Revision date: 12/11/2014 *Version: 1*

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

1.1. Product identifier

Trade name/designation:	Toluene
Product No.:	BDH83625
Other means of identification: Methacide, Methylbenzene, Methylbenzol, Phenylmethane, Toluol	

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

Relevant identified uses: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

1.3. Details of the supplier of the safety data sheet

Company VWR International, LLC
Radnor Corporate Center
100 Matsonford Road
Radnor, PA 19087-8660
Telephone 610.386.1700

1.4. Emergency Telephone number

CHEMTREC 800.424.9300
CANUTEC 613.996.6666

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

For the full text of the H-Statement(s) and R-phrase(s) mentioned in this Section, see Section 16.

Hazard classes and hazard categories	Hazard statements
Flammable Liquids: GHS Category 2	H225
Skin Irritation: GHS Category 2	H315
Reproductive Toxicity: GHS Category 2	H361
Specific Target Organ Toxicity, Single Exposure: GHS Category 3	H336
Specific Target Organ Toxicity, Repeated Exposure: GHS Category 2	H373

Aspiration Hazard: GHS Category 2	H304
Acute Aquatic Toxicity: GHS Category 2	H401

2.2. GHS Label elements, including precautionary statements

Pictograms:

Signal word: DANGER!

Hazard statements	
H225	Highly flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness and dizziness.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

Precautionary statements	
P210	Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P243	Take precautionary measures against static discharge.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

2.3. WHIMS Classification

Flammable liquid, very toxic material

2.4. Hazards not otherwise classified (HNOC) or not covered by GHS or WHIMS

None

SECTION 3: Composition / information on ingredients

3.1. Hazard components

Chemical name	Formula	Molecular weight	CAS#	Weight%
Toluene	$C_6H_5CH_3$	92.14	108-88-3	100%

SECTION 4: First aid measures

4.1. General information

In case of inhalation
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
In case of skin contact
Remove any contaminated clothing. Wash skin with water for at least 15 minutes. Get medical attention if irritation persists.
In case of eye contact
Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention.
In case of ingestion
Potential aspiration hazard if swallowed. Get medial help immediately. Do not induce vomiting unless directed by medical personnel. If vomiting occurs naturally, have victim lean forward. Never give anything by mouth to an unconscious person.

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

Causes irritation to eyes, skin, and respiratory tract. Breathing vapors may cause drowsiness and dizziness. May be absorbed through intact skin. Aspiration hazard. May be harmful if swallowed. Can enter lungs and cause damage. May cause central nervous system effects. Possible risk to unborn children. May cause liver and kidney damage. Target Organs: Kidneys, central nervous system, liver, respiratory system eyes, and skin.

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

Causes cardiac sensitization to endogenous catelcholamines which may lead to cardiac arrhythmias. Do NOT use adrenergic agents such as epinephrine and pseudoepinepherne.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Use water spray, dry chemical, carbon dioxide, or appropriate foam. Solid streams of water may be ineffective and spread material.

5.2. Special hazards arising from the substance or mixture
N

5.3. Special protective equipment for firefighters
As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear.

5.4. Hazardous combustion products
May decompose into irritating and highly toxic gases under fire conditions (carbon monoxide and carbon dioxide).

5.5. Advice for firefighters
Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. This liquid floats on water and may travel to a source of ignition and spread the fire.

5.6. Additional information
Water run-off can cause environmental damage and should be collected and confined.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Always use proper personal protective equipment as described in section 8.

6.2. Environmental precautions
Do not let product enter drains, sewers, or streams.

6.3. Methods and material for containment and cleaning up
Use water spray to reduce vapors. Water spray may reduce vapors but still not prevent ignition in closed spaces. Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Do not use sawdust or any combustible material. Use spark-proof tools. Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container.

6.4. Additional information
None

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist.

7.2. Conditions for safe storage, including any incompatibilities

Keep in a flammables area away in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from sources of ignition. Separate from oxidizing materials.

7.3. Specific end use(s)

Apart from those mentioned in Section 1.2, no other uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Chemical Name	Limit value type & Country of Origin	Exposure Limit value	Source
Toluene	TWA - US	20 ppm	ACGIH
	TWA - US	100 ppm 375 mg/m^3	NIOSH
	IDLH - US	500 ppm	NIOSH
	TWA - US	100 ppm 375 mg/m^3	OSHA PEL

8.2. Exposure controls

Appropriate engineering controls

Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal protection equipment

Eye/face protection

Wear protective chemical goggles or other appropriate eye protection.

Skin protection

Use appropriate gloves and protective clothing to prevent skin exposure.

Respiratory protection
A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Hygiene measures
Use good hygiene and safety practices when using this product. Wash hands before breaks and at the end of the work day.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

a) Appearance
Physical state: Liquid
Color: Clear, colorless
b) Odor: Sweetish, pleasant odor – benzene-like
c) Odor Threshold: 2.9 ppm
d) pH: No information available.
e) Melting point/freezing point: -95° C
f) Initial boiling point and boiling range: 110.6° C
g) Flash point: 4° C (39.2° F)
h) Evaporation rate: 2.4
i) Flammability (solid, gas): No information available.
j) Upper/lower flammability or explosive limits: Lower Limit– 1.1 vol %, Upper Limit – 7.1 vol %
k) Vapor pressure: 28.4 mm Hg @ 25° C
l) Vapor density: 3.1
m) Relative density: 0.86g/cm^3
n) Solubility: Insoluble
o) Partition coefficient (n-Octanol/Water): No information available.
p) Auto-ignition temperature: 480° C (896° F)
q) Decomposition temperature: No information available.
r) Viscosity: 0.59 cps 20° C
s) Explosive properties: No information available.
t) Oxidizing properties: No information available.

9.2. Other information

Conductivity: Nonconductive; Conductivity = <1 pS/m; Dielectric Constant = 2.38; Relaxation Time Constant = 21 seconds

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability
Stable under normal temperature and pressure.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Ignition sources, excess heat, confined spaces.

10.5. Incompatible materials
Strong oxidizing agents

10.6. Hazardous decomposition products
Carbon monoxide, carbon dioxide.

SECTION 11: Toxicology

11.1. Information on toxicological effects

Acute toxicity

Oral LD_{50}: rat, 636 mg/kg
Inhalation LC_{50}: rat, 49 mg/m^3, 4 hr.
Dermal LD_{50}: rabbit, 14,100 mg/kg
Other information on acute toxicity: None

Skin corrosion/irritation
skin – rabbit; Result – moderate skin irritation
Serious eye damage/eye irritation
Eye – rabbit; Result – mild eye irritation
Respiratory or skin sensitization
No information available.
Germ cell mutagenicity
No information available.
Carcinogenicity
Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65
Reproductive toxicity
Many reports of reproductive effects of toluene abuse or heavy occupational exposure are confounded by mixed solvent exposure or fetal alcohol syndrome. In women exposed to toluene in lab work, the risk of spontaneous abortion increased 4.7 times.
Specific target organ toxicity-single exposure
No information available.
Specific target organ toxicity-repeated exposure
No information available.
Aspiration hazard

No information available.

Additional information

No information available.

SECTION 12: Ecological information

12.1. Ecotoxicity

Bluegill: LC50 = 17 mg/L/24H;
Shrimp: LC50 = 4.3 ppm/96H;
Fathead minnow: LC50 = 36.2 mg/L/96H;
Sunfish (Fresh water): TLm = 1180 mg/L/96H

12.2. Persistence and degradability

Readily biodegradable. When released to soil, product is expected to evaporate and be microbially biodegraded. In water, product is expected to biodegrade and volatilize.

12.3. Bioaccumulative potential

No information available.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements. This material is a “U” listed waste (U220).

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

Land Transport DOT (U.S.)

UN Number: UN1294
Proper Shipping name: Toluene
Transport Hazard Classes
Class: 3
Hazard Label(s): 3
Packing Group: II
Environmental hazard(s): None
Special precautions for user: None

Sea Transport IMDG

UN Number: UN1294
Proper Shipping name: Toluene
Transport Hazard Classes
Class: 3
Hazard Label(s): 3
EMS- No.: F-E, S-D
Packing Group: II
Environmental hazard(s): None
Segregation Group: None
Special precautions for user: None

Air Transport IATA

UN Number: UN1294
Proper Shipping name: Toluene
Transport Hazard Classes
Class: 3
Hazard Label(s): 3
Packing Group: II
Environmental hazard(s): None
Special precautions for user: None

SECTION 15: Regulatory information

OSHA Hazards

Not considered highly hazardous by OSHA.

SARA 302 Extremely Hazardous Substances
Does not have a TPQ.
SARA 313 (TRI reporting)
Toluene (CAS# 108-88-3) is subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements
SARA 311/312 Hazardous Chemicals
CAS# 108-88-3; immediate, fire
Massachusetts Right-To-Know Substance List
Toluene, CAS# 108-88-3, Revision Date – 7/1/2007
Pennsylvania Right-To-Know Hazardous substances
Toluene, CAS# 108-88-3, Revision Date – 7/1/2007
New Jersey Worker and Community Right-To-Know Components
Toluene, CAS# 108-88-3, Revision Date – 7/1/2007
California Proposition 65
This product contains toluene, a chemical known to the State of California to cause birth defects or other reproductive harm.

Inventory status
Canada DSL/NDSL Inventory List: Yes
US TSCA Inventory List: Yes
EINECS, ELINCS or NLP: 203-625-9

SECTION 16: Other information

Full text of H-Statement(s) and R-phrase(s)

Full text of H-Statement(s) and R-phrase(s)
See Section 2
Canadian Carcinogenicity hazard class: No information available.
PHNOC hazard class: B2
HHNOC hazard class: D2A, D2B
Biohazardous Infectious Materials hazard class: No information available.

NFPA Rating:
Health: 2
Flammability: 3
Reactivity: 0
Special Hazard: None

DISCLAIMER

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. VWR International and its Affiliates shall not be held liable for any damage resulting from handling.