

Vinyl Chloride (C₂H₃Cl) CAS 75-01-4; UN 1086

Synonyms include chloroethene, chloroethylene, 1-chloroethylene, ethylene monochloride, monochloroethylene, monovinyl chloride, MVC, VC, VCM, and vinyl chloride monomer.

- **Persons exposed only to vinyl chloride gas pose no risk of secondary contamination. Persons whose clothing or skin is contaminated with pressurized liquid vinyl chloride can secondarily contaminate rescuers by direct contact or through off-gassing of vapor.**
- **At all ambient temperatures, vinyl chloride is an extremely flammable and potentially explosive gas that is heavier than air. It has a mild, sweet odor, but odor is not an adequate warning of hazardous concentrations.**
- **Inhalation is the major route of vinyl chloride exposure; absorption is rapid and nearly complete. Gastrointestinal absorption is unlikely as vinyl chloride is a gas at room temperature. Dermal absorption is negligible.**

Description

At room temperature, vinyl chloride is a colorless, highly flammable, potentially explosive gas. It has a faint sweet odor. The odor threshold for vinyl chloride is about 3,000 ppm in air, depending on the individual. When confined under high pressure in special containers, vinyl chloride exists in a liquefied state. It is shipped and handled this way. When burned or heated to a high enough temperature, vinyl chloride decomposes to hydrogen chloride, carbon monoxide, carbon dioxide, and traces of phosgene. Vinyl chloride should be stored in a cool, dry, well ventilated location, separate from oxidizing materials and accelerants. Phenol is often added as a stabilizer.

Routes of Exposure

Inhalation

Inhalation is the primary route of exposure, and vinyl chloride is readily absorbed from the lungs. **Its odor threshold is too high to provide an adequate warning of hazardous concentrations.** The odor of vinyl chloride becomes detectable at around 3,000 ppm and the OSHA PEL is 1 ppm (8-hour TWA). Therefore, workers can be overexposed to vinyl chloride without being aware of its presence. A 5-minute exposure to airborne concentrations of 8,000 ppm can cause dizziness. As airborne levels increase to 20,000 ppm, effects can include drowsiness, loss of coordination, visual and auditory abnormalities, disorientation, nausea, headache, and burning or tingling of the extremities. Exposure to higher concentrations of vinyl chloride for longer durations can cause death, presumably due

to central nervous system (CNS) and respiratory depression. The gas is heavier than air and can cause asphyxiation in poorly ventilated or enclosed spaces.

Children exposed to the same levels of vinyl chloride as adults may receive a larger dose because they have greater lung surface area:body weight ratios and increased minute volumes:weight ratios. In addition, they may be exposed to higher levels than adults in the same location because of their short stature and the higher levels of vinyl chloride found nearer to the ground.

Skin/Eye Contact

Direct skin contact with escaping compressed gas or liquid vinyl chloride can cause frostbite injury, but systemic absorption is negligible. Direct ocular exposure to vinyl chloride vapor can cause localized burns or irritation of the conjunctiva and cornea.

Ingestion

Ingestion of vinyl chloride is unlikely because it is a gas at room temperature. Small amounts can dissolve in other liquids, but in such small concentrations that acute toxicity is unlikely.

Sources/Uses

Annual production levels of vinyl chloride continue to increase, with 14.98 billion pounds produced in the United States in 1995. Vinyl chloride is produced by chlorinating ethylene to produce 1,2-dichloroethane, which is then subjected to high pressures and temperatures. This causes pyrolysis (thermal cracking) of the 1,2-dichloroethane to produce the vinyl chloride monomer. Most vinyl chloride is polymerized to form polyvinyl chloride (PVC), a material used to manufacture automotive parts and accessories, furniture, packaging materials, pipes, wall coverings, and wire coatings. Vinyl chloride is also used as an intermediate in the production of other chlorinated compounds and as a component in mixed-monomer plastics. Historically, it was used as a solvent, propellant, and refrigerant, and it was once evaluated as a potential anesthetic.

Standards and Guidelines

OSHA PEL (permissible exposure limit) = 1 ppm (averaged over an 8-hour workshift)

NIOSH IDLH (immediately dangerous to life or health) = not yet determined; vinyl chloride is treated as a human carcinogen.

Physical Properties

Description: colorless gas with a sweet odor at room temperature; colorless liquid when contained under pressure or cooled.

Warning properties: **inadequate** (odor threshold of about 3,000 ppm; varies significantly among individuals)

Boiling point: 7.9 °F (-13.4 °C)

Freezing Point: -244.8 °F (-153.8 °C)

Specific gravity: 0.9106 (liquid) at 68 °F (20 °C) (water = 1.00)

Vapor pressure: 2,530 mm Hg at 68 °F (20 °C)

Vapor density: 2.16 (air = 1.00)

Water solubility: (1,100 to 2,763 mg/L at 77 °F [25 °C])

Flammability: highly flammable and explosive gas; flammability range is 3.6% to 33% (concentration in air)

Flash point: -108.4 °F (-78 °C)

Incompatibilities

Vinyl chloride self-polymerizes explosively if peroxidation occurs (e.g., if heated, exposed to sunlight, or mixed with air and contaminants). Avoid contact with oxygen, strong oxidizing agents, aluminum, copper, iron, and steel.

Health Effects

- **The primary target of vinyl chloride acute exposure is the CNS. Signs and symptoms include dizziness, ataxia, inebriation, fatigue, numbness and tingling of the extremities, visual disturbances, coma, and death.**
- **Vinyl chloride can irritate the eyes, mucous membranes, and respiratory tract. Escaping compressed gas or liquid can cause frostbite or irritation of the skin and eyes.**
- **Chronic exposure can cause permanent liver injury and liver cancer, neurologic or behavioral symptoms, and changes to the skin and bones of the hand.**
- **Vinyl chloride's acute CNS effects are likely to be caused by interaction of the parent compound with neural membranes. Other effects appear to be caused by interaction of reactive intermediates with macromolecules.**

Acute Exposure

Vinyl chloride is thought to depress the CNS via a solvent effect on lipids and protein components of neural membranes that interrupts signal transmission. Reactive metabolic intermediates may also cause specific target organ toxicity by covalently bonding to tissue or initiating destructive chain reactions such as lipid peroxidation. There may be a latent period of hours to days between exposure and symptom onset. Vinyl chloride is rapidly metabolized and the metabolites are eliminated in the urine.

Children do not always respond to chemicals in the same way that adults do. Different protocols for managing their care may be needed.

CNS

The CNS is the primary target of vinyl chloride acute toxicity. The symptoms reported most commonly stem from the anesthetic properties of vinyl chloride; these symptoms include dizziness, ataxia, fatigue, drowsiness, headache, and loss of consciousness. With inhalation exposure, signs and symptoms increase in severity over a range of 8,000 to 20,000 ppm in air. Exposure to higher concentrations for longer durations can cause death, presumably due to CNS and respiratory depression. Sublethal CNS effects resolve quickly when the victim is removed from further exposure.

Respiratory

Vinyl chloride gas inhalation can cause mild respiratory tract irritation, wheezing, and chemical bronchitis. These effects are transient and resolve quickly following removal from exposure. Death may result from respiratory depression.

Exposure to certain chemicals can lead to Reactive Airway Dysfunction Syndrome (RADS), a chemically- or irritant-induced type of asthma.

Children may be more vulnerable because of relatively increased minute ventilation per kg and failure to evacuate an area promptly when exposed.

Hydrocarbon pneumonitis may be a problem in children.

Cardiovascular

Vinyl chloride may lower the myocardial threshold to the dysrhythmogenic effects of catecholamines; it might predispose patients to ventricular ectopy and fibrillation. In experimental animals, exposure to vinyl chloride has led to ECG abnormalities, including ventricular ectopy, heart block, and T-wave inversions.

Dermal

Exposure to escaping compressed gas or liquid can cause frostbite injury with redness, blistering, and scaling. Contact dermatitis has also been reported.

Ocular

Exposure to escaping compressed gas or liquid can cause frostbite injury with corneal and conjunctival irritation or burns. High concentrations of vapor can cause eye irritation.

Gastrointestinal

Nausea, vomiting, diarrhea, and epigastric pain have been reported with ingestion.

Potential Sequelae

Patients exposed to significant amounts of vinyl chloride may not develop symptoms immediately and should be monitored for CNS and respiratory depression and liver and kidney damage for 24 to 48 hours.

Chronic Exposure

Prolonged absorption of vinyl chloride can induce hepatotoxicity and hepatic cancers, including angiosarcoma. Portal hypertension and cirrhosis can occur. Vinyl chloride toxicity is thought to result from the binding of reactive epoxide metabolites to hepatic DNA. Other effects of chronic exposure include sensory-motor polyneuropathy; pyramidal, extrapyramidal, and cerebellar abnormalities; neuropsychiatric symptoms such as sleep disorders, loss of libido, headaches, and irritability; EEG alterations; and immunopathologic phenomena such as purpura and thrombocytopenia. Vinyl chloride disease is a syndrome consisting of Raynaud's phenomenon, acroosteolysis (dissolution of the bones of the terminal phalanges and sacroiliac joints), and scleroderma-like skin changes.

Carcinogenicity

The U.S. Department of Health and Human Services (DHHS) and the International Agency for Research on Cancer (IARC) have classified vinyl chloride as a known human carcinogen. Vinyl chloride has caused angiosarcoma of the liver in heavily exposed

*Reproductive and
Developmental Effects*

workers. It is also suspected to cause cancer of the brain, lungs, gastrointestinal tract, and lymphatic/hematopoietic system.

Vinyl chloride is included in *Reproductive and Developmental Toxicants*, a 1991 report published by the U.S. General Accounting Office (GAO) that lists 30 chemicals of concern because of widely acknowledged reproductive and developmental consequences. However, there is no conclusive evidence of reproductive or developmental effects in humans. A few case reports describe decreased libido or fertility in men with chronic occupational exposure, and some animal studies also support this finding. Some studies in experimental animals have reported developmental toxicity associated with high-dose exposures, but vinyl chloride is not considered a developmental toxicant.

Special consideration regarding the exposure of pregnant women is warranted, since vinyl chloride has been shown to be a genotoxin; thus, medical counseling is recommended for the acutely exposed pregnant women.

Prehospital Management

- **Victims exposed only to vinyl chloride gas pose no risk of secondary contamination to rescuers. Victims whose skin or clothing is contaminated with liquid vinyl chloride can contaminate rescuers by direct contact or through off-gassing of vapor.**
- **The primary target of vinyl chloride acute exposure is the CNS. Signs and symptoms include dizziness, ataxia, inebriation, fatigue, numbness and tingling of the extremities, visual disturbances, coma, and death.**
- **Vinyl chloride also can irritate the eyes, mucous membranes, and respiratory tract. Escaping compressed gas or liquid can cause frostbite or irritation of the skin and eyes.**
- **There is no antidote for vinyl chloride. Treatment consists of support of respiratory and cardiovascular functions.**

Hot Zone

Rescuers should be trained and appropriately attired before entering the Hot Zone. If the proper equipment is not available, or if the rescuers have not been trained in its use, call for assistance from a local or regional hazardous materials (HAZMAT) team or other properly equipped response organization.

Rescuer Protection

Vinyl chloride gas is readily absorbed by inhalation and can irritate the respiratory tract. Liquid vinyl chloride on the skin or eyes can cause frostbite injury and irritation. A negligible amount of vinyl chloride is absorbed through the skin.

Respiratory protection: Positive-pressure, self-contained breathing apparatus (SCBA) is recommended in response situations that involve exposure to any level of vinyl chloride gas.

Skin protection: Chemical-protective clothing is recommended when contact with escaping compressed gas or liquid is anticipated because skin irritation and frostbite injury can occur.

ABC Reminders

Quickly access for a patent airway, ensure adequate respiration and pulse. Provide supplemental oxygen if cardiopulmonary compromise is suspected. If trauma is suspected, manually maintain cervical immobilization and apply a cervical collar and a backboard when feasible. Apply direct pressure to stop any heavy bleeding.

Victim Removal

If victims can walk, lead them out of the Hot Zone to the Decontamination Zone. Victims who are unable to walk should be removed on backboards or gurneys. If these are not available, carefully carry or drag victims to safety.

Consider appropriate management of chemically contaminated children, such as measures to reduce separation anxiety if a child is separated from a parent or other adult.

Decontamination Zone

Victims exposed only to vinyl chloride gas who have no eye irritation do not need decontamination. They may be transferred immediately to the Support Zone. All others require decontamination as described below.

Rescuer Protection

If exposure levels are determined to be safe, decontamination may be conducted by personnel wearing a lower level of protection than that required in the Hot Zone (see *Rescuer Protection* under *Hot Zone*, above).

ABC Reminders

Quickly access for a patent airway, ensure adequate respiration and pulse. Provide supplemental oxygen if cardiopulmonary compromise is suspected. If trauma is suspected, manually maintain cervical immobilization and apply a cervical collar and a backboard when feasible. Administer supplemental oxygen as required. Assist ventilation with a bag-valve-mask device if necessary. Apply direct pressure to stop any heavy bleeding.

Basic Decontamination

Victims who are able may assist with their own decontamination. Remove and double bag contaminated clothing and all personal belongings.

Handle frostbitten skin and eyes with caution. Gently wash exposed skin and hair very thoroughly with mild soap and water (preferably under a shower). Rinse thoroughly with water. Use caution to avoid hypothermia when decontaminating children or the elderly. Use blankets or warmers when appropriate.

Do not irrigate frostbitten eyes. Irrigate exposed or irritated eyes with plain water or saline for at least 15 minutes. Remove contact lenses if easily removable without additional trauma to the eye. If pain or injury is evident, continue irrigation while transferring the victim to the Support Zone.

Consider appropriate management of chemically contaminated children at the exposure site. Also, provide reassurance to the child

during decontamination, especially if separation from a parent occurs. If possible, seek assistance from a child separation expert.

Transfer to Support Zone

As soon as basic decontamination is complete, move the victim to the Support Zone.

Support Zone

Be certain that victims have been decontaminated properly (see *Decontamination Zone* above). Victims who have undergone decontamination or have been exposed only to vinyl chloride gas pose no serious risk of secondary contamination to rescuers. In such cases, Support Zone personnel require no specialized protective gear.

ABC Reminders

Quickly access for a patent airway. If trauma is suspected, maintain cervical immobilization manually and apply a cervical collar and a backboard when feasible. Ensure adequate respiration and pulse. Administer supplemental oxygen as required and establish intravenous access if necessary. Place on a cardiac monitor.

Additional Decontamination

Continue irrigating exposed skin and eyes, as appropriate.

Advanced Treatment

In cases of respiratory compromise secure airway and respiration via endotracheal intubation. If not possible, perform cricothyroidotomy if equipped and trained to do so.

Treat patients who have bronchospasm with aerosolized bronchodilators. **Use these and all catecholamines at the lowest efficacious dose because of the possible enhanced risk of cardiac dysrhythmias.** Also consider the health of the myocardium before choosing which type of bronchodilator should be administered.

Consider racemic epinephrine aerosol for children who develop stridor. Dose 0.25–0.75 mL of 2.25% racemic epinephrine solution in 2.5 cc water, repeat every 20 minutes as needed, cautioning for myocardial variability.

Patients who are comatose, hypotensive, or having seizures or cardiac arrhythmia should be treated according to advanced life support (ALS) protocols, keeping in mind the precaution about administration of catecholamines. If frostbite is present, treat by rewarming in a warm water bath at a temperature of 102–108 °F (40–42 °C) for 20 to 30 minutes and continue until a flush has returned to the affected area.

Transport to Medical Facility

Only decontaminated patients or patients not requiring decontamination should be transported to a medical facility. "Body bags" are not recommended.

Report to the base station and the receiving medical facility the condition of the patient, treatment given, and estimated time of arrival at the medical facility.

If the patient has ingested vinyl chloride (extremely unlikely), prepare the ambulance in case the patient vomits toxic material or has diarrhea. Have ready several towels and open plastic bags to quickly clean up and isolate vomitus.

Multi-Casualty Triage

Consult with the base station physician or the regional poison control center for advice regarding triage of multiple victims.

Patients who have persistent symptoms after being removed from the source of exposure should be transported to a medical facility for evaluation.

Patients who are asymptomatic or had mild or transient symptoms (e.g., dizziness, headache) that rapidly resolved may be discharged from the scene after their names, addresses, and telephone numbers are recorded. These patients should be advised to rest and to seek medical care promptly if symptoms develop or recur (see the *Patient Information Sheet* below).

Emergency Department Management

- **Patients exposed only to vinyl chloride gas pose no risk of secondary contamination to rescuers. Patients whose skin or clothing is contaminated with liquid vinyl chloride can contaminate rescuers by direct contact or through off-gassing of vapor.**
- **The primary target of vinyl chloride acute exposure is the CNS. Signs and symptoms include dizziness, ataxia, inebriation, fatigue, numbness and tingling of the extremities, visual disturbances, coma, and death.**
- **Vinyl chloride also can irritate the eyes, mucous membranes, and respiratory tract. Escaping compressed gas or liquid can cause frostbite or irritation of the skin and eyes.**
- **There is no antidote for vinyl chloride. Treatment consists of support of respiratory and cardiovascular functions.**

Decontamination Area

Previously decontaminated patients and those exposed only to vinyl chloride gas who have no eye irritation may be transferred immediately to the Critical Care Area. Others require decontamination as described below.

Be aware that use of protective equipment by the provider may cause fear in children, resulting in decreased compliance with further management efforts.

Because of their relatively larger surface area:body weight ratio, children are more vulnerable to toxicants absorbed through the skin.

ABC Reminders

Evaluate and support the airways, breathing, and circulation. Provide supplemental oxygen if cardiopulmonary compromise is suspected. In cases of respiratory compromise secure airway and respiration via endotracheal intubation. If not possible, surgically create an airway.

Treat patients who have bronchospasm with aerosolized bronchodilators. Use these and all catecholamines at the lowest efficacious dose because vinyl chloride might increase the risk of arrhythmia by lowering the myocardial threshold to the effects of epinephrine. Also consider the health of the myocardium before choosing which type of bronchodilator should be administered.

Consider racemic epinephrine aerosol for children who develop stridor. Dose 0.25–0.75 mL of 2.25% racemic epinephrine solution

in 2.5 cc water, repeat every 20 minutes as needed, cautioning for myocardial variability.

Patients who are comatose, hypotensive, or seizing or have cardiac arrhythmia should be treated in the conventional manner, observing the precautions about catecholamines described above. Arrhythmias might respond to beta-adrenergic blockers (e.g., propranolol, esmolol) if lidocaine is ineffective.

Basic Decontamination

Patients who are able may assist with their own decontamination. Remove and double-bag contaminated clothing and all personal belongings.

Handle frostbitten skin and eyes with caution. Gently wash exposed skin and hair very thoroughly with mild soap and water (preferably under a shower). Rinse thoroughly with water. Use caution to avoid hypothermia when decontaminating children or the elderly. Use blankets or warmers when appropriate.

Flush exposed or irritated eyes with plain water or saline for at least 15 minutes. Remove contact lenses if easily removable without additional trauma to the eye. If pain or injury is evident, continue irrigation while transferring the victim to the Critical Care Area.

Critical Care Area

Be certain that appropriate decontamination has been carried out (see *Decontamination Area*, above).

ABC Reminders

Evaluate and support the airways, breathing, and circulation as in *ABC Reminders* above. Establish intravenous access in seriously ill patients. Continuously monitor cardiac rhythm.

Patients who are comatose, hypotensive, or who have seizures or cardiac arrhythmia, should be treated in the conventional manner, observing the precautions about catecholamines described below.

Inhalation Exposure

Administer supplemental oxygen by mask to patients who have respiratory complaints or CNS symptoms. Treat patients who have bronchospasm with aerosolized bronchodilators. Use these and all catecholamines at the lowest efficacious doses because vinyl chloride might increase the risk of cardiac arrhythmia by lowering the myocardial threshold to the effects of epinephrine. Also consider the health of the myocardium before choosing which type of bronchodilator should be administered.

Consider racemic epinephrine aerosol for children who develop stridor. Dose 0.25–0.75 mL of 2.25% racemic epinephrine solution

in 2.5 cc water, repeat every 20 minutes as needed, cautioning for myocardial variability.

Skin Exposure

Escaping compressed gas or liquid vinyl chloride exposure can cause frostbite injury. If frostbite is present, treat by rewarming in a water bath at a temperature of 102–108 °F (40–42 °C) for 20 to 30 minutes and continue until a flush has returned to the affected area. If chemical burns from other toxicants are present, treat as thermal burns.

Because of their relatively larger surface area:body weight ratio, children are more vulnerable to toxicants absorbed through the skin.

Eye Exposure

Ensure that adequate eye irrigation has been completed. Test visual acuity. Examine the eyes for conjunctival or corneal damage and treat appropriately. Consult with an ophthalmologist for patients who have suspected severe corneal injuries.

Antidotes and Other Treatments

There is no antidote for vinyl chloride. Treatment is supportive.

Laboratory Tests

Routine laboratory studies for all exposed patients include CBC, glucose, and electrolyte determinations; liver and kidney function tests are also recommended. Chest radiography and pulse oximetry (or ABG measurements) are recommended in cases of severe inhalation exposure.

Vinyl chloride is rapidly eliminated from the body in the breath and its major metabolite, thiodiglycolic acid, is excreted in the urine. Breath levels of vinyl chloride and urine levels of thiodiglycolic acid are not clinically helpful in acute exposure. Urine levels of thiodiglycolic acid peak about 20 hours after exposure.

Disposition and Follow-Up

Consider hospitalizing patients who have persistent or progressive symptoms.

Delayed Effects

Hepatic injury can develop a few days after exposure, depending on the magnitude of the exposure. Patients with significant CNS depression or severe exposure should be observed for 24 hours.

Patient Release

Patients who have not experienced significant alterations in mental status or respiratory difficulty may be discharged. Patients who initially had mild symptoms, but who become asymptomatic during a 6- to 8-hour observation period, may be discharged. These patients should be advised to rest and to seek medical care promptly if symptoms develop or recur (see the *Vinyl Chloride—Patient*

Information Sheet below). Patients who had significant CNS symptoms initially should be observed overnight even if their CNS symptoms appear to resolve.

Follow-up

Obtain the name of the patient's primary care physician so that the hospital can send a copy of the ED visit to the patient's doctor.

Follow-up laboratory evaluation of hepatic function should be arranged for severely exposed patients. Neurologic examination for post-hypoxic injury is recommended in cases of severe cardiorespiratory compromise. Patients who have skin or corneal lesions should be reexamined within 24 hours.

Reporting

If a work-related incident has occurred, you might be legally required to file a report; contact your state or local health department for more information.

Other persons might still be at risk at the place where this incident occurred. If the incident occurred in the workplace, discussing it with company personnel might prevent future incidents. If a public health risk exists, notify your state or local health department or other responsible public agency. When appropriate, inform patients that they may request an evaluation of their workplace from the Occupational Safety and Health Administration (OSHA) or the National Institute of Occupational Safety and Health (NIOSH). See Appendices III and IV for a list of agencies that may be of assistance.

Vinyl Chloride (C₂H₃Cl) Patient Information Sheet

This handout provides information and follow-up instructions for persons who have been exposed to vinyl chloride.

What is vinyl chloride?

Vinyl chloride is a colorless gas at room temperature that has a mild, sweet odor. It is handled and shipped as a liquid under high pressure in a special container. It is used to produce polyvinyl chloride (PVC), a plastic material used to make many products, including automotive parts, furniture, and building materials.

What immediate health effects can be caused by exposure to vinyl chloride?

Inhaling vinyl chloride causes sleepiness and dizziness, and can cause loss of consciousness. If pressurized liquid vinyl chloride escapes from its container and comes in contact with the skin or eyes, it can cause frostbite or irritation.

Can vinyl chloride poisoning be treated?

There is no antidote for vinyl chloride, but its effects can be treated and most exposed persons recover completely. Persons who have inhaled large amounts of vinyl chloride might need to be hospitalized.

Are any future health effects likely to occur?

A single small exposure from which a person recovers quickly is unlikely to cause delayed or long-term effects. Exposure to vinyl chloride over many years can affect the liver, nervous system, and skin. Long-term exposure can cause a rare form of liver cancer.

What tests can be done if a person has been exposed to vinyl chloride?

Specific tests for the presence of vinyl chloride in the breath or breakdown products in the urine are available, but they must be performed shortly after exposure and are not generally helpful. If a severe exposure has occurred, blood and other tests might show whether the liver or other organs have been damaged. Testing is not needed in every case.

Where can more information about vinyl chloride be found?

If the exposure happened at work, you might be required to contact your employer and the Occupational Safety and Health Administration (OSHA). Employees may request a Health Hazard Evaluation from the national Institute for Occupational Safety and Health (NIOSH).

You can get more information about vinyl chloride from your regional poison control center; your state, county, or local health department; the Agency for Toxic Substances and Disease Registry (ATSDR); your doctor; or a clinic in your area that specializes in occupational and environmental health. Ask the person who gave you this form for help locating these telephone numbers.

Follow-up Instructions

Keep this page and take it with you to your next appointment. Follow *only* the instructions checked below.

Call your doctor or the Emergency Department if you develop any unusual signs or symptoms within the next 24 hours, especially:

- dizziness, disorientation, drowsiness, or headaches
- difficulty breathing
- burning of skin or eyes
- nausea or loss of appetite

No follow-up appointment is necessary unless you develop any of the symptoms listed above.

Call for an appointment with Dr. _____ in the practice of _____.

When you call for your appointment, please say that you were treated in the Emergency Department at _____ Hospital by _____ and were advised to be seen again in _____ days.

Return to the Emergency Department/ _____ Clinic on (date) _____ at _____ AM/PM for a follow-up examination.

Do not perform vigorous physical activities for 1 to 2 days.

You may resume everyday activities including driving and operating machinery.

Do not return to work for _____ days.

You may return to work on a limited basis. See instructions below.

Avoid exposure to cigarette smoke for 72 hours; smoke may worsen the condition of your lungs.

Avoid drinking alcoholic beverages for at least 24 hours; alcohol may worsen injury to your stomach or have other effects.

Avoid taking the following medications: _____

You may continue taking the following medication(s) that your doctor(s) prescribed for you: _____

 Other instructions: _____

- Provide the Emergency Department with the name and the number of your primary care physician so that the ED can send him or her a record of your emergency department visit.

- You or your physician can get more information on the chemical by contacting: _____ or _____, or by checking out the following Internet Web sites: _____; _____.

Signature of patient _____ Date _____

Signature of physician _____ Date _____