

SECTION 1 Identification

1.1. Product identifier

Product form	: Substance
Trade name	: Toluene
CAS-No.	: 108-88-3
Product code	: 160140000
Chemical Family	: Aromatic Hydrocarbon
BIG No	: 10046

1.2. Other means of identification

EC Index No. (Report)	: 601-021-00-3
EC-No.	: 203-625-9

1.3. Recommended use of the chemical and restrictions on use

Use of the substance/mixture	: Solvent
Recommended use	: Chemical Intermediate, refinery feedstock, fuel or for use in engineered processes.
Restrictions on use	: This product is not recommended for any industrial, professional or consumer use other than the identified uses above.

1.4. Supplier's details

Distributor
Corporate Office
The Whitaker Company
1557 Marietta Rd NW
Atlanta, Georgia 30318

TEL: 404-355-8220

1.5. Emergency phone number

Emergency number : **CHEMTREC 800-424-9300**

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids, Category 2	H225
Skin corrosion/irritation, Category 2	H315
Reproductive toxicity, Category 2	H361
Specific target organ toxicity – Single exposure, Category 3, Narcosis	H336
Specific target organ toxicity — Repeated exposure, Category 2	H373
Aspiration hazard, Category 1	H304
Hazardous to the aquatic environment — Acute Hazard, Category 2	H401
Full text of H statements : see section 16	

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2.2. Label elements

GHS US labeling

Hazard pictograms (GHS US)



Signal word (GHS US)

: Danger

Hazard statements (GHS US)

: H225 - Highly flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H336 - May cause drowsiness or dizziness
H361 - Suspected of damaging fertility or the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure (central nervous system (CNS))
H401 - Toxic to aquatic life

Precautionary statements (GHS US)

: P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P240 - Ground/Bond container and receiving equipment.
P241 - Use explosion-proof ventilating, lighting, electrical equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P260 - Do not breathe spray, vapors, mist, gas, fume.
P264 - Wash Skin thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves.
P301+P310 - If swallowed: Immediately call a POISON CENTER or doctor/physician.
P302+P352 - If on skin: Wash with plenty of soap and water.
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P314 - Get medical advice or attention if you feel unwell.
P331 - Do NOT induce vomiting.
P332+P313 - If skin irritation occurs: Get medical advice or attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P370+P378 - In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of accordance with local, regional, national, and/or international regulations to hazardous or special waste collection point.

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

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2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Name	Product identifier	Conc.	GHS US classification
Toluene	CAS-No.: 108-88-3	100	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general	: Ensure that medical personnel are aware of the material involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing the aid to give mouth to mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
First-aid measures after skin contact	: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 10 minutes. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Immediately flush eyes with large amounts of water for 15 minutes. Gently remove contacts while flushing. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. Get immediate medical attention.
First-aid measures after ingestion	: Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into lungs.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms	: Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/ or chemical pneumonitis. Prolonged or repeated exposure may cause adverse effects on the nervous system and auditory organs. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.
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4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.
Notes to Physician: If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. This material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart stimulating substances like epinephrine. Administration of such substances should be avoided.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media : Do not use water jet.

5.2. Specific hazards arising from the chemical

Fire hazard : Highly flammable liquid and vapor.
This product has been determined to be a highly flammable liquid per the OSHA Hazard Communication Standard and should be handled accordingly. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the Emergency Response guidebook 130.

Explosion hazard : DIRECT EXPLOSION HAZARD: Gas/vapor explosive with air within explosion limits.
INDIRECT EXPLOSION HAZARD: May be ignited by sparks.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Take account of toxic fire-fighting water. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

For non-emergency personnel

: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes.

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For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	: Evacuate unnecessary personnel. Stop leak if safe to do so.
Environmental precautions	: Avoid release to the environment.

6.2. Methods and materials for containment and cleaning up

For containment	: Collect spillage. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.
Methods for cleaning up	: Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
Other information	: Dispose of materials or solid residues at an authorized site.

For further information refer to section 13

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.
Hygiene measures	: Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
Additional hazards when processed	: Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

Technical measures	: Ground/bond container and receiving equipment.
Storage conditions	: Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.
Storage area	: Meet the legal requirements. Under a shelter/in the open. Store at ambient temperature. Keep container in a well-ventilated place. Fireproof storeroom. Store only in a limited quantity. Provide for a tub to collect spills. Provide the tank with earthing. May be stored under nitrogen.
Information on mixed storage	: KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. halogens.
Heat-ignition	: KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Special rules on packaging	: SPECIAL REQUIREMENTS: closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	: SUITABLE MATERIAL: metal. stainless steel. carbon steel. aluminium. nickel. polypropylene. glass. tin. MATERIAL TO AVOID: polyethylene. Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

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Toluene (108-88-3)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Toluene
ACGIH OEL TWA	20 ppm
Remark (ACGIH)	Visual impair; female repro;
Regulatory reference	ACGIH 2024
USA - ACGIH - Biological Exposure Indices	
Local name	Toluene
BEI (BLV)	0.3 mg/g Kreatinin Parameter: o-Cresol (with hydrolysis) - Medium: urine - Sampling time: End of shift - Notations: B 0.03 mg/l Parameter: Toluene - Medium: urine - Sampling time: End of shift 0.02 mg/l Parameter: Toluene - Medium: blood - Sampling time: Prior to last shift of workweek
Regulatory reference	ACGIH 2024
USA - OSHA - Occupational Exposure Limits	
Local name	Toluene
OSHA PEL TWA	200 ppm
OSHA PEL (Ceiling)	300 ppm
Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift	500 ppm 10 mins.
Remark (OSHA)	(2) See Table Z-2.
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-2
Benzene (71-43-2)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Benzene
ACGIH OEL TWA	0.02 ppm
Remark (ACGIH)	Leukemia
Ethyl Benzene (100-41-4)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Ethyl benzene
ACGIH OEL TWA	20 ppm
Remark (ACGIH)	URT irr; kidney dam (nephropathy)
USA - OSHA - Occupational Exposure Limits	
Local name	Ethyl benzene
OSHA PEL TWA	435 mg/m ³
	100 ppm
Xylene (1330-20-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Xylene, mixed isomers (Dimethylbenzene)
ACGIH OEL TWA	20 ppm

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Xylene (1330-20-7)

Remark (ACGIH)	TLV® Basis: URT & eye irr; hematologic eff; ototoxicity (for mixtures containing p-xylene); CNS impair. Notations: OTO (for mixtures containing p-xylene); A4 (Not classifiable as a Human Carcinogen); BEI
Regulatory reference	ACGIH 2024
USA - OSHA - Occupational Exposure Limits	
Local name	Xylenes (o-, m-, p-isomers)
OSHA PEL TWA	435 mg/m ³
	100 ppm
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Materials for protective clothing:

Good resistance: Tetrafluoroethylene. Viton. Polyvinylalcohol (PVA).
Less resistance: butyl rubber. Natural rubber. neoprene/natural rubber. Nitrile rubber/PVC.
Poor resistance: neoprene (chloroprene rubber)

Hand protection:

Protective gloves. Chemical impervious. Glove suitability is based on workplace conditions and usage.

Eye protection:

Use goggles or face-shield if there is a potential for splashing.

Skin and body protection:

Wear suitable protective clothing. Chemical resistant.

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):



SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state : Liquid
Appearance : Liquid.
Color : Colorless
Odor : Aromatic odour
Odor threshold : No data available

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pH	: No data available in the literature
Melting/ Freezing point	: -95°C (-139°F) [Technical literature]
Boiling point	: 110.6°C (231.1°F) [Technical literature]
Flash point	: Closed cup: 4.4°C (39.9°F) [ASTM D-56]
Evaporation rate (butyl acetate=1)	: 2.4 (butyl acetate = 1) [In-house method]
Flammability	: Flammable liquids - Category 2
Vapor pressure	: 23.17 mm Hg [21.1 °C] [Technical literature]
Relative vapor density	: >1 [Air = 1] [Calculated]
Relative density	: 0.87 [Calculated]
Density	: 0.866 g/cm³ [20°C (68°F)] [Technical literature]
Molecular mass	: 92.14 g/mol
Solubility	: Negligible
Partition coefficient n-octanol/water (Log Pow)	: 2.73 (Experimental value, 20 °C)
Auto-ignition temperature	: 480°C (896°F) [Technical literature]
Decomposition temperature	: No data available in the literature
Viscosity, kinematic	: No data available in the literature
Viscosity, dynamic	: 0.56 cSt (25 °C) Technical literature
Explosion limits	: Lower explosion limit: 1.3 vol % (Extrapolated) Upper explosion limit: 6.7 vol %
Oxidizing properties	: Not classified.
Particle characteristics	: Particle size : Not applicable (liquid)

9.2. Data relevant with regard to physical hazard classes (supplemental)

Minimum ignition energy	: 0.3 mJ
Specific conductivity	: < 1 pS/m
SADT	: Not applicable
Saturation concentration	: 110 g/m³
VOC content	: 100 %
Other properties	: Gas/vapor heavier than air at 20°C. Clear. Volatile. Neutral reaction. May generate electrostatic charges.

SECTION 10 Stability and reactivity

10.1. Reactivity

Highly flammable liquid and vapor.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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SECTION 11 Toxicological information

11.1. Likely routes of exposure

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Benzene (71-43-2)	
LD50 oral rat	> 2000 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral, 7 day(s))
LD50 dermal rabbit	> 8260 mg/kg body weight (21 CFR 191.10, 24 h, Rabbit, Male / female, Experimental value, Damaged skin)
LC50 Inhalation - Rat	43.77 mg/l (Equivalent or similar to OECD 403, 4 h, Rat, Female, Experimental value, Inhalation (vapours), 14 day(s))
ATE US (gases)	13700 ppmV/4h
ATE US (vapors)	43.767 mg/l/4h
ATE US (dust, mist)	43.767 mg/l/4h

Toluene (108-88-3)	
LD50 oral rat	5580 mg/kg body weight (Equivalent or similar to EU Method B.1, Rat, Male, Experimental value, Oral, 7 day(s))
LD50 dermal rabbit	> 5000 mg/kg body weight (24 h, Rabbit, Male, Experimental value, Dermal)
LC50 Inhalation - Rat	28.1 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (vapours))
ATE US (oral)	5580 mg/kg body weight

Ethyl Benzene (100-41-4)	
LD50 oral rat	3500 mg/kg (Rat; Other; Experimental value)
LD50 dermal rabbit	15415 mg/kg (Rabbit; Literature study; Other; 15432 mg/kg; Rabbit; Experimental value)
LC50 Inhalation - Rat	17.8 mg/l/4h (Rat; Literature study)
LC50 Inhalation - Rat [ppm]	4000 ppm/4h (Rat; Literature study)
ATE US (oral)	3500 mg/kg body weight
ATE US (dermal)	15415 mg/kg body weight
ATE US (gases)	4000 ppmV/4h
ATE US (vapors)	17.8 mg/l/4h
ATE US (dust, mist)	1.5 mg/l/4h

Xylene (1330-20-7)	
ATE US (dermal)	1803.279 mg/kg body weight
ATE US (gases)	4500 ppmV/4h
ATE US (vapors)	11 mg/l/4h
ATE US (dust, mist)	1.5 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.
pH: No data available in the literature

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Benzene (71-43-2)	
pH	Not applicable (non-soluble in water)
Toluene (108-88-3)	
pH	No data available in the literature
Serious eye damage/irritation	: Not classified
	pH: No data available in the literature
Benzene (71-43-2)	
pH	Not applicable (non-soluble in water)
Toluene (108-88-3)	
pH	No data available in the literature
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Toluene (108-88-3)	
IARC group	3 - Not classifiable
Benzene (71-43-2)	
National Toxicity Program (NTP) Status	Known Human Carcinogens
Toluene (108-88-3)	
IARC group	3 - Not classifiable
Ethyl Benzene (100-41-4)	
IARC group	2B - Possibly carcinogenic to humans
Xylene (1330-20-7)	
IARC group	3 - Not classifiable
Reproductive toxicity	: Suspected of damaging fertility or the unborn child.
STOT-single exposure	: May cause drowsiness or dizziness.
Toluene (108-88-3)	
STOT-single exposure	May cause drowsiness or dizziness.
Xylene (1330-20-7)	
STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure	: May cause damage to organs through prolonged or repeated exposure.
Benzene (71-43-2)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Toluene (108-88-3)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Ethyl Benzene (100-41-4)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

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Xylene (1330-20-7)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: May be fatal if swallowed and enters airways.
Toluene (108-88-3)	
Viscosity, kinematic	No data available in the literature
Benzene (71-43-2)	
Viscosity, kinematic	No data available in the literature
Toluene (108-88-3)	
Viscosity, kinematic	No data available in the literature
Ethyl Benzene (100-41-4)	
Viscosity, kinematic	0.782 mm²/s
Xylene (1330-20-7)	
Viscosity, kinematic	≤ 0.678 mm²/s
Potential Adverse human health effects and symptoms	: Non-toxic if swallowed (LD50 oral, rat > 5000 mg/kg). May be fatal if swallowed and enters airways. Causes skin irritation. Non-toxic in contact with skin (LD50 skin > 5000 mg/kg). May cause drowsiness or dizziness. Practically non-toxic by inhalation (LC50 inh, rat > 20 mg/l/4h). Slightly irritant to eyes. Caution! Substance is absorbed through the skin.
Symptoms/effects	: May cause drowsiness or dizziness.
Symptoms/effects after inhalation	: EXPOSURE TO HIGH CONCENTRATIONS: Nausea. Headache. Dizziness. Drowsiness. Disturbances of consciousness. Central nervous system depression. Feeling of weakness. Coordination disorders. Mental confusion. Disturbed motor response. Drunkenness.
Symptoms/effects after skin contact	: Irritation.
Symptoms/effects after eye contact	: Slight irritation.
Symptoms/effects after ingestion	: Risk of lung edema.
Chronic symptoms	: Dry skin. Skin rash/inflammation. Impairment of the nervous system. Tremor. Impaired memory. Impaired concentration. Brain affection. Disturbances of heart rate. Change in the haemogramme/blood composition.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general	: Toxic to aquatic life.
Ecology - air	: Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573). No photodegradation in the air. Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	: Toxic to crustacea (Daphnia). Toxic to fishes. Groundwater pollutant. Fouling to shoreline. Nitrification of activated sludge is inhibited. Slightly harmful to algae. Harmful to bacteria.
Hazardous to the aquatic environment, short-term (acute)	: Toxic to aquatic life.
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

Benzene (71-43-2)	
LC50 - Fish [1]	5.3 mg/l (Equivalent or similar to OECD 203, 96 h, Oncorhynchus mykiss, Flow-through system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	10 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)

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Benzene (71-43-2)	
ErC50 algae	100 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)
Toluene (108-88-3)	
LC50 - Fish [1]	5.5 mg/l (96 h, Oncorhynchus kisutch, Flow-through system, Fresh water, Experimental value, Lethal)
Ethyl Benzene (100-41-4)	
LC50 - Fish [2]	4.2 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Salmo gairdneri; Semi-static system; Fresh water; Experimental value)

12.2. Persistence and degradability

Toluene (108-88-3)	
Persistence and degradability	Rapidly degradable
Benzene (71-43-2)	
Persistence and degradability	Biodegradable in the soil, Readily biodegradable in water.
Biochemical oxygen demand (BOD)	2.18 g O ₂ /g substance
Chemical oxygen demand (COD)	2.15 g O ₂ /g substance
ThOD	3.1 g O ₂ /g substance
Toluene (108-88-3)	
Persistence and degradability	Readily biodegradable in water.
Biochemical oxygen demand (BOD)	2.15 g O ₂ /g substance
Chemical oxygen demand (COD)	2.52 g O ₂ /g substance
ThOD	3.13 g O ₂ /g substance
Ethyl Benzene (100-41-4)	
Persistence and degradability	Readily biodegradable in water, Biodegradable in the soil, Low potential for adsorption in soil.
Biochemical oxygen demand (BOD)	1.44 g O ₂ /g substance (20d.)
Chemical oxygen demand (COD)	2.1 g O ₂ /g substance
ThOD	3.17 g O ₂ /g substance
BOD (% of ThOD)	45.4 (20 days)
Xylene (1330-20-7)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

Benzene (71-43-2)	
BCF - Fish [1]	< 10 (OECD 305: Bioconcentration: Flow-Through Fish Test, 3 day(s), Leuciscus idus, Flow-through system, Fresh water, Experimental value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	2.1 (Experimental value, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

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Toluene (108-88-3)	
BCF - Fish [1]	90 (3 day(s), Leuciscus idus, Static renewal, Fresh water, Experimental value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	2.73 (Experimental value, 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
Ethyl Benzene (100-41-4)	
BCF - Fish [1]	1 (BCF; Other; 6 weeks; Oncorhynchus kisutch; Flow-through system; Salt water; Literature study)
BCF - Fish [2]	15 – 79 (BCF)
BCF - Other aquatic organisms [1]	4.68 (BCF)
Partition coefficient n-octanol/water (Log Pow)	3.15 (Experimental value; 3.6; Experimental value; EU Method A.8: Partition Coefficient; 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

Benzene (71-43-2)	
Surface tension	29 mN/m (20 °C)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.8 (log Koc, SRC PCKOCWIN v2.0, QSAR)
Ecology - soil	Highly mobile in soil.
Toluene (108-88-3)	
Surface tension	27.73 mN/m (25 °C, 0.05 %)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	2.3 (log Koc, Calculated value)
Ecology - soil	Low potential for adsorption in soil.
Ethyl Benzene (100-41-4)	
Surface tension	0.029 N/m
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	log Koc,PCKOCWIN v1.66; 2.71; Calculated value; Koc; PCKOCWIN v1.66; 517.8; Calculated value

12.5. Other adverse effects

Ozone	: Not classified
Fluorinated greenhouse gases	: No

SECTION 13 Disposal considerations

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Do not discharge into drains or the environment. Dispose of at authorized waste collection point. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Disposal must be done according to official regulations.

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Additional information : Flammable vapors may accumulate in the container. Do not re-use empty containers.

SECTION 14 Transport information

14.1. UN number

UN-No. (DOT) : UN1294
UN-No. (IMDG) : 1294
UN-No. (IATA) : 1294

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Toluene
Proper Shipping Name (IMDG) : toluene
Proper Shipping Name (IATA) : toluene

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 3
Hazard labels (DOT) : 3



IMDG

Transport hazard class(es) (IMDG) : 3
Hazard labels (IMDG) : 3



IATA

Transport hazard class(es) (IATA) : 3
Hazard labels (IATA) : 3



14.4. Packing group

Packing group (DOT) : II
Packing group (IMDG) : II
Packing group (IATA) : II

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

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14.7. Special precautions for user

DOT

UN-No.(DOT)	: UN1294
DOT Special Provisions (49 CFR 172.102)	: IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 60 L
DOT Vessel Stowage Location	: B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

IMDG

Transport regulations (IMDG)	: Subject to the provisions
EmS-No. (Fire)	: F-E - FIRE SCHEDULE Echo - NON-WATER-REACTIVE FLAMMABLE LIQUIDS
EmS-No. (Spillage)	: S-D - SPILLAGE SCHEDULE Delta - FLAMMABLE LIQUIDS

IATA

Transport regulations (IATA)	: Subject to the provisions
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SECTION 15 Regulatory information

15.1. Federal regulations

Toluene (108-88-3)

Subject to reporting requirements of United States SARA Section 313
Listed on EPA Hazardous Air Pollutant (HAPS)

CERCLA RQ	1000 lb
SARA Section 311/312 Hazard Classes	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 ASPIRATION HAZARD - Category 1

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Benzene	CAS-No. 71-43-2	0 – 0.8%
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Toluene	CAS-No. 108-88-3	100%
Ethyl Benzene	CAS-No. 100-41-4	0 – 5.1%
Xylene	CAS-No. 1330-20-7	0 – 7.5%

Benzene (71-43-2)

CERCLA RQ	10 lb
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Ethyl Benzene (100-41-4)

Listed on EPA Hazardous Air Pollutant (HAPS)

CERCLA RQ	1000 lb
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Xylene (1330-20-7)

CERCLA RQ	100 lb
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15.2. International regulations

CANADA

Toluene (108-88-3)

Listed on the Canadian DSL (Domestic Substances List)

Toluene (108-88-3)

Listed on the Canadian DSL (Domestic Substances List)

Ethyl Benzene (100-41-4)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Toluene (108-88-3)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Benzene (71-43-2)

Listed on IARC (International Agency for Research on Cancer)

Listed as carcinogen on NTP (National Toxicology Program)

Toluene (108-88-3)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Ethyl Benzene (100-41-4)

Listed on IARC (International Agency for Research on Cancer)

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15.3. State regulations

Toluene (108-88-3)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
No significant risk level (NSRL)	7000
Maximum allowable dose level (MADL)	7000 µg/day
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

 **WARNING:** This product can expose you to chemicals including Benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Component	State or local regulations
Benzene(71-43-2)	U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List
Toluene(108-88-3)	U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List
Ethyl Benzene (100-41-4)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List
Xylene(1330-20-7)	U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 6/16/2025
Issue date : 9/13/2024

Full text of hazard classes and H-statements	
H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H304	May be fatal if swallowed and enters airways
H312	Harmful in contact with skin
H315	Causes skin irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness

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Full text of hazard classes and H-statements	
H340	May cause genetic defects.
H350	May cause cancer.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H411	Toxic to aquatic life with long lasting effects

NFPA health hazard

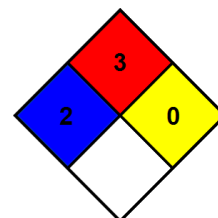
: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard

: 3 - Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions.

NFPA reactivity

: 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health

: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability

: 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB IC)

Physical

: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Safety Data Sheet (SDS), USA

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