

Chemical Safety Data Sheet MSDS / SDS

o-Toluidine

Revision Date:2025-04-05 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name : o-Toluidine
CBnumber : CB6854698
CAS : 95-53-4
EINECS Number : 202-429-0
Synonyms : o-toluidine,2-Methylaniline

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.
Uses advised against : none

Company Identification

Company : Chemicalbook
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone : 010-86108875

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

Precautionary statements

P201 Obtain special instructions before use.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continuerinsing.
P308+P313 IF exposed or concerned: Get medical advice/attention.

P309 IF exposed or if you feel unwell:

P310 Immediately call a POISON CENTER or doctor/physician.

P311 Call a POISON CENTER or doctor/physician.

Hazard statements

H226 Flammable liquid and vapour

H227 Combustible liquid

H301 Toxic if swallowed

H302 Harmful if swallowed

H313 May be harmful in contact with skin

H314 Causes severe skin burns and eye damage

H319 Causes serious eye irritation

H331 Toxic if inhaled

H350 May cause cancer

H370 Causes damage to organs

H400 Very toxic to aquatic life

Disposal

WARNING.Cancer - <https://oehha.ca.gov/proposition-65/chemicals/o-toluidine>

SECTION 3: Composition/information on ingredients

Substance

Product name	: o-Toluidine
Synonyms	: o-toluidine,2-Methylaniline
CAS	: 95-53-4
EC number	: 202-429-0
MF	: C7H9N
MW	: 107.15

SECTION 4: First aid measures

Description of first aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor

If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g

in a 10% slurry) and consult a doctor as quickly as possible.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂) Foam Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Carbon oxides Nitrogen oxides (NO_x) Combustible.

Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

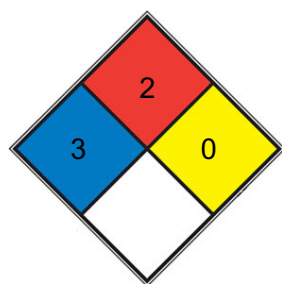
Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

NFPA 704



HEALTH 3 Short exposure could cause serious temporary or moderate residual injury (e.g. [liquid hydrogen](#), [sulfuric acid](#), [calcium hypochlorite](#), hexafluorosilicic acid)

FIRE 2 Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur and multiple finely divided suspended solids that do not require heating before ignition can occur. Flash point between 37.8 and 93.3 °C (100 and 200 °F). (e.g. diesel fuel, [sulfur](#))

REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N₂](#))

☐ SPEC.
☐ HAZ.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g.

Chemisorb?). Dispose of properly. Clean up affected area.

Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Light sensitive. Store under inert gas. Air sensitive.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

control parameter

Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

Exposure controls

Personal protective equipment

Eye/face protection

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

Skin protection

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).

Full contact Material: Viton?

Minimum layer thickness: 0,7 mm Break through time: 480 min

Material tested: Vitoject? (KCL 890 / Aldrich Z677698, Size M)

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Splash contact Material: butyl-rubber

Minimum layer thickness: 0,7 mm Break through time: 30 min

Material tested: Butoject? (KCL 898)

Body Protection

protective clothing

Respiratory protection

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

Exposure limits

TLV-TWA 2 ppm ($\sim 9 \text{ mg/m}^3$) (ACGIH), 5 ppm ($\sim 22 \text{ mg/m}^3$) (MSHA, OSHA, and NIOSH); IDLH level 100 ppm (NIOSH); carcinogenicity:

Suspected Human Carcinogen (ACGIH), Human Limited Evidence (IARC).

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Appearance light yellow clear, liquid

Odour	characteristic
Odour Threshold	No data available
pH	ca.7,4 at 20 °C Aqueous solution
Melting point/freezing point	Melting point/range: -28 °C
Initial boiling point and boiling range	200,2 °C at 1.013 hPa - (ECHA)
Flash point	85 °C - closed cup
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Lower explosion limit: 1,5 %(V)
Vapour pressure	0,35 hPa at 25 °C
Vapour density	3,7 - (Air = 1.0)
Relative density	1,008 g/cm ³ No data available
Water solubility	16,6 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: 1,4 at 24,5 °C - Bioaccumulation is not expected.
Autoignition temperature	480 °C at 1.013 hPa
Decomposition temperature	No data available
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
Explosive properties	No data available
Oxidizing properties	No data available
Henry's Law Constant	1.98 at 25 °C (thermodynamic method-GC/UV spectrophotometry, Altschuh et al., 1999)

Other safety information

Dissociation constant 4,45 at 25 °C

Relative vapor density

3,7 - (Air = 1.0)

SECTION 10: Stability and reactivity

Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with: acids

Conditions to avoid

Air

Strong heating.

Incompatible materials

various plastics

Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male - 750 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Rat - male - 4 h - 3,79 mg/l (OECD Test Guideline 403)

LD50 Dermal - Rabbit - male - 3.250 mg/kg Remarks: (ECHA)

Skin corrosion/irritation

Skin - Rabbit

Result: Irritations - 24 h (Draize Test)

Serious eye damage/eye irritation

Eyes - Rabbit Result: Eye irritation (Draize Test)

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

The value is given in analogy to the following substances: p-toluidine

Germ cell mutagenicity

Test Type: sister chromatid exchange assay Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation Result: positive

Remarks: (National Toxicology Program)

Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation Result: positive

Remarks: (ECHA)

Test Type: In vivo micronucleus test Species: Rat

Cell type: Bone marrow

Application Route: Intraperitoneal injection

Result: positive

Remarks: (National Toxicology Program)

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Toxicity

LD50 orally in rats: 0.94 g/kg (Smyth)

SECTION 12: Ecological information

Toxicity

No data available

Toxicity to algae

static test EC50 - *Pseudokirchneriella subcapitata* (green algae) - 30,9 mg/l - 72 h

(OECD Test Guideline 201)

Toxicity to bacteria

Remarks: (ECHA)

(2-Toluidine)

Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 88 - 90 % - Readily biodegradable. (OECD Test Guideline 301A)

Bioaccumulative potential

Bioaccumulation *Cyprinus carpio* (Carp) - 28 d

- 0,1 mg/l(2-Toluidine)

Bioconcentration factor (BCF): < 1,3

Mobility in soil

No data available

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Toxics Screening Level

The initial risk screening level (IRSL) for a-toluidine is 0.07 µg/m³ based on an annual averaging time.

Other adverse effects

Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

Waste treatment methods

Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

Incompatibilities

Incompatible with oxidizers (chlorates, nitrates, peroxides, permanganates, perchlorates, chlorine, bromine, fluorine, etc.); contact may cause fires or explosions. Keep away from alkaline materials, strong bases, strong acids, oxoacids, epoxides.

Waste Disposal

Consult with environmental regulatory agencies for guidance on acceptable disposal practices. Generators of waste containing this contaminant (≥ 100 kg/mo) must conform with EPA regulations governing storage, transportation, treatment, and waste disposal. Controlled incineration (oxides of nitrogen are removed from the effluent gas by scrubbers and/or thermal devices).

SECTION 14: Transport information

UN number

ADR/RID: 1708 IMDG: 1708 IATA: 1708

UN proper shipping name

	ADR/RID: TOLUIDINES, LIQUID IMDG: TOLUIDINES, LIQUID	
	IATA: Toluidines, liquid	
14.3	Transport hazard class(es)	
	ADR/RID: 6.1 IMDG: 6.1	IATA: 6.1
14.4	Packaging group	
	ADR/RID: II IMDG: II	IATA: II
14.5	Environmental hazards	
	ADR/RID: yes IMDG Marine pollutant: yes	IATA: no
14.6	Special precautions for user	
	No data available	

SECTION 15: Regulatory information

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

Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015: Listed. website: <https://www.mem.gov.cn/>

Measures for Environmental Management of New Chemical Substances

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC): Listed. website: <https://www.mee.gov.cn/>

EC Inventory: Listed.

European Inventory of Existing Commercial Chemical Substances (EINECS): Listed. website: <https://echa.europa.eu/>

Korea Existing Chemicals List (KECL): Listed. website: <http://ncis.nier.go.kr>

New Zealand Inventory of Chemicals (NZIoC): Listed. website: <https://www.epa.govt.nz/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS): Listed. website: <https://emb.gov.ph/>

SECTION 16: Other information

Abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS: Chemical Abstracts Service

EC50: Effective Concentration 50%

IATA: International Air Transportation Association

IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

STEL: Short term exposure limit

TWA: Time Weighted Average

References

【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:

http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

Other Information

Depending on the degree of exposure, periodic medical examination is suggested. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT take working clothes home. See ICSCs 0342 and 0343.

Disclaimer:

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