

**Xylene (C<sub>6</sub>H<sub>4</sub>)(CH<sub>3</sub>)<sub>2</sub>  
CAS 1330-20-7; UN 1307**

Synonyms include dimethylbenzene, methyl toluene, xylol, and mixed xylenes.

**Persons exposed only to xylene vapor do not pose substantial risks of secondary contamination. Persons whose clothing or skin is contaminated with liquid xylene can cause secondary contamination by direct contact or through off-gassing vapor.**

**Xylene is a clear, colorless liquid. It is volatile, readily producing flammable and toxic concentrations at room temperature. Its vapor is heavier than air and may accumulate in low-lying areas. Xylene's odor generally provides adequate warning of hazardous concentrations.**

**Xylene is rapidly absorbed after inhalation and ingestion. Exposure via ingestion and inhalation produces systemic toxicity. Xylene is slowly absorbed through intact skin, but percutaneous absorption may contribute to total body burden.**

### **Description**

Xylene exists as three isomers (ortho-, meta-, and para-xylene), which can be found singly or, more commonly, mixed in varying proportions. Commercial grade xylene, in which m-xylene is usually the major constituent, is a clear, colorless liquid with a sweet, aromatic odor. It is generally referred to as Mixed, Total or Technical-Grade Xylene. There is a fourth structural isomer, ethylbenzene (C<sub>6</sub>H<sub>5</sub>)(C<sub>2</sub>H<sub>5</sub>) that may be present as a congener, but is not toxicologically distinct to a significant degree. Xylene is flammable at room temperature; therefore, it constitutes a fire hazard. It is insoluble in water, but mixes readily with many organic solvents. Xylene is less dense than water and will float on the surface of water.

### **Routes of Exposure**

#### *Inhalation*

Most exposures to xylene occur by inhalation and xylene is readily absorbed from the lungs. Xylene's odor threshold is about 1 ppm, which is 100 times less than the OSHA PEL and generally provides adequate warning of acutely hazardous concentrations. Irritation of eye and throat occur at about 200 ppm. Xylene vapor is heavier than air and may cause asphyxiation in enclosed, poorly ventilated, or low-lying areas.

Children exposed to the same levels of xylene vapor 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 xylene vapor found nearer to the ground.

*Skin/Eye Contact*

Xylene vapor is only mildly irritating to mucous membranes; however, xylene splashed in the eyes can result in corneal injury. Repeated or prolonged skin contact with liquid xylene can defat the skin, causing it to crack and peel. Percutaneous absorption is slow through intact skin; however, xylene absorbed through the skin may contribute to body burden.

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

*Ingestion*

Acute systemic toxicity can result from ingestion of xylene.

**Sources/Uses**

Xylene is among the 30 most abundantly produced chemicals in the United States. It is obtained primarily from crude petroleum. It is widely used as a degreasing agent and as a thinner and solvent in paints, inks, adhesives, and many other products. It is commonly found as a solvent in pesticide products.

**Standards and Guidelines**

OSHA PEL (permissible exposure limit) = 100 ppm (averaged over an 8-hour workshift)

NIOSH IDLH (immediately dangerous to life or health) = 900 ppm

**Physical Properties**

*Description:* Clear, colorless liquid

*Warning properties:* Adequate; sweet, aromatic odor at 1 ppm

*Molecular weight:* 106.2 daltons

*Boiling point* (760 mm Hg)\*: 292 °F (144 °C), 269 °F (139 °C), and 281 °F (138 °C)

*Freezing point*\*: -13 °F (-25 °C), -54 °F (-48 °C), and 56 °F (13 °C)

*Specific gravity*\*: 0.88, 0.86, and 0.86 (water = 1)

*Vapor pressure*\*: 5, 6, and 6.5 mm Hg at 68 °F (20 °C)

*Gas density:* 3.8 (air = 1)

*Water solubility:* insoluble

*Flammability*\*: 63 °F (17 °C), 81 °F (27 °C), 81 °F (27 °C)

*Flammable range:* 1.0% to 7.0% (concentration in air)

\*ortho-, meta-, and para-xylene, respectively.

**Incompatibilities**

Xylene reacts with strong oxidizers and strong acids.



## Health Effects

- **Xylene is irritating to the skin, eyes, and respiratory tract. It can cause systemic toxicity by ingestion or inhalation. The most common route of exposure is via inhalation.**
- **Symptoms of xylene poisoning include CNS effects (headache, dizziness, ataxia, drowsiness, excitement, tremor, and coma), ventricular arrhythmias, acute pulmonary edema, respiratory depression, nausea, vomiting, and reversible hepatic impairment.**
- **The mechanism by which xylene produces toxicity is not known.**

### Acute Exposure

The mechanism by which xylene produces toxicity is not known. CNS toxicity may be due to the liposolubility of xylene in the neuronal membrane. It has been suggested that xylene interferes with the normal function of neuronal proteins. It has also been suggested that the toxicity of xylene may be due to some of its metabolic intermediates. CNS toxicity is generally discernible within a short time of exposure, but pulmonary edema may not appear for up to 72 hours after exposure. No information was found as to whether the health effects of xylene in children are different than in adults.

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

### CNS

Generally, symptoms of CNS toxicity are apparent immediately after inhalation of high xylene concentrations and 30 to 60 minutes after ingestion. Effects of mild CNS depression include headache, lightheadedness, dizziness, confusion, nausea, impaired gait, and blurred vision. More severe effects include tremors, rapid respiration, paralysis, loss of consciousness, coma, and death. Coma may be prolonged, although most victims regain consciousness rapidly after they are removed from exposure.

### Respiratory

Acute exposure to xylene vapor may irritate the mucous membranes of the respiratory tract. With massive exposure, accumulation of fluid in the lungs and respiratory arrest may ensue. Pulmonary aspiration of toxic vomitus or ingested liquid xylene may cause inflammation of the lungs.

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*

Inhalation of massive doses of xylene can cause cardiac abnormalities. Xylene lowers the threshold of the heart to the effects of epinephrine, partially disrupting the rhythm. Irregular heart rhythm leading to cardiac arrest has occurred in solvent abusers, often immediately after intense physical activity.

*Renal*

Blood and protein in the urine can occur after massive inhalation. These effects usually are reversible if exposure is terminated.

*Metabolic*

High-level xylene exposure may lead to acid-base imbalance. In solvent abusers, electrolyte and acid-base disturbances can cause renal-tubular acidosis, inadequate amounts of potassium in the blood, and low blood phosphate. Ethanol or aspirin may prolong the half-life of xylene in the body.

Because of their higher metabolic rates, children may be more vulnerable to toxicants interfering with basic metabolism.

*Dermal*

Xylene can cause skin inflammation and defatting, particularly after prolonged or repeated contact with the liquid. Redness of the skin and blisters may occur.

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

*Hepatic*

Reversible liver damage has been reported in some individuals exposed to xylene.

*Ocular*

High concentrations of xylene vapor may cause eye irritation, but ophthalmic injury is rare. When splashed in the eyes, xylene may cause burning pain, conjunctivitis, corneal vacuolation, and keratitis.

*Gastrointestinal*

If swallowed, xylene can irritate the stomach, causing nausea, vomiting, and diarrhea.

*Potential Sequelae*

During recovery, patients may continue to experience impaired gait, lightheadedness, dilated and poorly responsive pupils, and decreased or absent deep-tendon reflexes. Anxiety, fatigue, and insomnia may last several days. No long-term effects due to acute xylene exposure have been reported.

**Chronic Exposure**

Repeated exposure to xylene due to solvent abuse can result in progressive and permanent neuropsychiatric manifestations. In its more severe form this has been called “chronic toxic encephalopathy.”

There is some evidence from human epidemiological studies that occupational exposure to solvents including xylene may be associated with proliferative glomerulonephritis. However, individuals were exposed to mixtures of solvents and so it is not possible to attribute this effect solely to xylene exposure.

Chronic exposure may be more serious for children because of their potential longer latency period.

*Carcinogenicity*

The International Agency for Research on Cancer has determined that xylene is not classifiable as to its carcinogenicity to humans. The EPA has determined that xylene is not classifiable as to its human carcinogenicity.

*Reproductive and Developmental Effects*

Xylene is not included in *Reproductive and Developmental Toxicants*, a 1991 report published by the United States General Accounting Office (GAO) that lists 30 chemicals of concern because of widely acknowledged reproductive and developmental consequences. Xylene has been reported to cross the placenta in humans. Limited human developmental data are available, but animal studies suggest that exposure to high doses of xylene may be fetotoxic.





## Prehospital Management

**Victims exposed only to xylene vapor do not pose significant risks of secondary contamination to rescuers outside the Hot Zone. Victims whose clothing or skin is contaminated with liquid xylene can secondarily contaminate response personnel by direct contact or through off-gassing vapor. Xylene vapor may also off-gas from the toxic vomitus of victims who have ingested xylene.**

**Xylene is irritating to the skin, eyes, and respiratory tract. It can cause systemic toxicity by ingestion or inhalation. The most common route of exposure is via inhalation. Symptoms of xylene poisoning include CNS effects (headache, dizziness, ataxia, drowsiness, excitement, tremor, and coma), ventricular arrhythmias, acute pulmonary edema, respiratory depression, nausea, vomiting, and reversible hepatic impairment.**

**There is no antidote for xylene. 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 rescuers have not been trained in its use, assistance should be obtained from a local or regional HAZMAT team or other properly equipped response organization.

### *Rescuer Protection*

Xylene vapor is a mild respiratory-tract irritant. The liquid is a mild skin irritant with slow skin absorption.

*Respiratory Protection:* Positive-pressure, self-contained breathing apparatus (SCBA) is recommended in response situations that involve exposure to potentially unsafe levels of xylene vapor.

*Skin Protection:* Chemical-protective clothing is not generally required when only vapor exposure is expected because xylene vapor is neither irritating nor absorbed well through the skin. Chemical-protective clothing is recommended when repeated or prolonged contact with the liquid is anticipated because skin irritation and dermal absorption may occur.

### *ABC Reminders*

Quickly access for a patent airway, ensure adequate respiration and pulse. If trauma is suspected, maintain cervical immobilization manually and apply a cervical collar and a backboard when feasible.

### *Victim Removal*

If victims can walk, lead them out of the Hot Zone to the Decontamination Zone. Victims who are unable to walk may be removed on backboards or gurneys; if these are not available,

carefully carry or drag victims to safety. Care should be taken that the victims (particularly children) do not have problems due to xylene being heavier than air and settling in pockets close to the ground.

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

Patients exposed only to xylene vapor who have no skin or eye irritation do not need decontamination. They may be transferred immediately to the Support Zone. Other patients will 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 worn in the Hot Zone (described above).

### *ABC Reminders*

Quickly access for a patent airway, ensure adequate respiration and pulse. Stabilize the cervical spine with a collar and a backboard if trauma is suspected. Administer supplemental oxygen as required. Assist ventilation with a bag-valve-mask device if necessary.

### *Basic Decontamination*

Victims who are able may assist with their own decontamination. Quickly remove and double-bag contaminated clothing and personal belongings.

Flush exposed skin and hair with plain water for 3 to 5 minutes, then wash with mild soap. 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 5 minutes or until pain resolves. Remove contact lenses if easily removable without additional trauma to the eye. If a corrosive material is suspected or if pain or injury is evident, continue irrigation while transferring the victim to the Support Zone.

In cases of ingestion, **do not induce emesis**. The use of activated charcoal for hydrocarbon absorption is limited, but it may have some effect, especially in cases of mixed overdose. If the victim is alert, asymptomatic, and has a gag reflex, administer a slurry of activated charcoal at 1 gm/kg (usual adult dose 60–90 g, child dose 25–50 g). A soda can and a straw may be of assistance when offering charcoal to a child.

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Consider appropriate management of chemically contaminated children at the exposure site. Provide reassurance to the child during decontamination, especially if separation from a parent occurs.

*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 vapor pose no serious risks 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. Observe for cardiac arrhythmias.

*Additional Decontamination*

Continue irrigating exposed skin and eyes, as appropriate.

In cases of ingestion, **do not induce emesis**. The use of activated charcoal for hydrocarbon absorption is limited, but it may have some effect, especially in cases of mixed overdose. If activated charcoal has not been given previously and if the patient is alert, asymptomatic, and has a gag reflex, administer a slurry of activated charcoal at 1 gm/kg (usual adult dose 60–90 g, child dose 25–50 g). A soda can and a straw may be of assistance when offering charcoal to a child.

*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.

Patients who have bronchospasm may be treated with aerosolized bronchodilators. However, the use of sympathomimetic agents such as epinephrine and isoproterenol could precipitate fatal arrhythmias and should be avoided. Selective beta-2 agonists would be preferred, but clinical reports of their use are lacking. Theophylline derivatives have not been studied. Use all catecholamines with caution because of the enhanced risk of cardiac arrhythmias. Also consider the health of the myocardium before choosing which type of bronchodilator should be administered.

Patients who are comatose, hypotensive, or having seizures or cardiac arrhythmias should be treated according to advanced life support (ALS) protocols.

*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 xylene has been ingested, prepare the ambulance in case the victim vomits toxic material. 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 with evidence of significant inhalation exposure such as CNS depression and all persons who have ingested xylene should be transported to a medical facility for evaluation. Others may be discharged at the scene after their names, addresses, and telephone numbers are recorded. Those discharged should be advised to seek medical care promptly if symptoms develop (see *Patient Information Sheet* below).

## Emergency Department Management

**Hospital personnel can be secondarily contaminated by direct contact or by vapor off-gassing from heavily soaked clothing or skin. Patients do not pose contamination risks after clothing is removed and the skin is washed. Toxic vomitus from patients who have ingested xylene may also off-gas xylene vapor.**

**Xylene is irritating to the skin, eyes, and respiratory tract. It can cause systemic toxicity by ingestion or inhalation. The most common route of exposure is via inhalation. Symptoms of xylene poisoning include CNS effects (headache, dizziness, ataxia, drowsiness, excitement, tremor, and coma), ventricular arrhythmias, acute pulmonary edema, respiratory depression, nausea, vomiting, and reversible hepatic impairment.**

**There is no antidote for xylene. Treatment consists of support of respiratory and cardiovascular functions.**

### Decontamination Area

Unless previously decontaminated, all patients suspected of contact with liquid xylene and all victims with skin or eye irritation require decontamination as described below. All other patients may be transferred to the Critical Care area.

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. Also emergency room personnel should examine children's mouths because of the frequency of hand-to-mouth activity among children.

### *ABC Reminders*

Evaluate and support airway, breathing, and circulation. In cases of respiratory compromise secure airway and respiration via endotracheal intubation. If not possible, surgically create an airway.

Patients who have bronchospasm may be treated with aerosolized bronchodilators. However, the use of sympathomimetic agents such as epinephrine and isoproterenol could precipitate fatal arrhythmias and should be avoided. Selective beta-2 agonists would be preferred, but clinical reports of their use are lacking. Theophylline derivatives have not been studied. Use all catecholamines with caution because of the enhanced risk of cardiac arrhythmias. Also consider the health of the myocardium before choosing which type of bronchodilator should be administered.

Patients who are comatose, hypotensive, or have seizures or ventricular arrhythmias should be treated in the conventional manner.

*Basic Decontamination*

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

Flush liquid-exposed skin and hair with plain water for 3 to 5 minutes, then wash with mild soap. 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 5 minutes or until pain resolves. Remove contact lenses if easily removable without additional trauma to the eye. If a corrosive material is suspected or if pain or injury is evident, continue irrigation while transferring the victim to the Critical Care Area.

In cases of ingestion, **do not induce emesis**. The use of activated charcoal for hydrocarbon absorption is limited, but it may have some effect, especially in cases of mixed overdose. If the victim is alert, asymptomatic, and has a gag reflex, administer a slurry of activated charcoal at 1 gm/kg (usual adult dose 60–90 g, child dose 25–50 g). A soda can and a straw may be of assistance when offering charcoal to a child.

**Critical Care Area**

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

*ABC Reminders*

Evaluate and support airway, breathing, and circulation as in *ABC Reminders* above. Establish intravenous access in seriously ill patients if this has not been done previously. Continuously monitor cardiac rhythm.

Patients who are comatose, hypotensive, or have seizures or cardiac arrhythmias should be treated in the conventional manner.

*Inhalation Exposure*

Administer supplemental oxygen by mask to patients who have respiratory complaints. Patients who have bronchospasm may be treated with aerosolized bronchodilators. However, the use of sympathomimetic agents such as epinephrine and isoproterenol could precipitate fatal arrhythmias and should be avoided. Selective beta-2 agonists would be preferred, but clinical reports of their use are lacking. Theophylline derivatives have not been studied. Use all catecholamines with caution because of the enhanced risk of cardiac

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arrhythmias. Also consider the health of the myocardium before choosing which type of bronchodilator should be administered.

*Skin Exposure*

If liquid xylene was in prolonged contact with the skin, chemical burns may result; 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. Examine the eyes for corneal damage and treat appropriately. Immediately consult an ophthalmologist for patients who have severe corneal injuries.

*Ingestion Exposure*

**Do not induce emesis.**

The use of activated charcoal for hydrocarbon absorption is limited, but it may have some effect, especially in cases of mixed overdose. If activated charcoal has not been given previously and if the patient is alert, asymptomatic, and has a gag reflex, administer a slurry of activated charcoal at 1 gm/kg (usual adult dose 60–90 g, child dose 25–50 g). A soda can and a straw may be of assistance when offering charcoal to a child.

Consider endoscopy to evaluate the extent of gastrointestinal-tract injury. Extreme throat swelling may require endotracheal intubation or cricothyroidotomy. Gastric lavage is useful in certain circumstances to remove toxic material and prepare for endoscopic examination. Consider gastric lavage with a small nasogastric tube if: (1) a large dose has been ingested; (2) the patient's condition is evaluated within 30 minutes; (3) the patient has oral lesions or persistent esophageal discomfort; and (4) the lavage can be administered within one hour of ingestion. Care must be taken when placing the gastric tube because blind gastric-tube placement may further injure the chemically damaged esophagus or stomach.

Because of the risk of perforation from NG intubation, lavage is discouraged in children unless performed under endoscopic guidance.

Toxic vomitus or gastric washings should be isolated (e.g., by attaching the lavage tube to isolated wall suction or another closed container).

If the patient who has ingested xylene is coughing or is dyspneic, pulmonary aspiration may have occurred. Patients who show no

	<p>clinical signs of pulmonary aspiration within 6 hours are not likely to develop aspiration chemical pneumonitis.</p>
<i>Antidotes and Other Treatments</i>	<p>There is no antidote for xylene. Hemodialysis and hemoperfusion are ineffective.</p>
<i>Laboratory Tests</i>	<p>Routine laboratory studies for all exposed patients include CBC, glucose, and electrolyte determinations. Additional studies for patients exposed to xylene include ECG monitoring, renal-function tests, and liver-function tests. Chest radiography and pulse oximetry (or ABG measurements) are recommended for severe inhalation exposure or if pulmonary aspiration is suspected.</p> <p>Blood levels of xylene may be used to document exposure, although they are not useful clinically. Xylene is metabolized to methylhippuric acid, which is excreted in urine. Xylene is almost completely excreted within 24 hours. Urinary methylhippuric acid levels do not correlate well with systemic effects and are not available on an emergency basis; however, methylhippuric acid levels can help confirm the diagnosis or etiology.</p>
<b>Disposition and Follow-up</b>	<p>Consider hospitalizing symptomatic patients who have significant inhalation or ingestion exposure with symptoms of CNS depression or respiratory distress.</p>
<i>Delayed Effects</i>	<p>Observe hospitalized patients for signs of acute tubular necrosis, encephalopathy, and arrhythmias. In addition, patients exposed by inhalation should be watched for signs of pulmonary edema, and those who have ingested xylene should be watched for signs of aspiration pneumonitis.</p>
<i>Patient Release</i>	<p>Patients who remain asymptomatic 6 to 12 hours after exposure may be discharged with instructions to seek medical care promptly if symptoms develop (see the <i>Xylene—Patient Information Sheet</i> below).</p>
<i>Follow-up</i>	<p>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.</p> <p>Patients who have corneal injuries should be reexamined within 24 hours. No long-term sequelae due to a single acute exposure to xylene have been reported.</p>
<b>Reporting</b>	<p>If a work-related incident has occurred, you may be legally required to file a report; contact your state or local health department.</p>



Other persons may still be at risk in the setting where this incident occurred. If the incident occurred in the workplace, discussing it with company personnel may 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 OSHA or NIOSH. See Appendices III and IV for a list of agencies that may be of assistance.



## **Xylene**

### **Patient Information Sheet**

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

#### **What is xylene?**

When pure, xylene is a clear, colorless liquid with a sweet odor. It burns readily. Xylene is obtained from crude petroleum and is used widely in many products such as paints, glues, and pesticides. It is found in small amounts in gasoline.

#### **What immediate health effects can be caused by exposure to xylene?**

Breathing xylene vapors in small amounts can cause headache, dizziness, drowsiness, and nausea. With more serious exposure, xylene can cause sleepiness, stumbling, irregular heartbeat, fainting, or even death. Xylene vapors are mildly irritating to the skin, eyes, and lungs. If liquid xylene is held against the skin, it may cause burning pain. Liquid xylene splashed in the eyes can damage the eyes. Generally, the more serious the exposure, the more severe the symptoms.

#### **Can xylene poisoning be treated?**

There is no antidote for xylene, but its effects can be treated, and most exposed persons get well. Persons who have experienced serious symptoms may need to be hospitalized.

#### **Are any future health effects likely to occur?**

A single small exposure from which a person recovers quickly is not likely to cause delayed or long-term effects. After a serious exposure, some symptoms may take a few days to develop. Repeated sniffing of xylene can cause permanent damage to the brain, muscles, heart, and kidneys.

#### **What tests can be done if a person has been exposed to xylene?**

Specific tests for the presence of xylene in blood and urine generally are not useful to the doctor. Methylhippuric acid, a metabolite of xylene, may be measured in urine if the xylene dose was high. If a severe exposure has occurred, blood and urine analyses and other tests may show whether the brain, heart, or kidneys have been injured. Testing is not needed in every case.

#### **Where can more information about xylene be found?**

More information about xylene can be obtained from your regional poison control center; the 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. If the exposure happened at work, you may wish to discuss it with your employer, the Occupational Safety and Health Administration (OSHA), or the National Institute for Occupational Safety and Health (NIOSH). Ask the person who gave you this form for help in 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:
  - coughing
  - shortness of breath or wheezing
  - chest pain or tightness
  - increased pain or a discharge from exposed eyes
  - increased redness or pain or a pus-like discharge in the area of a skin burn
  - fever

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 \_\_\_\_\_