

Methamphetamine

“Meth”

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Recognizing “Meth”

Appearance: The hydrochloride salt of methamphetamine (Meth-HCl) is a yellow or white crystalline powder. Street grade Meth may occur in any number of colors depending on how it was manufactured and what impurities exist in the final product. (Figure 1, A-D). Street Meth-HCl is also found as “Ice”, which appears as bright clear crystals of high purity. The free base of methamphetamine (Meth-base) is a yellow to brown liquid, which is soluble in organic solvents (e.g., Coleman Fuel). Meth-base liquid can be converted to Meth-HCl solid by bubbling hydrogen chloride gas through the Meth-base layer.

Chemical Forms: There are two isomeric chemical forms of methamphetamine, *d*- and *l*-Meth. The *d*- form is a potent central nervous system (CNS) stimulant. Meth produced by clandestine labs is usually found as the *d*- isomer. *l*-Meth has little CNS activity and is used for the temporary relief of nasal congestion.

Pharmaceutical Products: *l*-Meth is found as the active ingredient in over-the-counter products including Vicks® Vapor Inhaler®. When used as directed, *l*-Meth does not represent a significant health hazard. *d*-Meth is a controlled substance, Drug Enforcement Agency, Schedule II, but it is legally available by prescription for

treatment of attention deficit disorder with hyperactivity and for short-term treatment of obesity.

Odor: Meth-HCl is odorless but has a bitter taste. Meth-base has a sharp biting odor resembling geranium leaves. Meth-base is volatile at room temperature.

Health Hazards

Routes of Exposure & General Effects: Meth-HCl can be smoked (inhaled), snorted, injected, or ingested. The route of exposure primarily affects the rate of absorption and onset of effects. Injection and inhalation produce the most rapid effects. Meth is a central nervous system stimulant. Once absorbed it produces the same physiological effects regardless of exposure route.

Acute Effects: Meth is irritating to skin, eyes, mucous membranes, and the upper respiratory tract. Eye contact may cause pupil dilation and retraction of the upper lid. Acute intoxication can cause dizziness, headache, dry mouth, a metallic taste, anorexia, insomnia,

tremor, rash, chest pain, difficulty breathing, fainting, blurred vision, dilated pupils, impotence, bluish skin color, lung congestion, convulsions, and coma. Overdose may cause exaggeration of reflexes, rapid breathing,

confusion, panic states, aggressiveness, hallucinations, brain oxygen loss, elevated body temperature, skeletal muscle wasting, fatigue, depression, acute paranoia, and a schizophrenic-like state. Other effects include nausea, vomiting, diarrhea, cramps, irregular heartbeat, high or low blood pressure, and circulatory collapse.

Chronic Effects: Long-term exposure may cause severe skin conditions, insomnia, irritability, poor concentration,

hyperactivity, personality changes, weight loss, teeth grinding and tooth loss, ulcers of the lips and tongue, physical and psychological dependence, anxiety, fear, compulsive behavior, delirium, disorientation, hallucinations, or a psychotic schizophrenic-like condition with possible self-injury.



Figure 1: In the final synthesis stages, a methamphetamine-HCl slurry is often dried in heat-resistant household or restaurant style glass dishes [A-C]. The drug is typically found as a solid cake or in broken chunks in these dishes. Street grade Meth varies greatly in color depending on the type and quality of the synthesis method used [D]. Photos Courtesy of CA Department of Justice.

Clandestine Labs “Meth”:

Methamphetamine

Environmental Concerns

Air & Soil: No information available.

Ground Water & Surface Water: No information available.

Indoors: Meth-base is volatile. Depending on environmental conditions it may persist on indoor surfaces for several days. Meth-HCl is a stable solid and may persist on surfaces for months or longer. Several states in the U.S. have developed clean-up standards for Meth contamination of indoor surfaces. These range from 0.1 to 5 μg Meth /100 cm^2 surface area.

None of these standards is based on toxicity criteria or on estimates of potential exposure that might result from contact with Meth-contaminated surfaces. If funding were provided, the California Environmental Protection Agency’s Office of Environmental Health Hazard Assessment could develop a risk-based advisory standard for Meth residues on indoor surfaces and could continue to evaluate field sampling and analysis methods for measuring levels of methamphetamine contamination on indoor surfaces and other areas around dwellings.

Handling & Safety



First Aid

Inhalation Exposure: Move to fresh air. Give artificial respiration if not breathing. If breathing difficulty occurs, give oxygen and seek medical attention.

Contact with Clothing or Skin (Dermal Exposure): Remove contaminated clothing. Flush exposed skin and hair with water for at least 15 minutes. Thoroughly wash with soap and water when possible. Methamphetamine can be absorbed through the skin. Seek medical attention if needed.

Contact with Eyes: Flush exposed eyes with water or saline solution for at least 15 minutes. Remove contact lenses if possible. Seek immediate medical attention.

Ingestion (Oral) Exposure: Contact the local poison control center or a physician immediately. Wash out mouth with water if person is conscious. Do not make an unconscious person drink fluids or vomit. If vomiting does occur, keep

head lower than hips to help prevent aspiration. If unconscious, turn person’s head to the side to help prevent aspiration.

Exposure Limits

Occupational Exposure Limits (NIOSH, OSHA, & ACGIH)

Ceiling Limit (C): not established

Short-Term Exposure Limit (STEL or ST): not established

8-Hr Time Weighted Average (TWA): not established

10-Hr Time Weighted Average (TWA): not established

Immediately Dangerous (IDLH): not established

Preliminary Remediation Goals (PRGs) (U.S. EPA, Reg. 9):

Air, Soil & Water: not established

Special Concerns for Children: Meth-base is volatile and may pose an inhalation hazard. Children may inhale relatively larger amounts of vapors due to their faster respiratory rates and greater lung size to body weight ratio. Meth-HCl found on surfaces may be absorbed through the skin or inhaled as solid “dust” particles in the air. Long-term use of stimulants in children can cause growth suppression. Methamphetamine passes into breast milk and can be detected in a breast-fed infant’s urine.

Chemical Hazards

Reactivity: Meth-HCl is stable at normal temperature and pressure.

Flammability: Meth-HCl is a slight fire hazard. Dust in air may ignite or explode. Hazardous combustion or decomposition products include carbon monoxide, carbon dioxide, and nitrogen oxides. Combustion of meth-HCl may produce hydrogen chloride gas.

Chemical Incompatibilities: Strong oxidizing agents.

More Information

Office of Environmental Health
Hazard Assessment (OEHHA)
www.OEHHA.CA.Gov

Department of Toxic
Substances Control (DTSC)
www.DTSC.CA.Gov