



# Coleman Fuel



Vol. 1, No. 9: Clandestine Drug Labs/ Methamphetamine

September 2003

## Recognizing Coleman Fuel

**Synonyms:** petroleum ether, petroleum naphtha, light hydrotreated petroleum distillates, white gas, Amsol 10, Kensol 10, VM&P (varnish makers & painters) naphtha, camp fuel, and petroleum benzin.

**Appearance:** Clear, colorless liquid.

**Odor:** Similar to the odor of rubber cement.

**Odor Threshold and Odor Safety Class:** Not available.

**Vapor Density:** 3.0 (air = 1.0). Coleman Fuel vapors are heavier than air. They may collect near the ground or in depressions.

## Containers & Packaging

Coleman Fuel represents a class of commercially available petroleum-based products that are often marketed under the following names:

Amsol 10, Kensol 10, White Gas, VM&P Naphtha, Ozark Trail®, Camp Fuel, and Coleman Fuel®. These products are complex mixtures of light hydrotreated petroleum distillates containing up to 25% n-hexane, 15% cyclohexane, and less than 0.001% benzene by weight. Light hydrotreated petroleum distillates are typically packaged in metal cans (Figure 1, A & B) but may also be found in chemically resistant plastic bottles or jugs.



**Figure 1:** Coleman Fuel [A], designed for use in camp stoves, lanterns and heaters, is a petroleum-based organic solvent used to illegally synthesize methamphetamine. Similar commercial camp fuel products are sold under different brand names such as Ozark Trail® [B]. These and other organic solvents are readily found in hardware and sporting goods stores. Photos Courtesy of CA Department of Justice.

## Role in Drug Synthesis

Coleman Fuel and other light hydrotreated petroleum distillates are petroleum-based, nonpolar solvents, which are used in the Hydriodic Acid/Red Phosphorus, Nazi and other methods of methamphetamine synthesis to extract methamphetamine base from the reaction solution.

## Health Hazards

**General:** Coleman Fuel and petroleum distillates are acute irritants that cause moderate burning, redness, and swelling of body tissues upon contact. Regardless of exposure route, these also act as central nervous system depressants causing light-headedness, dizziness, nausea, headache, giddiness, loss of appetite, muscle weakness, impaired motor function, loss of coordination, blurred vision, and drowsiness.

**Inhalation Exposure:** Inhalation of Coleman Fuel and other petroleum distillates may cause severe respiratory tract irritation, pulmonary edema (swelling and fluid build up), loss of consciousness, and suffocation. Potentially fatal chemical pneumonitis can also result from aspiration of Coleman Fuel into the lungs.

**Skin (Dermal) Exposure:** Short-term contact results in mild irritation. Long-term exposure can result in chronic dermatitis and localized defatting of the skin. Systemic toxicity may also result from absorption through the skin.

**Eye Contact:** Direct contact may result in burning, tearing, redness, and swelling. If untreated, tissue damage may result.

**Ingestion:** Ingestion of Coleman Fuel or other petroleum distillates can cause burning and irritation in the mouth, esophagus, stomach, and intestines.

**Chronic Effects:** Repeated exposure to Coleman Fuel and its constituents, such as n-hexane, over a period of weeks to months can result in damage to sensory and motor nerve cells. Effects include burning, numbness, or tingling in the feet, legs or hands, paralysis, and even permanent brain damage. Prolonged exposure may also damage the kidneys, liver, and respiratory system.

# Clandestine Labs/ "Meth":

# Coleman Fuel

## Environmental Concerns

**No environmental data are available specifically for Coleman Fuel. The following sections are based on petroleum ether.**

**Air:** In the atmosphere petroleum ether will exist primarily as a vapor. It will be readily degraded by reaction with sunlight. Removal from the air may also occur through wet deposition.

**Soil:** Petroleum ether readily evaporates from wet and dry soils and is expected to quickly biodegrade. Petroleum ether and Coleman Fuel are both complex hydrocarbon mixtures. Their adsorption to sediment and mobility within soil will vary based on the estimated ability of their chemical components to bind to carbon in soil ( $K_{oc}$  values of 81 to 650). Chemicals with short chain structures (5-6 carbon atoms) and lower molecular weights will migrate more quickly through soil than heavier compounds. Lighter molecules have greater potential to contaminate groundwater.

**Surface Water:** When released to water, petroleum ether is expected to biodegrade as well as evaporate into air. Accumulation in aquatic organisms is not likely to be a concern.

**Ground Water:** In cases of large spills, Coleman Fuel may migrate down into the soil before it evaporates. There it may continue on to contaminate ground water sources.

**Indoors:** Long-term contamination of indoor surfaces by petroleum ether hydrocarbon mixtures is not a concern, because these light hydrocarbon chemicals quickly evaporate.

## Exposure Limits

**For Petroleum Distillates, Occupational Exposure Limits (NIOSH, OSHA, & ACGIH)**

Ceiling Limit (C) (15-minutes): 444 ppm (1800 mg/m<sup>3</sup>)  
8-Hr Time Weighted Average (TWA): 500 ppm (2000 mg/m<sup>3</sup>)  
10-Hr Time Weighted Average (TWA): 86 ppm (350 mg/m<sup>3</sup>)  
Immediately Dangerous (IDLH): 1100 ppm (4455 mg/m<sup>3</sup>)

**Preliminary Remediation Goals (PRGs)**

**(U.S. EPA, Reg. 9):** Air, Soil, & Water: not established

## First Aid

**Inhalation Exposure:** Move to fresh air. Administer oxygen if needed. If breathing difficulty occurs, get medical attention.

**Contact with Clothing or Skin (Dermal Exposure):** Remove contaminated clothing. Flush exposed skin and hair with water for at least 5 minutes, and wash with soap and water if possible. Seek medical attention if irritation or rash appears.

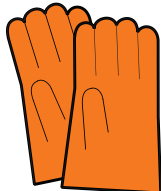
**Contact with Eyes:** Flush exposed eyes with water for at least 15 minutes. Remove contact lenses if possible. Seek immediate medical attention.

**Ingestion (Oral) Exposure:** Do not induce vomiting. Seek immediate medical attention. If vomiting occurs, keep head below hips to reduce chances of aspiration into lungs.

**Special Concerns for Children:** Children may inhale relatively larger amounts of vapors due to their faster respiratory rates and greater lung size to body weight ratio. Children may

also receive higher doses due to their short stature since Coleman Fuel vapors, being heavier than air, may concentrate near the ground.

## Handling & Safety



## Chemical Hazards

**Reactivity:** Coleman Fuel is stable under normal conditions but can be an explosion hazard if fumes come in contact with ignition sources, heat, or intense sunlight.

**Flammability:** Coleman Fuel can form flammable mixtures with air and flash at room temperature. The lower explosive limit (LEL) for n-hexane is 1.2% (by volume, room temperature); the upper explosive limit (UEL) is 7.5%. Similar explosive ranges have been reported for petroleum distillates and Amsol 10. Coleman Fuel vapor is heavier than air. Vapor may travel considerable distances to a source of ignition and flash back.

**Chemical Incompatibilities:** Strong oxidizers.

## More Information

Office of Environmental Health  
Hazard Assessment (OEHHA)  
[www.OEHHA.CA.Gov](http://www.OEHHA.CA.Gov)

Department of Toxic  
Substances Control (DTSC)  
[www.DTSC.CA.Gov](http://www.DTSC.CA.Gov)