

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 2 of 12

Pictograms:



Hazard statements

H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H351 Suspected of causing cancer.
 H400 Very toxic to aquatic life.

Precautionary statements

P273 Avoid release to the environment.
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 IF exposed or concerned:
 P310 Immediately call a POISON CENTER/doctor.

Special labelling of certain mixtures

Restricted to professional users.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: CH₃C₆H₄NH₂
 Molecular weight: 107,15 g/mol

Hazardous components

CAS No	Chemical name	Quantity
	EC No	Index No
	REACH No	
	Classification (Regulation (EC) No 1272/2008)	
106-49-0	p-toluidine	100 %
	203-403-1	612-160-00-4
	Carc. 2, Acute Tox. 3, Acute Tox. 3, Acute Tox. 3, Eye Irrit. 2, Skin Sens. 1, Aquatic Acute 1; H351 H331 H311 H301 H319 H317 H400	

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
106-49-0	203-403-1	p-toluidine	100 %
	inhalation: LC50 = > 0,64 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); dermal: LD50 = 890 mg/kg; oral: LD50 = 620 mg/kg		

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

SECTION 4: First aid measures

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 3 of 12

4.1. Description of first aid measures

General information

Self-protection of the first aider

After inhalation

Provide fresh air.

If breathing is irregular or stopped, administer artificial respiration.

Call a physician immediately.

After contact with skin

Wash immediately with: Water

Take off immediately all contaminated clothing and wash it before reuse.

Call a physician immediately.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Rinse mouth immediately and drink plenty of water.

Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Irritant

Allergic reactions

Gastrointestinal complaints

Vomiting

Cardiac arrhythmias

Circulatory collapse

Narcotic effects

Methaemoglobinaemia

Headache

Vapours may cause drowsiness and dizziness.

Blood pressure drop

Dyspnoea

Spasms

Cyanosis (blue coloured blood)

4.3. Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Combustible solids

Hazardous combustion products

In case of fire may be liberated:

Nitrogen oxides (NOx)

Carbon monoxide, Carbon dioxide

In case of warming: Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Danger of dust explosion.

5.3. Advice for firefighters

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 4 of 12

In case of fire: Wear self-contained breathing apparatus.
Avoid contact with skin, eyes and clothes.

Additional information

Suppress gases/vapours/mists with water spray jet.
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Provide adequate ventilation.
Use personal protection equipment.
Avoid contact with skin, eyes and clothes.
Remove persons to safety.
Emergency procedures
Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment

Cover drains.
Prevent spread over a wide area (e.g. by containment or oil barriers).
Collect in closed and suitable containers for disposal.
Take up carefully when dry. Take up dust-free and set down dust-free.

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Avoid exposure - obtain special instructions before use.
Avoid dust formation.
Do not breathe dust.
Read label before use.
Use extractor hood (laboratory).

Advice on protection against fire and explosion

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take action to prevent static discharges.
Danger of dust explosion.

Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 5 of 12

Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Further information on handling

Wash hands and face before breaks and after work and take a shower if necessary.
Take off immediately all contaminated clothing and wash it before reuse.
Draw up and observe skin protection programme.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep container tightly closed. Store in a dry place.
Store in a place accessible by authorized persons only.
Protect against: Light, Air, Heat

Further information on storage conditions

Store in a well-ventilated place. Keep cool.
storage temperature: < +30 °C.

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Occupational exposure limits**

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
106-49-0	p-Toluidine (4-aminotoluene)	1	4.46		TWA (8 h)	
		2	8.92		STEL (15 min)	

8.2. Exposure controls**Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Suitable eye protection:
goggles
Face protection umbrella

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Trade name/designation: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with permanent contact: > 480 min

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 6 of 12

By short-term hand contact
Trade name/designation: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Wear suitable protective clothing.

Respiratory protection

Respiratory protection necessary at: dust formation
Filtering device with filter or ventilator filtering device of type: A-(P3)

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	solid
Colour:	white
Odour:	like: Alcohol
Melting point/freezing point:	~43 °C
Boiling point or initial boiling point and boiling range:	~200 °C
Flammability:	No data available
Lower explosion limits:	No data available
Upper explosion limits:	No data available
Flash point:	87 °C
Auto-ignition temperature:	480 °C
Decomposition temperature:	No data available
pH-Value:	alkaline
Viscosity / kinematic:	No data available
Water solubility: (at 20 °C)	7,5 g/L
Solubility in other solvents	No data available
Partition coefficient n-octanol/water:	log Pow: 1,44
Vapour pressure: (at 50 °C)	1,3 hPa
Vapour pressure:	No data available
Density (at 20 °C):	1,05 g/cm ³
Bulk density:	No data available
Relative vapour density:	No data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties	
Danger of dust explosion.	
Sustaining combustion:	No data available
Self-ignition temperature	
Solid:	No data available

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 7 of 12

Gas:	No data available
Oxidizing properties	
Not oxidising.	
Other safety characteristics	
Evaporation rate:	No data available
Solvent separation test:	No data available
Solvent content:	No data available
Solid content:	No data available
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
No data available:	
Viscosity / dynamic:	No data available
Flow time:	No data available

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Danger of dust explosion.

10.2. Chemical stability

Protect against: Light, Air, Heat

10.3. Possibility of hazardous reactions

Nitric acid
Acid

10.4. Conditions to avoid

Protect against: Light, Air, Heat

10.5. Incompatible materials

Plastic articles

10.6. Hazardous decomposition products

In case of fire may be liberated:
Nitrogen oxides (NOx)
Carbon monoxide, Carbon dioxide

Further information

No data available

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicokinetics, metabolism and distribution

Avoid exposure - obtain special instructions before use.

Acute toxicity

Toxic if swallowed.
Toxic in contact with skin.
Toxic if inhaled.
May cause respiratory irritation.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 8 of 12

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
106-49-0	p-toluidine				
	oral	LD50 620 mg/kg	Rat	UNEP Publications (1978)	OECD Guideline 401
	dermal	LD50 890 mg/kg	Rabbit	UNEP Publications (1973)	Dermal application of 464 - 1470 mg/kg b
	inhalation (1 h) vapour	LC50 > 0,64 mg/l	Rat	UNEP Publications (1973)	In an inhalation hazard test, 6 rats wer
	inhalation dust/mist	ATE 0,5 mg/l			

Irritation and corrosivity

Causes serious eye irritation.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Sensitising effects

May cause an allergic skin reaction. (p-toluidine)

May cause sensitisation especially in sensitive humans.

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of causing cancer. (p-toluidine)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

11.2. Information on other hazards

Other information

Irritant

Allergic reactions

Gastrointestinal complaints

Vomiting

Cardiac arrhythmias

Circulatory collapse

Narcotic effects

Methaemoglobinaemia

Headache

Vapours may cause drowsiness and dizziness.

Blood pressure drop

Dyspnoea

Spasms

Cyanosis (blue coloured blood)

Further information

Liver and kidney damage

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 9 of 12

SECTION 12: Ecological information

12.1. Toxicity

No data available

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
106-49-0	p-toluidine					
	Acute fish toxicity	LC50 120 mg/l	96 h	Oryzias latipes	Review article or handbook (2009)	OECD Guideline 203
	Acute algae toxicity	ErC50 24 mg/l	72 h	Pseudokirchneriella subcapitata	Review article or handbook (2009)	OECD Guideline 201
	Acute crustacea toxicity	EC50 5 mg/l	48 h	Daphnia magna	UNEP Publications (2001)	OECD Guideline 202
	Fish toxicity	NOEC 13 mg/l	14 d	Oryzias latipes	Review article or handbook (2009)	OECD Guideline 204
	Crustacea toxicity	NOEC mg/l 0,011	21 d	Daphnia magna	Review article or handbook (2009)	OECD Guideline 211
	Acute bacteria toxicity	(EC50 mg/l) 100	3 h	activated sludge of a predominantly domestic sewage	UNEP Publications (2005)	OECD Guideline 209

12.2. Persistence and degradability

> 95 %; 5 d; aerob
OECD 302B

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
106-49-0	p-toluidine	1,44

BCF

CAS No	Chemical name	BCF	Species	Source
106-49-0	p-toluidine	< 1,3	Cyprinus carpio	UNEP Publications (2)

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

Discharge into the environment must be avoided.

Further information

Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Send to a physico-chemical treatment facility under observation of official regulations.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 10 of 12

Do not mix with other wastes.
Do not empty into drains.

Contaminated packaging

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.
Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 3451
14.2. UN proper shipping name:	TOLUIDINES, SOLID
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	II
Hazard label:	6.1
Classification code:	T2
Special Provisions:	279
Limited quantity:	500 g
Excepted quantity:	E4
Transport category:	2
Hazard No:	60
Tunnel restriction code:	D/E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 3451
14.2. UN proper shipping name:	TOLUIDINES, SOLID
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	II
Hazard label:	6.1
Classification code:	T2
Special Provisions:	279 802
Limited quantity:	500 g
Excepted quantity:	E4

Marine transport (IMDG)

14.1. UN number or ID number:	UN 3451
14.2. UN proper shipping name:	TOLUIDINES, SOLID
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	II
Hazard label:	6.1
Marine pollutant:	P
Special Provisions:	279
Limited quantity:	500 g
Excepted quantity:	E4
EmS:	F-A, S-A

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 3451
14.2. UN proper shipping name:	TOLUIDINES, SOLID
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	II
Hazard label:	6.1
Special Provisions:	A113
Limited quantity Passenger:	1 kg
Passenger LQ:	Y644
Excepted quantity:	E4
IATA-packing instructions - Passenger:	669

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 11 of 12

IATA-max. quantity - Passenger:	25 kg
IATA-packing instructions - Cargo:	676
IATA-max. quantity - Cargo:	100 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:	Yes
Danger releasing substance:	p-toluidine

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 75

Information according to 2012/18/EU (SEVESO III):	H2 ACUTE TOXIC
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Additional information:	E1
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National regulatory information

Employment restrictions:	Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
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Water hazard class (D):	3 - highly hazardous to water
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SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 12.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

Acute Tox: Acute toxicity

Eye Irrit: Eye irritation

Skin Sens: Skin sensitisation

Carc: Carcinogenicity

Aquatic Acute: Acute aquatic hazard

Relevant H and EUH statements (number and full text)

H301	Toxic if swallowed.
H301+H311+H331	Toxic if swallowed, in contact with skin or if inhaled.
H311	Toxic in contact with skin.
H317	May cause an allergic skin reaction.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

p-Toluidine for synthesis

Revision date: 04.07.2023

Product code: 19765

Page 12 of 12

H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The receiver of our product is singularly responsible for adhering to existing laws and regulations.