

**SIGMA-ALDRICH**

14

**Material Safety Data Sheet**

Date Printed: 07/01/2005  
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 Version 1.60

**Section 1 - Product and Company Information**

**Product Name** *p*-Xylene, CHROMASOLV<sup>®#174;</sup>, for HPLC, ≥99%  
**Product Number** 317195  
**Brand** Aldrich Chemical

**Company** Sigma-Aldrich  
**Street Address** 3050 Spruce Street  
**City, State, Zip, Country** SAINT LOUIS, MO 63103 US  
**Technical Phone:** 314 771 5765  
**Fax:** 800 325 5052      **Emergency Phone:** 414 273 3850 Ext. 5996

**Section 2 - Composition/Information on Ingredient**

<b>Substance Name</b>	<b>CAS #</b>	<b>SARA 313</b>	<b>EC no</b>	<b>Annex I Index Number</b>
P-XYLENE	106-42-3	Yes	203-396-5	601-022-00-9
<b>Formula</b> <b>Synonyms</b>	C8H10 Chromar, <i>p</i> -Dimethylbenzene, 1,4-Dimethylbenzene, <i>p</i> -Methyltoluene, Scintillar, 1,4-Xylene, <i>p</i> -Xylene (ACGIH;OSHA), P-Xylo			

**Section 3 - Hazards Identification**

**Emergency Overview**  
 Flammable, Irritant.  
 Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes, respiratory system and skin.  
 Readily absorbed through skin. Target organ(s): Nerves, Liver, Kidneys.

**HMIS Rating**  
 Health: 2\*      Flammability: 3      Reactivity: 0

**NFPA Rating**  
 Health: 2      Flammability: 3      Reactivity: 0

\*additional chronic hazards present.

**Section 4 - First Aid Measures**

**Oral Exposure**  
 If swallowed, wash out mouth with water provided person is conscious. Call a physician.

**Inhalation Exposure**  
 If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

**Dermal Exposure**  
 In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

**Eye Exposure**

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**Section 5 - Fire Fighting Measures**

**Flammable Hazards:** Yes

**Explosion Hazards**

Vapor may travel considerable distance to source of ignition and flash back.  
 Container explosion may occur under fire conditions.  
 Forms explosive mixtures in air.

**Flash Point:** 77 °F      25 °C

**Explosion Limits:** Lower: 1.1 %      Upper: 7 %

**Autoignition Temp:** 529 °C      **Flammability:** Yes

**Extinguishing Media**

**Suitable**  
 Water spray, Carbon dioxide, dry chemical powder, or appropriate foam.  
**Unsuitable**  
 Water may be effective for cooling, but may not effect extinguishment.

**Firefighting**

**Protective Equipment**  
 Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
**Specific Hazard(s)**  
 Flammable liquid. Emits toxic fumes under fire conditions.

**Section 6 - Accidental Release Measures**

**Procedure to be Followed in Case of Leak or Spill**  
 Evacuate area. Shut off all sources of ignition.

**Procedure(s) of Personal Precaution(s)**  
 Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

**Methods for Cleaning Up**  
 Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

**Section 7 - Handling and Storage**

**Handling**  
**User Exposure**  
 Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

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**Safety and Environmental Health**

**Storage**  
**Suitable**  
 Keep container closed. Keep away from heat, sparks, and open flame.

## Section 8 - Exposure Controls / PPE

**Engineering Controls**  
 Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

### Personal Protective Equipment

**Respiratory**  
 Government approved respirator.  
**Hand**  
 Compatible chemical-resistant gloves.  
**Eye**  
 Chemical safety goggles.

**General Hygiene Measures**  
 Wash thoroughly after handling. Wash contaminated clothing before reuse.

### Exposure Limits

<u>Country</u>	<u>Type</u>	<u>Value</u>
Poland	NDS	100 mg/m3
Poland	NDSCh	350 mg/m3
Poland	NDSP	

### Exposure Limits, RTECS

<u>Country</u>	<u>Source</u>	<u>Type</u>	<u>Value</u>
USA	ACGIH	STEL	150 PPM
USA	ACGIH	TWA	100 PPM
USA	MSHA Standard-air	TWA	100 PPM (440 MG/M3) (SKIN)
USA	OSHA	PEL	8H TWA 100 PPM (435 MG/M3)
USA	NIOSH	TWASTEL	100 PPM 150 PPM

## Section 9 - Physical/Chemical Properties

**Appearance**  
**Physical State** Clear liquid  
**Color** Colorless

**Molecular Weight:** 106.17 AMU

**pH** N/A  
**BP/BP Range** 137 - 138 °C  
**MP/MP Range** 13 °C  
**Freezing Point** N/A  
**Vapor Pressure** 9 mmHg  
**Vapor Density** 3.7 g/l  
**Saturated Vapor Conc.** N/A  
**SG/Density** 0.861 g/cm3  
**Bulk Density** N/A  
**Odor Threshold** 0.05 ppm  
**Volatile%** N/A  
**VOC Content** N/A  
**Water Content** N/A  
**Solvent Content** N/A

**Evaporation Rate** N/A  
**Viscosity** N/A  
**Surface Tension** 28.3 mN/m  
**Partition Coefficient** Log Kow: 3.15  
**Decomposition Temp.** N/A  
**Flash Point °F** 77 °F  
**Flash Point °C** 25 °C  
**Explosion Limits** Lower: 1.1 %  
 Upper: 7 %  
**Flammability** N/A  
**Autoignition Temp** 529 °C  
**Refractive Index** 1.495  
**Solubility**  
**Solubility In Water:** 0.2 mg/ml H2O  
**N/A = not available**

Method: closed cup  
 Method: closed cup

## Section 10 - Stability and Reactivity

**Stability**  
**Stable**  
**Stable**  
**Materials to Avoid**  
 Strong oxidizing agents.  
**Hazardous Decomposition Products**  
**Hazardous Decomposition Products**  
 Carbon monoxide, Carbon dioxide.  
**Hazardous Polymerization**  
**Hazardous Polymerization**  
 Will not occur.

## Section 11 - Toxicological Information

**Route of Exposure**  
**Skin Contact**  
 Causes skin irritation.  
**Skin Absorption**  
 Harmful if absorbed through skin.  
**Eye Contact**  
 Causes eye irritation.  
**Inhalation**  
 Harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.  
**Ingestion**  
 Harmful if swallowed.

**Target Organ(s) or System(s)**  
 Nerves Liver Kidneys

**Signs and Symptoms of Exposure**  
 Exposure can cause: Narcotic effect, Lung Irritation, chest pain, and edema which may be fatal. CNS depression. Gastrointestinal disturbances. Damage to the liver. Damage to the kidneys. Blood effects.

**RTECS Number:** ZE2625000

**Toxicity Data**  
**Oral - Rat:** 5000 mg/kg (LD50)  
**Inhalation - Rat:** 4,550 ppm (LC50)  
 Remarks: Lungs, Thorax, or Respiration:Chronic pulmonary edema.  
 Liver:Other changes.  
 Blood:Changes in cell count (unspecified).

Intraperitoneal - Rat: 3810 MG/KG (LD50)  
 Remarks: Lungs, Thorax, or Respiration: Chronic pulmonary edema.  
 Liver: Other changes.  
 Blood: Changes in cell count (unspecified).  
 Intraperitoneal - Mouse: 2450 UL/KG (LD50)

#### IARC Carcinogen List

Rating  
 Group 3

#### ACGIH Carcinogen List

Rating  
 A4

#### Chronic Exposure - Teratogen

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	3000 MG/M3/24H	Inhalation	(9-10D PREG)
	Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Maternal Effects: Other effects. Endocrine: Estrogenic.		
Rat	150 MG/M3/24H	Inhalation	(7-14D PREG)
	Result: Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Specific Developmental Abnormalities: Musculoskeletal system.		
Mouse	12 MG/KG	Oral	(12-15D PREG)
	Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue).		
Mouse	500 MG/M3/12H	Inhalation	(6-15D PREG)
	Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.		

#### Chronic Exposure - Reproductive Hazard

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
	Result: May cause reproductive disorders.		
Rat	3000 MG/M3/24H	Inhalation	(7-14D PREG)
	Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).		
Rat	7 GM/M3	Inhalation	(7-16D PREG)
	Result: Maternal Effects: Other effects.		
Rabbit	1 GM/M3/24H	Inhalation	(7-20D PREG)
	Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Abortion. Effects on Embryo or Fetus: Fetal death.		

#### Section 12 - Ecological Information

Physical Properties Affecting Ecotoxicity  
 BOD: BOD after 5 Days: 44 %

#### Acute Ecotoxicity Tests

<u>Test Type</u>	<u>EC50</u>	<u>Species</u>
EC50 Algae		
Selenastrum capricornutum resp.		
Time: 72.0 h	Value: 3.2 - 4.4 mg/l	
<u>Test Type</u>	<u>EC50</u>	<u>Species</u>
EC50 Daphnia		
Daphnia magna		
Time: 48.0 h	Value: 35.5 - 63.1 mg/l	

**Test Type**  
 LC50 Fish  
**Species**  
 Onchorhynchus mykiss (Rainbow trout)  
**Time:** 96.0 h **Value:** 2.6 mg/l  
**Test Type**  
 LC50 Fish  
**Species**  
 Carassius auratus (Goldfish)  
**Time:** 24.0 h **Value:** 18 mg/l

#### Section 13 - Disposal Considerations

##### Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.  
 Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.  
 Observe all federal, state, and local environmental regulations.

#### Section 14 - Transport Information

**DOT**  
 Proper Shipping Name: Xylenes  
 UN#: 1307  
 Class: 3  
 Packing Group: Packing Group III  
 Hazard Label: Flammable liquid  
 PIH: Not PIH

**IATA**  
 Proper Shipping Name: Xylenes  
 IATA UN Number: 1307  
 Hazard Class: 3  
 Packing Group: III

#### Section 15 - Regulatory Information

**EU Directives Classification**  
 Symbol of Danger: Xn  
 Indication of Danger  
 Harmful.  
**Risk Statements** R: 10 20/21 38  
 Flammable. Harmful by inhalation and in contact with skin. Irritating to skin.  
**Safety Statements** S: 25  
 Avoid contact with eyes.

**US Classification and Label Text**  
 Indication of Danger  
 Flammable. Irritant.  
**Risk Statements**  
 Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes, respiratory system and skin.  
**Safety Statements**  
 Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.  
**US Statements**  
 Readily absorbed through skin. Target organ(s): Nerves, Liver, Kidneys.

**United States Regulatory Information**  
 SARA Listed: Yes

Deminimis: 1 %

Notes: This product is subject to SARA section 313 reporting requirements.

TSCA Inventory Item: Yes

**Canada Regulatory Information**

**WHMIS Classification**

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

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**Section 16 - Other Information**

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**Disclaimer**

For R&D use only. Not for drug, household or other uses.

**Warranty**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.