

Material Safety Data Sheet

Version 3.1

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : *p*-Toluidine

Product Number : 236314

Brand : Aldrich

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

Telephone : +1 800-325-5832

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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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 4-Aminotoluene
4-Methylaniline

Formula : C₇H₉N
Molecular Weight : 107.15 g/mol

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

4. FIRST AID MEASURES**General advice**

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

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.

5. FIREFIGHTING MEASURES**Conditions of flammability**

Not flammable or combustible.

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)

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.

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.

Conditions for safe storage

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

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/m3	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.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Form crystalline

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: log Pow: 3.1
n-octanol/water

Relative vapour density no data available

Odour no data available

Odour Threshold no data available

Evaporation rate no data available

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

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/m³

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

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

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

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

Very toxic to aquatic life.

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.

16. OTHER INFORMATION

Further information

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