been properly decontaminated. As with household furnishings, personal items that are visibly stained are hard to clean and may need to be discarded. Items such as clothing that are not visibly stained can be laundered one or more times to remove any residual chemicals. Non-porous and semi-porous items should be decontaminated using a detergent-water wash, or similar cleaning method, as described above.

13. Should testing be done after cleanup?

The Department recommends that testing be conducted after cleanup has been completed to demonstrate that the structure is safe for re-occupancy. Based upon information currently available, a cleanup level for meth of 0.5 ug/ft^2 on a wipe sample appears to be a conservative approach to determine the adequacy of cleanup. Other compounds, such as lead and mercury, may also be tested for as deemed necessary based on the preliminary assessment.

14. Who should be contacted for more information?

To report a known or suspected meth lab, contact your local law enforcement agency.

For general questions regarding meth lab cleanup, call the Hazardous Materials and Waste Management Division's Customer Technical Assistance line at 303-692-3320 or toll-free at 1-888-569-1831 ext 3320. This number should also be called if you suspect that there may be potential environmental contamination from a meth lab (i.e., chemical disposal to surface waters or the ground).

Suspected disposal down the sanitary sewer should be reported to the local wastewater treatment plant. The public works department or other city offices can assist in determining how to contact the local wastewater treatment authority.

For questions regarding health effects of meth lab-related chemicals or by-products, please contact the Disease Control and Environmental Epidemiology Division at 303-692-2700.