

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : *p*-Toluidine

Product Number : 461121  
Brand : Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

##### OSHA Hazards

Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Respiratory sensitiser, Irritant, Carcinogen

##### Target Organs

Liver, Blood

##### GHS Classification

Acute toxicity, Oral (Category 3)  
Acute toxicity, Inhalation (Category 3)  
Acute toxicity, Dermal (Category 3)  
Skin irritation (Category 3)  
Eye irritation (Category 2A)  
Respiratory sensitization (Category 1)  
Carcinogenicity (Category 2)  
Acute aquatic toxicity (Category 1)

##### GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H301 + H311 Toxic if swallowed or in contact with skin  
H316 Causes mild skin irritation.  
H319 Causes serious eye irritation.  
H331 Toxic if inhaled.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H351 Suspected of causing cancer.  
H400 Very toxic to aquatic life.

Precautionary statement(s)

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing.  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P311 Call a POISON CENTER or doctor/ physician.

**HMIS Classification**

**Health hazard:** 2  
**Chronic Health Hazard:** \*  
**Flammability:** 0  
**Physical hazards:** 0

**NFPA Rating**

**Health hazard:** 2  
**Fire:** 2  
**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation** Toxic if inhaled. Causes respiratory tract irritation.  
**Skin** Toxic if absorbed through skin. Causes skin irritation.  
**Eyes** Causes eye irritation.  
**Ingestion** Toxic if swallowed.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : 4-Aminotoluene  
4-Methylaniline

Formula : C<sub>7</sub>H<sub>9</sub>N  
Molecular Weight : 107.15 g/mol

Component	Concentration
<b>p-Toluidine</b>	
CAS-No.	106-49-0
EC-No.	203-403-1
Index-No.	612-160-00-4

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**4. FIRST AID MEASURES**

**General advice**

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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**5. FIREFIGHTING MEASURES**

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

## Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Remarks	Potential Occupational Carcinogen See Appendix A			
p-Toluidine	106-49-0	TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Methemoglobinemia Substances for which there is a Biological Exposure Index or Indices (see BEI® section), see BEI® for Methemoglobin Inducers Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption			
		TWA	2 ppm 9 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Immersion protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: > 480 min

Material tested: Dermatrill® (Aldrich Z677272, Size M)

#### Splash protection

Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: > 30 min  
Material tested: Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form powder, crystalline, Chunks, granules  
Colour beige

### Safety data

pH 7.8 at 7 g/l  
Melting point/freezing point Melting point/range: 41 - 46 °C (106 - 115 °F) - lit.  
Boiling point 200 °C (392 °F) - lit.  
Flash point 87 °C (189 °F) - closed cup  
Ignition temperature 482 °C (900 °F)  
Autoignition temperature no data available  
Lower explosion limit 1.1 %(V)  
Upper explosion limit 6.6 %(V)  
Vapour pressure 7 hPa (5 mmHg) at 68 °C (154 °F)  
1 hPa (1 mmHg) at 42 °C (108 °F)  
Density 0.973 g/mL at 25 °C (77 °F)  
Water solubility no data available  
Partition coefficient: n-octanol/water log Pow: 3.1  
Relative vapour density no data available  
Odour no data available  
Odour Threshold no data available  
Evaporation rate no data available

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## 10. STABILITY AND REACTIVITY

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

no data available

**Materials to avoid**

acids, Acid chlorides, Acid anhydrides, Chloroformates, Strong oxidizing agents

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

Other decomposition products - no data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

LD50 Oral - rat - 336 mg/kg

Remarks: Peripheral Nerve and Sensation:Spastic paralysis with or without sensory change. Behavioral:Somnolence (general depressed activity). Behavioral:Convulsions or effect on seizure threshold.

**Inhalation LC50**

LC50 Inhalation - rat - 1 h - > 646 mg/m<sup>3</sup>

**Dermal LD50**

LD50 Dermal - rabbit - 890 mg/kg

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

Skin - rabbit - Mild skin irritation - 24 h

**Serious eye damage/eye irritation**

Eyes - rabbit - Moderate eye irritation - 24 h

**Respiratory or skin sensitization**

no data available

May cause sensitization by inhalation.

**Germ cell mutagenicity**

Genotoxicity in vitro - rat - Liver

Unscheduled DNA synthesis

Genotoxicity in vivo - mouse - Oral

DNA inhibition

Genotoxicity in vivo - mouse - Intraperitoneal

DNA damage

**Carcinogenicity**

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### Reproductive toxicity

no data available

### Teratogenicity

no data available

### Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

### Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

### Aspiration hazard

no data available

### Potential health effects

<b>Inhalation</b>	Toxic if inhaled. Causes respiratory tract irritation.
<b>Ingestion</b>	Toxic if swallowed.
<b>Skin</b>	Toxic if absorbed through skin. Causes skin irritation.
<b>Eyes</b>	Causes eye irritation.

### Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Cough, Shortness of breath, Headache, Nausea, Vomiting, Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

### Synergistic effects

no data available

### Additional Information

RTECS: XU3150000

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## 12. ECOLOGICAL INFORMATION

### Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 13.5 - 16.3 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.10 - 0.16 mg/l - 48 h
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 0.2 mg/l - 14 d

### Persistence and degradability

Biodegradability	Biotic/Aerobic
	Zahn-Wellens Test

### Bioaccumulative potential

no data available

### Mobility in soil

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

Very toxic to aquatic life.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

**13. DISPOSAL CONSIDERATIONS****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 3451 Class: 6.1 Packing group: II  
 Proper shipping name: Toluidines, solid  
 Reportable Quantity (RQ): 100 lbs  
 Marine pollutant: No  
 Poison Inhalation Hazard: No

**IMDG**

UN number: 3451 Class: 6.1 Packing group: II EMS-No: F-A, S-A  
 Proper shipping name: TOLUIDINES, SOLID  
 Marine pollutant: No

**IATA**

UN number: 3451 Class: 6.1 Packing group: II  
 Proper shipping name: Toluidines, solid

**15. REGULATORY INFORMATION****OSHA Hazards**

Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Respiratory sensitiser, Irritant, Carcinogen

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

p-Toluidine	CAS-No. 106-49-0	Revision Date 1994-04-01
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**Pennsylvania Right To Know Components**

p-Toluidine	CAS-No. 106-49-0	Revision Date 1994-04-01
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**New Jersey Right To Know Components**

p-Toluidine	CAS-No. 106-49-0	Revision Date 1994-04-01
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**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION****Further information**

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