HYDROCARBONS

NOTES ON PETROLEUM DISTILLATES (COMMONLY USED) AND RELATED HYDROCARBON PRODUCTS (INCLUDING GASOLINE, KEROSENE, NAPTHA, AND MINERAL SPIRITS).

BACKGROUND:
The term "petroleum distillates" refers to a variety of liquid hydrocarbon mixtures derived by fractional distillation or by catalytic cracking of crude oil. They are plant-derived products (terpines) such as citrus, pine and eucalyptus oils are also included in this group.

Inhalation of vapors may produce eye, nose and throat irritation, headache, dizziness, giddiness, disorientation, altered mental status, nausea and weakness. Intense exposure such as in an enclosed space may result in respiratory depression, unconsciousness, convulsions and liver or kidney damage. Prolonged skin exposure may cause rash, dryness and skin burns. Because most are lipid soluble, they may be absorbed through the skin. Some petroleum distillates (e.g., benzene) are known or suspected carcinogens.

Aspiration into the lungs may occur during ingestion. Pulmonary aspiration of even small amounts can result in severe chemical pneumonia. These patients usually have coughing, tachypnea and other symptoms of respiratory distress.

NOTES ON HALOGENATED HYDROCARBON SOLVENTS (INCLUDING CHLORINATED SOLVENTS, DEGREASERS, PAINT STRIPPERS AND CHLOROFLUOROCARBONS).

BACKGROUND
These substances are commonly used in industry for cleaning and degreasing electronic parts or metal or other surfaces, for dry cleaning, and for refrigeration. Among the halogenated hydrocarbon solvents are trichloroethylene, perchloroethylene ('perc"), methylene chloride (dichlormethane), 1,1,1-trichloromethane (methylchloroform), Freons, Halons and other chlorofluorocarbons. Odor varies by compound and in general is not a good warning property.

These solvents are well absorbed through skin or the lungs. They tend to be excreted rapidly, largely through exhalation, usually within a period of 15 minutes to a few hours. Symptoms of overexposure are similar to those listed for petroleum distillates above. In addition, sensitization of the myocardium may result in cardiac arrhythmias. A significant concern for many of these agents is their high vapor pressure which, in confined or poorly ventilated spaces, can displace oxygen resulting in life threatening hypoxemia. Methylene chloride (often present in paint removers) deserves special attention because it is metabolized to carbon monoxide and is corrosive to skin and mucous membranes.

INITIAL DECONTAMINATION PRIOR TO PREHOSPITAL MANAGEMENT:
Decontamination should include flushing the victim with water spray, clothes should be removed and double-bagged and skin flushed for 1 – 2 minutes. Injured eyes should be irrigated.

POTENTIAL FOR SECONDARY CONTAMINATION:
If the victim was only exposed to hydrocarbon or solvent vapors, there is no risk of secondary contamination of downstream personnel. If the victim's clothing, skin or hair is soaked with solvent, rescuers can be contaminated by direct contact or, more importantly, by inhalation of off-

gassing vapors. Rescuers should avoid skin contact with these solvents or respiratory exposure in a poorly ventilated area. Even decontaminated victims exhaling these products could produce transient minor symptoms in transporting personnel. Wash oily, contaminated areas with soap and/or shampoo, if possible.

PREHOSPITAL MANAGEMENT AFTER INITIAL DECONTAMINATION

PETROLEUM DISTILLATES AND HALOGENATED HYDROCARBON SOLVENTS

FORMS: This group includes a wide variety of commonly used liquid hydrocarbon mixtures, many of which are highly flammable or combustible. Halogenated hydrocarbons, when exposed to heat or fire, can break down into irritant gases, including hydrochloric acid, hydrofluoric acid, or phosgene.

- Evaluate Airway *
- Oxygen – High Flow/NRM
- Irrigate injured eyes
- Cardiac Monitor **
- Transport

BASE:
Consider: IV tko

Ingestion: DO NOT induce vomiting.

NOTE: Solvent exposure alone is rarely the cause of loss of consciousness, except in cases of cardiac arrhythmia or in cases of overwhelming exposure in a confined space.

* Intubation should be considered if the victim develops severe respiratory distress.
** Arrhythmias may be delayed for up to 12 to 24 hours after exposure to Halogenated Hydrocarbon solvents. Avoid administration of EPINEPHRINE or BRONCHODILATORS.