

SAFETY DATA SHEET



Toluene

BDH1151

Version 1.3

Revision Date 03/25/2015

Print Date 05/08/2015

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Toluene

MSDS Number : 000000011709

Product Use Description : Solvent

Manufactured for : VWR International LLC
Radnor Corporate Center
Building One
Suite 200
100 Matsonford Road
Radnor PA 19087

For more information call : (Monday-Friday, 8:00am-5:00pm)
1-800-932-5000

In case of emergency call : (24 hours/day, 7 days/week)
1-800-424-9300(USA Only)
For Transportation Emergencies:
1-800-424-9300 (CHEMTREC - Domestic)
1-613-996-6666 (CANUTEC - Canada)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Form : liquid

Color : colourless

Odor : sweet pungent

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Classification of the substance or mixture

Classification of the substance or mixture : Flammable liquids, Category 2
Skin irritation, Category 2
Reproductive toxicity, Category 2
Specific target organ toxicity - single exposure, Category 3,
Central nervous system
Specific target organ toxicity - repeated exposure, Category 2,
Central nervous system, Kidney, Liver
Aspiration hazard, Category 1

GHS Label elements, including precautionary statements

Symbol(s)



Signal word

: Danger

Hazard statements

: Highly flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause drowsiness and dizziness.
Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

: **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting/ equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.

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Use only outdoors or in a well-ventilated area.
Wear protective gloves/ eye protection/ face protection.

Response:

IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF exposed or concerned: Get medical advice/ attention.

Do NOT induce vomiting.

If skin irritation occurs: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

Store in a well-ventilated place. Keep container tightly closed.

Keep cool.

Store locked up.

Disposal:

Dispose of contents/container in accordance with local, state & federal regulations.

Carcinogenicity

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, IARC, or OSHA.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C7H8

Chemical nature : Substance

Chemical Name	CAS-No.	Concentration
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108-88-3

0.00 - <=100.00 %

SECTION 4. FIRST AID MEASURES

Inhalation : Call a physician immediately. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present.

Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Ingestion : Do not induce vomiting without medical advice. If a person vomits when lying on his back, place him in the recovery position. Call a physician immediately. Never give anything by mouth to an unconscious person.

Notes to physician

Treatment : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Foam
Carbon dioxide (CO₂)
Dry chemical
Cool closed containers exposed to fire with water spray.

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during : Flammable.

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firefighting

Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.
In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)

Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions

: Wear personal protective equipment.
Immediately evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Ensure adequate ventilation.
Remove all sources of ignition.
Do not swallow.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.

Environmental precautions

: Prevent further leakage or spillage if safe to do so.
Prevent product from entering drains.
Discharge into the environment must be avoided.
Do not flush into surface water or sanitary sewer system.
Do not allow run-off from fire fighting to enter drains or water courses.

Methods for cleaning up

: Ventilate the area.
No sparking tools should be used.
Use explosion-proof equipment.
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

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SECTION 7. HANDLING AND STORAGE**Handling**

Handling : Wear personal protective equipment.
Use only in well-ventilated areas.
Keep container tightly closed.
Do not smoke.
Do not swallow.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion : Keep away from fire, sparks and heated surfaces.
Take precautionary measures against static discharges.
Ensure all equipment is electrically grounded before beginning transfer operations.
Use explosion-proof equipment.
Keep product and empty container away from heat and sources of ignition.
No sparking tools should be used.
No smoking.

Storage

Requirements for storage areas and containers : Store in area designed for storage of flammable liquids. Protect from physical damage.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep away from heat and sources of ignition.
Keep away from direct sunlight.
Store away from incompatible substances.
Container hazardous when empty.
Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Further information on storage conditions : Keep containers tightly closed in a cool, well-ventilated place.
Keep away from heat and sources of ignition.

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Keep away from direct sunlight.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.
- Engineering measures : Use with local exhaust ventilation.
Prevent vapour buildup by providing adequate ventilation during and after use.
- Eye protection : Do not wear contact lenses.
Wear as appropriate:
Safety glasses with side-shields
If splashes are likely to occur, wear:
Goggles or face shield, giving complete protection to eyes
- Hand protection : Solvent-resistant gloves
Gloves must be inspected prior to use.
Replace when worn.
- Skin and body protection : Wear as appropriate:
Solvent-resistant apron
Flame retardant antistatic protective clothing.
If splashes are likely to occur, wear:
Protective suit
- Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.
Use NIOSH approved respiratory protection.
- Hygiene measures : When using do not eat, drink or smoke.
Wash hands before breaks and immediately after handling the product.
Keep working clothes separately.
Remove and wash contaminated clothing before re-use.
Do not swallow.
Do not breathe vapours or spray mist.

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Avoid contact with skin, eyes and clothing.
 This material has an established AIHA ERPG exposure limit.
 The current list of ERPG exposure limits can be found at
http://www.aiha.org/insideaiha/GuidelineDevelopment/ERPG/Documents/2011erpgweelhandbook_table-only.pdf.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Toluene	108-88-3	TWA : time weighted average	(20 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values
Toluene	108-88-3	REL : Recommended exposure limit (REL):	375 mg/m3 (100 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Toluene	108-88-3	STEL : Short term exposure limit	560 mg/m3 (150 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Toluene	108-88-3	STEL : Short term exposure limit	560 mg/m3 (150 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Toluene	108-88-3	TWA : time weighted average	375 mg/m3 (100 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

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Toluene	108-88-3	TWA : time weighted average	(200 ppm)	02 2006	OSHA/Z2:US. OSHA Table Z-2 (29 CFR 1910.1000)
Toluene	108-88-3	MAX. CONC : Maximum concentr ation:	(500 ppm)	02 2006	OSHA/Z2:US. OSHA Table Z-2 (29 CFR 1910.1000)
Toluene	108-88-3	Ceiling : Ceiling Limit Value:	(300 ppm)	02 2006	OSHA/Z2:US. OSHA Table Z-2 (29 CFR 1910.1000)

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Color	: colourless
Odor	: sweet pungent
pH	: Note: Not applicable
Melting point/freezing point	: -95 °C
Boiling point/boiling range	: 110.6 °C
Flash point	: 39 °F (4 °C) Method: closed cup
Lower explosion limit	: 1 %(V)

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Upper explosion limit	: 7.1 %(V)
Vapor pressure	: 38 hPa at 25 °C(77 °F)
Vapor density	: 3.1 Note: (Air = 1.0)
Density	: 0.867 g/cm ³ at 20 °C
Water solubility	: 0.74 g/l at 20 °C
Ignition temperature	: 480 °C
Molecular weight	: 92.14 g/mol

SECTION 10. STABILITY AND REACTIVITY

Chemical stability	: Stable under recommended storage conditions.
Possibility of hazardous reactions	: Hazardous polymerisation does not occur.
Conditions to avoid	: Heat, flames and sparks. Keep away from direct sunlight.
Incompatible materials to avoid	: Strong oxidizing agents Strong acids and strong bases May attack many plastics, rubbers and coatings.

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Hazardous decomposition products : In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity : LD50: 2,600 - 7,500 mg/kg
Species: Rat

Acute inhalation toxicity : LC50: 8800 ppm
Exposure time: 4 h
Species: Rat

Acute dermal toxicity : LD50: 12,124 mg/kg
Species: Rabbit

Skin irritation : Species: Rabbit
Result: Irritating to skin.

Eye irritation : Species: Rabbit
Result: slight irritation
Method: OECD Test Guideline 405

Repeated dose toxicity : Species: Rat
Application Route: Inhalation
Exposure time: 15 Weeks
Note: Chronic toxicity 2500 ppm Based on experimental results, may cause adverse health effects on the following:
Heart Liver Kidney Urinary tract Bladder

Genotoxicity in vitro : Test Method: Ames test
Result: negative

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: Test Method: Chromosome aberration test in vitro
Cell type: Chinese Hamster Ovary Cells
Result: negative

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Toxicity to fish : LC50: 36.2 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)

: LC50: 13 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)

Toxicity to daphnia and other aquatic invertebrates : LC50: 313 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)

Toxicity to algae : LC50: > 100 mg/l
Exposure time: 24 h
Species: Algae

Toxicity to bacteria : EC50: 19.7 mg/l
Exposure time: 0.5 h
Species: Photobacterium phosphoreum

Further information on ecology

Additional ecological information : Bioaccumulation is unlikely.
Harmful to aquatic organisms.

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SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods : Dispose of contents/ container in accordance with local, state, and federal regulations.

SECTION 14. TRANSPORT INFORMATION

DOT UN/ID No. : UN 1294
Proper shipping name : TOLUENE
Class : 3
Packing group : II
Hazard Labels : 3

IATA UN/ID No. : UN 1294
Description of the goods : TOLUENE
Class : 3
Packaging group : II
Hazard Labels : 3
Packing instruction (cargo aircraft) : 364
Packing instruction (passenger aircraft) : 353
Packing instruction (passenger aircraft) : Y341

IMDG UN/ID No. : UN 1294
Description of the goods : TOLUENE
Class : 3
Packaging group : II
Hazard Labels : 3
EmS Number : F-E, S-D
Marine pollutant : no

SECTION 15. REGULATORY INFORMATION

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Inventories

- US. Toxic Substances Control Act : On TSCA Inventory
- Australia. Industrial Chemical (Notification and Assessment) Act : On the inventory, or in compliance with the inventory
- Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) : All components of this product are on the Canadian DSL.
- Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory
- Korea. Toxic Chemical Control Law (TCCL) List : On the inventory, or in compliance with the inventory
- Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act : On the inventory, or in compliance with the inventory
- China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory
- NZIOC - New Zealand : On the inventory, or in compliance with the inventory

National regulatory information

- US. Drug Enforcement Administration (DEA) Listed Precursor and Essential Chemicals (21 CFR 1310) DEA EC : Listed
- US. EPA CERCLA Hazardous Substances (40 CFR 302) : Toluene 108-88-3
: The following component(s) of this product is/are subject to release reporting under 40 CFR 302 when release exceeds the Reportable Quantity (RQ):

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	Reportable quantity: 1000 lbs	
	: Toluene	108-88-3
SARA 302 Components	: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.	
SARA 313 Components	: The following components are subject to reporting levels established by SARA Title III, Section 313:	
	: Toluene	108-88-3
SARA 311/312 Hazards	: Fire Hazard Acute Health Hazard Chronic Health Hazard Fire Hazard Acute Health Hazard Chronic Health Hazard	
CERCLA Reportable Quantity	: 1000 lbs	
California Prop. 65	: WARNING! This product contains a chemical known to the State of California to cause cancer.	
	Benzene	71-43-2
	: WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	
	Toluene	108-88-3
	Benzene	71-43-2
Massachusetts RTK	: Toluene	108-88-3
	: Benzene	71-43-2

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New Jersey RTK	: Toluene	108-88-3
Pennsylvania RTK	: Toluene	108-88-3
	: Benzene	71-43-2
WHMIS Classification	: B2: Flammable liquid D2A: Very Toxic Material Causing Other Toxic Effects D2B: Toxic Material Causing Other Toxic Effects This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.	

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 2*	2
Flammability	: 3	3
Physical Hazard	: 0	
Instability	:	0

* - Chronic health hazard

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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