

## Section 1 - Chemical Product and Company Identification

**MSDS Name:**

Xylene

**Catalog Numbers:**

9900-1, 9900-5, 9900-55, 9911, 9915, C4330, C4330-5, 6601, 6655

**Synonyms:**

Dimethylbenzene; Methyltoluene.

**Company Identification:**Richard Allan Scientific  
4481 Campus Drive  
Kalamazoo, MI 49008**Company Phone Number:**

800-522-7270

**Emergency Phone Number:**

800-424-9300

**CHEMTREC Phone Number, US:**

(800) 424-9300

**CHEMTREC Phone Number, Europe:**

(202) 483-7616

## Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	Percent	EINECS/ ELINCS	Hazard Symbols	Risk Phrases
100-41-4	Ethyl benzene	10-15	202-849-4		
1330-20-7	Xylenes (o-, m-, p- isomers)	85	215-535-7		
108-88-3	Toluene	0-0.5	203-625-9	F XN	11 20
71-43-2	Benzene	0-0.01	200-753-7	F T	

## Section 3 - Hazards Identification

### EMERGENCY OVERVIEW

*Appearance: Clear, colorless liquid*

*Warning! Flammable liquid and vapor. Causes eye, skin, and respiratory tract irritation. Contains benzene. Benzene can cause cancer. Harmful or fatal if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage. May be harmful if absorbed through skin or if inhaled. May cause central nervous system depression. Flash Point: 27.7°C.*

*Target Organs: Central nervous system, Respiratory system, Eyes, Bone marrow, Skin*

#### Potential Health Effects

**Eye:**

Splashes of xylene in human eyes generally cause transient superficial injury.

**Skin:**

May be harmful if absorbed through the skin. Xylene contact causes defatting of the skin with irritation, dryness, and cracking. Blistering may occur, particularly if exposure to concentrated xylene is prolonged and the exposed area of skin is occluded.

**Ingestion:**

Aspiration hazard. May cause irritation of the digestive tract. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

**Inhalation:**

Causes respiratory tract irritation. Irritation may lead to chemical pneumonitis and pulmonary edema. Odor thresholds ranging from 0.07 to 40 ppm have been reported for xylenes. Inhalation overexposure may lead to central nervous system depression, producing effects such as dizziness, headache, confusion, incoordination, nausea, weakness, and loss of consciousness. Extreme exposures may cause other CNS effects including death.

**Chronic:**

Chronic exposure to benzene has been associated with an increased incidence of leukemia and multiple myeloma (tumor composed of cells of the type normally found in the bone marrow). Immunodepressive effects have been reported. Chronic exposure to xylene may cause defatting dermatitis, reversible eye damage, dyspnea (labored breathing), confusion, dizziness, apprehension, memory loss, headache, tremors, weakness, anorexia, nausea, ringing in the ears, irritability, thirst, mild changes in liver function, kidney impairment, anemia, and hyperplasia, but not destruction, of the bone marrow. Chronic hydrocarbon abuse (for example, sniffing glue or light hydrocarbons such as contained in this material) has been associated with irregular heart rhythms and potential cardiac arrest.

## Section 4 - First Aid Measures

**Eyes:**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

**Skin:**

In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

**Ingestion:**

Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:**

Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:**

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Vapors may form an explosive mixture with air. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. This liquid floats on water and may travel to a source of ignition and spread fire. May accumulate static electricity.

**Extinguishing Media:**

Water may be ineffective. This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**Autoignition Temperature:**

527°C ( 980.60°F)

**Explosion Limits:**

Lower: 1.1%      Upper: 7.0%

**Flash Point:**

27.7°C ( 82°F)

**NFPA Rating:**

(estimated) Health: 2; Flammability: 3; Instability: 0

## Section 6 - Accidental Release Measures

**General Information:**

Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:**

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor but may not prevent ignition in closed spaces. U.S. regulations require reporting spills and releases to soil, water and air in excess of reportable quantities. This material creates a fire hazard because it floats on water. If possible, try to contain floating material.

## Section 7 - Handling and Storage

### Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid breathing vapor or mist.

### Storage:

Keep away from sources of ignition. Keep container closed when not in use. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

## Section 8 - Exposure Controls, Personal Protection

### Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ventilation fans and other electrical service must be non-sparking and have an explosion-proof design.

### Exposure Limits

Chemical Name:	ACGIH	NIOSH	OSHA
Ethyl benzene	100 ppm TWA;125 ppm STEL	100 ppm TWA; 435 mg/m <sup>3</sup> TWA 800 ppm IDLH	100 ppm TWA; 435 mg/m <sup>3</sup> TWA;
Xylenes (o-, m-, p- isomers)	100 ppm TWA;150 ppm STEL	None listed	100 ppm TWA; 435 mg/m <sup>3</sup> TWA;
Toluene	20 ppm TWA	100 ppm TWA; 375 mg/m <sup>3</sup> TWA 500 ppm IDLH	200 ppm TWA; 300 ppm Ceiling;
Benzene	0.5 ppm TWA;2.5 ppm STEL;Skin - potential significant contribution to overall exposure by the cutaneous route	0.1 ppm TWA 500 ppm IDLH	1 ppm TWA; 10 ppm TWA (applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028); 25 ppm Ceiling (applies to industry segments exempt from the 1 ppm TWA and 5 ppm STEL of the benzene standard); 0.5 ppm

### OSHA Vacated PELs

Ethyl benzene: 100 ppm TWA; 435 mg/m<sup>3</sup> TWA  
Xylenes (o-, m-, p- isomers): 100 ppm TWA; 435 mg/m<sup>3</sup> TWA  
Toluene: 100 ppm TWA; 375 mg/m<sup>3</sup> TWA  
Benzene: 10 ppm TWA (unless specified in 1910.1028)

### Personal Protective Equipment

**Eyes:**

Wear chemical splash goggles.

**Skin:**

Wear appropriate protective gloves to prevent skin exposure.

**Clothing:**

Wear appropriate protective clothing to prevent skin exposure.

**Respirators:**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Color:** Clear, colorless

**Odor:** Aromatic odor

**pH:** Not applicable.

**Vapor Pressure:** 9 mm Hg @ 25°C

**Vapor Density:** 3.66 (air=1)

**Evaporation Rate:** No information found

**Viscosity:** <32.6 SUS

**Boiling Point:** 278 - 290°F

**Freezing/Melting Point:** -53°F

**Decomposition Temperature:** No information found

**Solubility in water:** Insoluble.

**Specific Gravity/Density:** 0.87 (water=1)

**Molecular Formula:** C<sub>8</sub>H<sub>10</sub>

**Molecular Weight:** 106.17

## Section 10 - Stability and Reactivity

**Chemical Stability:**

Stable under normal temperatures and pressures.

**Conditions to Avoid:**

High temperatures, ignition sources

**Incompatibilities with Other Materials**

Strong oxidizing agents, nitric acid

**Hazardous Decomposition Products**

Carbon monoxide, carbon dioxide

**Hazardous Polymerization**

Will not occur.

## Section 11 - Toxicological Information

**RTECS:**

CAS# 100-41-4: DA0700000  
CAS# 1330-20-7: ZE2100000  
CAS# 108-88-3: XS5250000  
CAS# 71-43-2: CY1400000

**LD50/LC50:**

## CAS# 100-41-4:

Draize test, rabbit, eye: 500 mg Severe  
Inhalation, mouse: LC50 = 35500 mg/m<sup>3</sup>/2H  
Inhalation, rat: LC50 = 55000 mg/m<sup>3</sup>/2H  
Oral, rat: LD50 = 3500 mg/kg  
Oral, rat: LD50 = 3500 mg/kg  
Skin, rabbit: LD50 = 17800 uL/kg.

## CAS# 1330-20-7:

Draize test, rabbit, eye: 87 mg Mild  
Draize test, rabbit, eye: 5 mg/24H Severe  
Draize test, rabbit, skin: 100% Moderate  
Draize test, rabbit, skin: 500 mg/24H Moderate  
Inhalation, rat: LC50 = 5000 ppm/4H  
Oral, mouse: LD50 = 2119 mg/kg  
Oral, rat: LD50 = 4300 mg/kg  
Skin, rabbit: LD50 = >1700 mg/kg.

## CAS# 108-88-3:

Draize test, rabbit, eye: 870 ug Mild  
Draize test, rabbit, eye: 2 mg/24H Severe  
Draize test, rabbit, skin: 435 mg Mild  
Draize test, rabbit, skin: 500 mg Moderate  
Draize test, rabbit, skin: 20 mg/24H Moderate  
Inhalation, mouse: LC50 = 400 ppm/24H  
Inhalation, mouse: LC50 = 30000 mg/m<sup>3</sup>/2H  
Inhalation, mouse: LC50 = 19900 mg/m<sup>3</sup>/7H  
Inhalation, mouse: LC50 = 10000 mg/m<sup>3</sup>  
Inhalation, rat: LC50 = 49 gm/m<sup>3</sup>/4H  
Oral, rat: LD50 = 636 mg/kg  
Skin, rabbit: LD50 = 14100 uL/kg.

## CAS# 71-43-2:

Dermal, guinea pig: LD50 = >9400 uL/kg  
Draize test, rabbit, eye: 88 mg Moderate  
Draize test, rabbit, eye: 2 mg/24H Severe  
Draize test, rabbit, skin: 20 mg/24H Moderate  
Inhalation, mouse: LC50 = 9980 ppm  
Inhalation, mouse: LC50 = 24 mL/kg/2H  
Inhalation, rat: LC50 = 10000 ppm/7H  
Inhalation, rat: LC50 = 34 mL/kg/2H  
Inhalation, rat: LC50 = 6.5 mL/kg/4H  
Oral, mouse: LD50 = 4700 mg/kg  
Oral, rat: LD50 = 930 mg/kg  
Oral, rat: LD50 = 1 mL/kg  
Oral, rat: LD50 = 1800 mg/kg  
Skin, rabbit: LD50 = >9400 uL/kg.

**Carcinogenicity:**

## CAS# 100-41-4

ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans  
California: carcinogen, initial date 6/11/04  
NTP: Not listed  
IARC: Group 2B carcinogen

CAS# 1330-20-7: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 108-88-3: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 71-43-2

ACGIH: A1 - Confirmed Human Carcinogen

California: carcinogen, initial date 2/27/87

NTP: Known carcinogen

IARC: Group 1 carcinogen

**Epidemiology:**

175 workers were exposed to 21 ppm of xylene for 7 years. Subjective symptoms such as anxiety, forgetfulness, inability to concentrate and dizziness were reported. Xylenes accounted for >70% of the total exposure. Liver & kidney effects were not reported

**Teratogenicity:**

No increased incidence of birth defects was reported in a study of lab workers exposed to xylene during early pregnancy. Exposure to other solvents and chemicals also occurred. An increased incidence of spontaneous abortions was reported. Animal information suggests that xylene is not teratogenic or embryotoxic at exposure levels that are not harmful to the mother.

**Reproductive:**

An increase in menstrual disorders has been reported in women exposed to organic solvents such as benzene, toluene, and xylenes. It is not possible to attribute these effects to xylenes in particular.

**Mutagenicity:**

Xylene does not appear to be a mutagen.

**Neurotoxicity:**

Xylene may be ototoxic (damages hearing or enhances sensitivity to noise) in chronic occupational exposures, probably from a neurotoxic mechanism.

**Other:**

See actual entry in RTECS for complete information.

## Section 12 - Ecological Information

**Ecotoxicity:**

Fish: Rainbow trout: LC50 = 13.5 mg/L; 96 Hr; Unspecified

Fish: Goldfish: LD50 = 13 mg/L; 24 Hr; Unspecified

Fish: Fathead Minnow: LC50 = 46 mg/L; 1 Hr; Static bioassay

Acute and long-term toxicity to fish and invertebrates: LD50 for goldfish is 13 mg/L/24 Hr.

Cas#1330-20-7:

LC50(96Hr.) rainbow trout = 8.05 mg/L, Static condition;

LC50(96Hr.) fathead minnow = 16.1 mg/L, flow-through conditions; LC50(96Hr.) bluegill = 16.1 mg/L, flow-through;

EC50 (48 Hr.) water flea = 3.82 mg/L, flow-through conditions;

EC50(24 Hr.) photobacterium phosphoreum = 0.0084 mg/L, Microtox test.

**Environmental:**

In air, xylenes degrade by reacting with photochemically produced hydroxyl radicals. In soil it will volatilize and leach into groundwater. Little bioconcentration is expected.



**Physical:**

ATMOSPHERIC FATE: According to a model of gas/particle partitioning of semivolatile organic compounds in the atmosphere, xylene, which has an experimental vapor pressure of 7.99 mm Hg at 25 deg C, will exist solely as a vapor in the ambient atmosphere. Vapor-phase xylene is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the atmospheric lifetime of xylene is about 14-26 hours. Ambient levels of xylene are detected in the atmosphere due to large emissions of this compound.

**Other:**

No information found

### Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Part 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P Series Wastes**

None of the components are on this list.

**RCRA U Series Wastes**

CAS# 1330-20-7: waste number U239 (Ignitable waste, Toxic waste). CAS# 108-88-3: waste number U220. CAS# 71-43-2: waste number U019 (Ignitable waste, Toxic waste).

### Section 14 - Transport Information

	US DOT	Canadian TDG
<b>Proper Shipping Name:</b>	XYLENES	XYLENES
<b>Hazard Class:</b>	3	3
<b>UN Number:</b>	UN1307	UN1307
<b>Packing Group:</b>	III	III

USA RQ: CAS# 100-41-4: 1000 lb final RQ; 454 kg final RQ

USA RQ: CAS# 1330-20-7: 100 lb final RQ; 45.4 kg final RQ

USA RQ: CAS# 108-88-3: 1000 lb final RQ; 454 kg final RQ

USA RQ: CAS# 71-43-2: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogeni

## Section 15 - Regulatory Information

### US Federal

#### TSCA

CAS# 100-41-4 is listed on the TSCA Inventory.  
CAS# 1330-20-7 is listed on the TSCA Inventory.  
CAS# 108-88-3 is listed on the TSCA Inventory.  
CAS# 71-43-2 is listed on the TSCA Inventory.

#### Health and Safety Reporting List

CAS# 100-41-4: Effective 6/19/87, Sunset 6/19/97  
CAS# 108-88-3: Effective 10/4/82, Sunset 10/4/92

#### Chemical Test Rules

##### TSCA Section 12b

None of the components are on this list.

##### TSCA Significant New Use Rule (SNUR)

None of the components are on this list.

##### CERCLA Hazardous Substances and corresponding RQs

CAS# 100-41-4: 1000 lb final RQ; 454 kg final RQ  
CAS# 1330-20-7: 100 lb final RQ; 45.4 kg final RQ  
CAS# 108-88-3: 1000 lb final RQ; 454 kg final RQ  
CAS# 71-43-2: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogeni

##### SARA Section 302 Extremely Hazardous Substances

None of the components are on this list.

##### SARA Hazard Categories

CAS# 100-41-4: immediate, delayed, fire.  
CAS# 1330-20-7: immediate, delayed, fire.  
CAS# 108-88-3: immediate, fire.  
CAS# 71-43-2: immediate, delayed, fire.

##### SARA Section 313

This material contains Ethyl benzene (CAS# 100-41-4, 10-15%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.  
This material contains Xylenes (o-, m-, p- isomers) (CAS# 1330-20-7, 85%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.  
This material contains Toluene (CAS# 108-88-3, 0-0.5%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.  
This material contains Benzene (CAS# 71-43-2, 0-0.01%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.

##### Clean Air Act - Hazardous Air Pollutants (HAPs)

CAS# 100-41-4 is listed as a hazardous air pollutant (HAP).  
CAS# 1330-20-7 is listed as a hazardous air pollutant (HAP).  
CAS# 108-88-3 is listed as a hazardous air pollutant (HAP).  
CAS# 71-43-2 is listed as a hazardous air pollutant (HAP).

##### Clean Air Act - Class 1 Ozone Depletors

None of the components are on this list.

**Clean Air Act - Class 2 Ozone Depletors**

None of the components are on this list.

**Clean Water Act - Hazardous Substances**

CAS# 100-41-4 is listed as a Hazardous Substance under the CWA.  
CAS# 1330-20-7 is listed as a Hazardous Substance under the CWA.  
CAS# 108-88-3 is listed as a Hazardous Substance under the CWA.  
CAS# 71-43-2 is listed as a Hazardous Substance under the CWA.

**Clean Water Act - Priority Pollutants**

CAS# 100-41-4 is listed as a Priority Pollutant under the CWA.  
CAS# 108-88-3 is listed as a Priority Pollutant under the CWA.  
CAS# 71-43-2 is listed as a Priority Pollutant under the CWA.

**Clean Water Act - Toxic Pollutants**

CAS# 100-41-4 is listed as a Toxic Pollutant under the CWA.  
CAS# 108-88-3 is listed as a Toxic Pollutant under the CWA.  
CAS# 71-43-2 is listed as a Toxic Pollutant under the CWA.

**OSHA - Highly Hazardous**

None of the components are on this list.

**OSHA - Specifically Regulated Chemicals**

CAS# 71-43-2 is a specifically regulated chemical by OSHA.

**US State****State Right to Know**

Ethyl benzene can be found on the following state Right-to-Know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.  
Xylenes (o-, m-, p- isomers) can be found on the following state Right-to-Know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.  
Toluene can be found on the following state Right-to-Know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.  
Benzene can be found on the following state Right-to-Know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**California Prop 65**

WARNING: This product contains Ethyl benzene, a chemical known to the State of California to cause cancer.  
WARNING: This product contains Benzene, a chemical known to the State of California to cause cancer.  
WARNING: This product contains Benzene, a chemical known to the state of California to cause male reproductive toxicity.  
WARNING: This product contains Toluene, a chemical known to the state of California to cause developmental reproductive toxicity.  
WARNING: This product contains Benzene, a chemical known to the state of California to cause developmental reproductive toxicity.

**California No Significant Risk Level**

None of the components are on this list.  
None of the components are on this list.  
None of the components are on this list.  
CAS# 71-43-2: 6.4 æg/day NSRL (oral); 13 æg/day NSRL (inhalation)

**European/International Regulations****European Labelling in Accordance with EC Directives:**

Hazard Symbols: T

Risk Phrases: R 45 May cause cancer.

R 10 Flammable.

R 20/21 Harmful by inhalation and in contact with skin.

R 36/38 Irritating to eyes and skin.

Safety Phrases: S 53 Avoid exposure - obtain special instructions before use.

S 25 Avoid contact with eyes.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**WGK (Water Danger/Protection)**

No information found

**United Kingdom Occupational Exposure Limits**

No information found

**United Kingdom Maximum Exposure Limits**

No information found

**Canadian DSL/NDSL**

CAS# 100-41-4 is listed on Canada's DSL List.

CAS# 1330-20-7 is listed on Canada's DSL List.

CAS# 108-88-3 is listed on Canada's DSL List.

CAS# 71-43-2 is listed on Canada's DSL List.

**Canadian WHMIS Classifications**

This product has a WHMIS classification of B2, D2B, D2A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 100-41-4 is listed on the Canadian Ingredient Disclosure List.

CAS# 1330-20-7 is not listed on the Canadian Ingredient Disclosure List.

CAS# 108-88-3 is listed on the Canadian Ingredient Disclosure List.

CAS# 71-43-2 is listed on the Canadian Ingredient Disclosure List.

## Section 16 - Other Information

Color information has been

MSDS Creation Date: August 9, 2007

Revision Date: November 11, 2007

**Revisions were made in Sections:**

2, 3, 9, 14

*This MSDS is intended for review and guidance in the receipt, storage, handling, use and disposal of product purchased from us, and for no other purpose. Use this product only as directed and in accordance with applicable instructions and warnings provided with the product. Please consult your institution's policies regarding use of this product. If you have obtained this MSDS other than in connection with the supply of this product from us, this MSDS should be consulted for general information only, and should not be relied upon for any purpose. As with the use of all hazardous materials, you should in all instances follow the guidance of the MSDS provided or available with the specific product purchased.*