

G.J. CHEMICAL COMPANY, INC. SAFETY DATA SHEET

1. PRODUCT IDENTIFIER

1.1 PRODUCT NAME: **TOLUENE** (All Grades)

PRODUCT NUMBER(s): 284500, 284501, 284502, 284510, 284520, 284530, 284550, 284700

TRADE NAMES/SYNONYMS: Methyl Benzene; 1-Methylbenzene; Methylbenzol; Phenylmethane; Methane; Pnenyl-; Methacide; Toluol.

CAS-N0: 108-88-3

CHEMICAL FAMILY: Hydrocarbon, aromatic

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

IDENTIFIED USES: Industrial: Use as an intermediate, Use in cleaning agents, Use in rubber production, Solvent, Use in oil and gas field drilling, Use in binders and release agents, Use in coatings, Use in adhesives and sealants, Use in functional fluids, Distribution, Manufacture of substances. Laboratory chemicals.

USES ADVISED AGAINST: No information available

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Company: **G.J. CHEMICAL CO., INC.**

Address: **40 VERONICA AVENUE
SOMERSET, NJ 08873**

Telephone: **1-973-589-1450**

Fax: **1-973-589-3072**

1.4 Emergency Telephone Number

Emergency Phone: **1-800-424-9300 (CHEMTREC)**

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

Flammable liquids (Category 2), H225

Skin irritation (Category 2), H315

Reproductive toxicity (Category 2), H361

Specific target organ toxicity - repeated exposure (Category 2), H373

Specific target organ toxicity - single exposure (Category 3)- Central nervous system, H336

Aspiration hazard (Category 1), H304

Acute aquatic toxicity (Category 2), H401

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word: **DANGER**

Hazard statement(s)

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.
H401 Toxic to aquatic life.

Precautionary statement(s)

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
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/ eye protection/ face protection.
P281 Use personal protective equipment as required.
Response:
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.

P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P331 Do NOT induce vomiting.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

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.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - None

3. INGREDIENTS

3.1 SUBSTANCE:

COMPONENT	CAS NO.	% BY WT.	CLASSIFICATION
TOLUENE	108-88-3	99.5%	Flammable liquids (Category 2), H225
EC-No. 203-625-9		min.	Skin irritation (Category 2), H315
Index-No. 601-021-00-3			Reproductive toxicity (Category 2), H361
Reg.-No. 01-2119471310-51-XXXX			STOT-RE (Category 2), H373
			STOT-SE (Category 3) - Central nervous System, H336
			Aspiration hazard (Category 1), H304
			Acute aquatic toxicity (Category 2), H401
WATER	7732-18-5	0.03%	Not a hazardous substance or mixture.
EC-No. 231-791-2		max.	
SULFUR COMPOUNDS (as S)		0.003%	
		max.	
RESIDUE		0.001%	
		max.	

3.2 MIXTURE: Not applicable.

4. FIRST-AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES:

INHALATION: TOLUENE: IRRITANT/NARCOTIC/NEUROTOXIN.

****FIRST AID- Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.**

SKIN CONTACT: TOLUENE: IRRITANT.

****FIRST AID- Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.**

EYE CONTACT: TOLUENE: IRRITANT.

****FIRST AID- Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15-20 minutes). Remove contact lenses, if worn, after initial flushing. Get medical attention immediately.**

INGESTION: TOLUENE: NARCOTIC.

****FIRST AID- Extreme care must be used to prevent aspiration. Gastric lavage with a cuffed endotracheal tube in place to prevent further aspiration should be done within 15 minutes by medical personnel. In the absence of depression or convulsions or impaired gag reflex, emesis can also be induced using syrup of ipecac without increasing the hazard of aspiration (Dreisbach, Handbook of Poisoning, 12th ed.). Treat symptomatically and supportively. Gastric lavage should be performed by qualified medical personnel. Get medical attention immediately.**

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED INGESTION:

Inhalation: Fatigue, confusion, headache, dizziness, drowsiness, peculiar skin sensations (pins and needles) or numbness may be produced. Very high concentrations via inhalation can cause unconsciousness and death. Aftereffects of acute inhalation include muscular fatigue, insomnia, and possible hepatic and renal damage which is reversible.

Skin: Causes irritation and drying. Absorption through the skin is possible but it is generally too slow to produce signs of acute systemic toxicity.

Eye: Causes irritation and corneal burns, if not promptly removed.

Ingestion: May cause a burning sensation in the epigastrium and abdominal spasms. Systemic effects may occur as described in acute inhalation. Aspiration of the

liquid into the lungs may cause coughing, gagging, distress, acute hemorrhagic pneumonitis, and rapidly developing pulmonary edema.

Chronic Effects:

Inhalation: Prolonged or repeated exposure via inhalation may cause mucous membrane irritation, vomiting, insomnia, nosebleeds, chest pains, and various motor difficulties. Bone marrow hypoplasia and leukopenia have been reported. Neuropsychiatric effects are varied. Muscle weakness leading to limb paralysis and abdominal pain is noted. Chromosome changes were observed in some workers.
Skin: Prolonged or repeated exposure to the skin may cause de-fatting and dry fissure dermatitis.

Eye: Repeated or prolonged contact with the eye may cause conjunctivitis.

Ingestion: Repeated ingestion may cause damage to kidney, liver, central nervous system, and lead to cancer.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:

Specific details on antidote: No recommendation given.

5. FIRE FIGHTING PROCEDURES

FLASH POINT: 4°C (39.2°F) (CC)

UPPER EXPLOSIVE LIMIT: 7.1% (V)

LOWER EXPLOSIVE LIMIT: 1.2% (V)

AUTOIGNITION TEMP.: 553°C (997°F)

UNIFORM FIRE CODE: FLAMMABLE Liquid Class 1B

5.1 SUITABLE EXTINGUISHING MEDIA:

DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR REGULAR FOAM (1990 Emergency Response Guidebook, DOT P 5800.5).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR REGULAR FOAM (1990 Emergency Response Guidebook, DOT P 5800.5).

Unsuitable extinguishing media: Do not use waterjet.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE:

FIRE AND EXPLOSION HAZARD: DANGEROUS FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME. VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK. VAPOR-AIR MIXTURES ARE EXPLOSIVE. DUE TO LOW ELECTROCONDUCTIVITY OF THE SUBSTANCE, FLOW OR AGITATION MAY GENERATE ELECTROSTATIC CHARGES RESULTING IN SPARKS WITH POSSIBLE IGNITION.

Keep containers tightly closed. Flammable liquid; isolate from all sources of ignition. Closed containers may explode when exposed to extreme heat. Liquid floats on water.

CONDITIONS OF FLAMMABILITY: Flammable in the presence of a source of ignition when the temperature is above the flash point.

HAZARDOUS COMBUSTION PRODUCTS: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, carbon oxides and other unidentified organic compounds evolve when this material undergoes combustion.

5.3 ADVICE FOR FIREFIGHTERS: Shut off source. Keep unnecessary people away; isolate hazard area and deny entry. Avoid breathing vapors, stay upwind. Do not spray pool fires directly. A solid stream of water or foam directed into hot burning liquid can cause frothing. Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. Water fog may be used to cool closed containers to prevent pressure build up and possible auto ignition or explosion when exposed to extreme heat. Cool containers with water-fog from as far a distance as possible. Wear NIOSH/MSHA approved self-contained breathing apparatus (SCBA) for confined spaces. Use full fire-fighting protective clothing. If protective equipment is not available or not used, fight fire from a protected location or safe distance. Avoid breathing toxic vapors, keep upwind. Water may be ineffective .

6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: Extremely Flammable; Eliminate ignition sources in the vicinity of the spill or released vapor. Immediately evacuate all nonessential people. Verify that responders are properly trained and wearing appropriate respiratory equipment and fire resistant protective clothing during cleanup operations.

6.2 ENVIRONMENTAL PRECAUTIONS:

Keep out of water sources and sewers. Do not flush into surface water or sanitary sewer system

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:

Methods for cleanup and containment:

Use explosion proof equipment. Shut off valves, contain spill, for small spills add non-flammable absorbent in spill area. For large spills use foam on spill to minimize vapors clean up by vacuuming then using non-flammable absorbent.

Methods for disposal:

Place all saturated absorbent, using non-sparking tools, in an approved container for disposal. Minimize breathing vapors and skin contact, ventilate confined areas, open all windows and doors, assure conformity with applicable

government regulations

SOIL SPILL:

Dig holding area such as lagoon, pond or pit for containment. Dike flow of spilled material using soil or sandbags or foamed barriers such as polyurethane or concrete. Use cement powder or fly ash to absorb liquid mass. Immobilize spill with universal gelling agent. Reduce vapor and fire hazard with appropriate foam.

AIR SPILL:

Knock down vapors with water spray. Keep upwind.

WATER SPILL:

If material dissolved, apply activated carbon. Use dredges or lifts to extract masses of pollution and precipitates. Apply universal gelling agent to immobilize trapped spill and increase efficiency of removal. Limit spill motion and dispersion with natural barriers or oil spill control booms. Use soaps, detergents, alcohols or other surface active agent to thicken spilled material. Use suction hoses to remove trapped spill material.

OCCUPATIONAL SPILL: Shut off ignition sources. Stop leak if you can do it without risk. Use water spray to reduce vapors. For small spills, take up with sand or other absorbent material and place into containers for later disposal. For larger spills, dike far ahead of spill for later disposal. No smoking, flames or flares in hazard area. Keep unnecessary people away; isolate hazard area and restrict entry.

REPORTABLE QUANTITY (RQ): Toluene – 1000lbs.

The Superfund Amendments and Reauthorization Act (SARA) Section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local emergency planning committee and the state Emergency Response Commission (40 CFR 355.40). If the release of this substance is reportable under CERCLA Section 103, the National Response Center must be notified immediately at (800) 424-8802 or (202) 426-2675 in the metropolitan Washington, D.C. area (40 CFR 302.6).

6.4 REFERENCE TO OTHER SECTIONS: See Sections 8 and 13.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING: This material presents a fire hazard.

Toluene is a class IB flammable liquid (NFPA). Liquid quickly evaporates and forms vapor (fumes), which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources, such as pilot lights, welding equipment, and electrical motors and switches. Vapor is heavier than air and can travel considerable distance to a source of ignition and flash back. Avoid breathing vapors in top of shipping container. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid work practices that may release volatile components in the atmosphere. Avoid contaminating soil or releasing material into sewage and drainage systems. Use non-sparking tools to open or close containers.

Do not breathe vapor. Do not take internally. Avoid work practices that may release volatile components into the atmosphere. Avoid contaminating soil or releasing material into sewage and drainage systems. Use non-sparking tools to open or close containers. Keep away from heat, sparks and flame. Keep container tightly closed and upright to prevent leakage. Use only with adequate ventilation. Wash thoroughly after handling.

Advice on general occupational hygiene:

Wash hands before breaks and after work. Keep away from food, drink and animal feeding stuffs. When using do not smoke.

STATIC HAZARD: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not be sufficient. For more information refer to OSHA Standard 29CFR 1910.106 "Flammable and Combustible Liquids" and National Fire Protection Association (NFPA 77) "Recommended Practice on Static Electricity".

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

Follow maximum allowed pile heights specified in the BOCA codes or the NFPA manual. Local fire authorities should be notified for storage of this material in any quantity. Local permits are required for storage in warehouse quantities. Recommended storage temperature: 15 - 25°C. Store large quantities only in cool, dry areas in buildings designed to comply with OSHA 1910.106.

Keep containers tight and upright to prevent leakage. Do not contact with oxidizing materials. Keep containers closed when not in use. Store away from incompatible substances.

CONTAINER WARNINGS: Containers should be Bonded and Grounded when pouring. Avoid free fall of liquid in excess of a few inches. Empty containers release residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, or expose such containers to heat, sparks, static electricity or other sources of ignition. Do not attempt to clean. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum re-conditioner. Containers of this material may be hazardous when empty. Since emptied containers retain product residues, assume emptied containers to have the same hazard qualities as full containers.

7.3 SPECIFIC END USES: Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROL (PERSONAL PROTECTION)

8.1 CONTROL PARAMETERS:

COMPONENT	CAS NO.	% BY WT.	EXPOSURE LIMITS
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TOLUENE	108-88-3	99.5% min	20PPM TWA (ACGIH)
	EC-No. 203-625-9		150PPM STEL (ACGIH)
	Index-No.601-021-00-3		100PPM TWA (NIOSH)
	Reg.-No. 01-2119471310-51-XXXX		150PPM STEL (NIOSH)
			100PPM TWA (OSHA)
			150PPM STEL (OSHA)

Key: (PEL) = Permissible Exposure Limit OSHA
 (TLV) = Threshold Limit Value OSHA & ACGIH
 (STEL) = Short Term Exposure Limit ACGIH
 (WEEL) = USA. Workplace Environmental Exposure Levels
 (TWA) = Time Weighted Average
 CAS = Chemical Abstracts Registry Number
 IDLH = Immediate Danger to Life and Health
 N.E. =None Established

8.2 EXPOSURE CONTROLS

EXPOSURE GUIDELINES: Consider the potential hazards of this material (Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended.

ENGINEERING CONTROLS: Provide general dilution or local exhaust ventilation in volume and pattern to keep concentrations within permitted exposure limits. All areas should be ventilated in accordance with OSHA Regulation 29 CFR Part 1910. Explosion proof motors should be used in mechanical ventilation.

RESPIRATORY PROTECTION: The following respirators and maximum use concentrations are recommendations by the U.S. Department of Health and Human Services, NIOSH Pocket Guide to Chemical Hazards; NIOSH criteria documents or by the U.S. Department of Labor, 29 CFR 1910 Subpart Z.

The specific respirator selected must be based on contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

(Specific respirators on next page)

TOLUENE:

- 1000 PPM- Any chemical cartridge respirator with organic vapor cartridge(s).
Any supplied-air respirator.
Any powered air-purifying respirator with organic vapor cartridge(s).
Any self-contained breathing apparatus.
- 2000 PPM- Any supplied-air respirator operated in a continuous flow mode.
Any self-contained breathing apparatus with a full face-piece.

Any supplied-air respirator with a full face-piece.

Any air-purifying full face-piece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister.

ESCAPE- Any air-purifying, full face-piece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister.

Any appropriate escape-type, self-contained breathing apparatus.

BODY CLOTHING: Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged contact with this substance. Use complete suit protecting against chemicals, Flame retardant antistatic protective clothing. Remove and wash contaminated clothing before reuse.

SKIN PROTECTION: Employee must wear appropriate protective gloves to prevent contact with this substance. Gloves:

Full contact Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Splash contact Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

HYGIENE: Use good personal hygiene practices, wash hands before eating, drinking, smoking or using toilet facilities.

EYE/FACE PROTECTION: Use safety eyewear with splash-guards or face shield. Contact lenses should not be worn.

Emergency shower and eyewash should be easily accessible to the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

Toluene 108-88-3

APPEARANCE:

Watery Liquid

COLOR:

Colorless

ODOR:

Pungent aromatic, benzene like odor

ODOR THRESHOLD:

10-15 PPM

pH

No data available

MOLECULAR WEIGHT:

92.14 amu

MELTING POINT:

-93°C (-135°F)

BOILING POINT:

231°F (111°C)

SPECIFIC GRAVITY:

0.865@ 25° C

VAPOR PRESSURE:

22 mm Hg @ 20° C

VAPOR DENSITY:

3.14

WATER SOLUBILITY: 0.047% @ 20°C
PARTITION COEFFICIENT N-OCTANOL/WATER: No data available
FLASH POINT: 4°C (39°F) (CC)
EVAPORATION RATE: (butyl acetate-1): 2.24
UPPER FLAMMABILITY LIMIT: 7%
LOWER FLAMMABILITY LIMIT: 1.2%
AUTO IGNITION TEMPERATURE: 535°C (995°F)
DECOMPOSITION TEMPERATURE: No data available
VISCOSITY: No data available
EXPLOSIVE PROPERTIES: No data available
OXIDIZING PROPERTIES: No data available
SOLVENT SOLUBILITY: Soluble in alcohol, ether, benzene, chloroform, ligroin, glacial acetic acid, carbon disulfide, acetone.

9.2 OTHER INFORMATION: No data available

10. STABILITY AND REACTIVITY INFORMATION

10.1 **REACTIVITY**: No data available.

10.2 **CHEMICAL STABILITY**: Unstable () Stable (X)
Stable under normal temperatures and pressures.

10.3 **POSSIBILITY OF HAZARDOUS REACTIONS**: Vapors may form flammable mixtures with air.

HAZARDOUS POLYMERIZATION: May occur () Will not occur (X)

10.4 **CONDITIONS TO AVOID**: --> Heat, Sparks, Pilot Lights, Static Electricity, and Open Flame. Extremes of temperature and direct sunlight.

10.5 **INCOMPATIBLE MATERIALS** --> TOLUENE

ALLYL CHLORIDE + DICHLOROETHYL ALUMINUM OR ETHYLALUMINUM SESQUICHLORIDE: Possible explosion.

BROMINE TRIFLUORIDE (SOLID): Violent reaction.

1,3-DICHLORO-5,5-DIMETHYL-2,4-IMIDAZOLIDINEDIONE: Explosive reaction.

DINITROGEN TETROFLUORIDE: Forms explosive mixture.

NITRIC ACID: Vigorous reaction.

NITRIC ACID + SULFURIC ACID: Violent decomposition possible.

NITROGEN TETROXIDE: Explosive reaction.

OXIDIZERS (STRONG): Fire and explosion hazard.

PLASTICS, RUBBER, AND COATINGS: May be attacked.

SILVER PERCHLORATE: Forms shock-sensitive mixture.

SULFUR DICHLORIDE: Violent reaction, greatly accelerated in the presence of iron or ferric chloride.

SULFURIC ACID: Exothermic reaction.

TETRANITROMETHANE: Forms explosive mixture.
URANIUM HEXAFLUORIDE: Violent reaction.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS --> Thermal decomposition products may include: Fumes, Smoke, Carbon Monoxide, Aldehydes and other decomposition products where combustion is not complete.

11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS:

Routes of Entry: Inhalation--> x Skin--> x Ingestion--> x

ACUTE HEALTH EFFECTS:

Effects of overexposure:

Inhalation: Fatigue, confusion, headache, dizziness, drowsiness, peculiar skin sensations (pins and needles) or numbness may be produced. Very high concentrations via inhalation can cause unconsciousness and death. Aftereffects of acute inhalation include muscular fatigue, insomnia, and possible hepatic and renal damage which is reversible.

Skin: Causes irritation and drying. Absorption through the skin is possible but it is generally too slow to produce signs of acute systemic toxicity.

Eye: Causes irritation and corneal burns, if not promptly removed.

Ingestion: May cause a burning sensation in the epigastrium and abdominal spasms. Systemic effects may occur as described in acute inhalation. Aspiration of the liquid into the lungs may cause coughing, gagging, distress, acute hemorrhagic pneumonitis, and rapidly developing pulmonary edema.

Chronic Effects:

Inhalation: Prolonged or repeated exposure via inhalation may cause mucous membrane irritation, vomiting, insomnia, nosebleeds, chest pains, and various motor difficulties. Bone marrow hypoplasia and leukopenia have been reported. Neuropsychiatric effects are varied. Muscle weakness leading to limb paralysis and abdominal pain is noted. Chromosome changes were observed in some workers.

Skin: Prolonged or repeated exposure to the skin may cause de-fatting and dry fissure dermatitis.

Eye: Repeated or prolonged contact with the eye may cause conjunctivitis.

Ingestion: Repeated ingestion may cause damage to kidney, liver, central nervous system, and lead to cancer.

ACUTE TOXICITY:

The effects of overexposure shown in Section II are based on acute toxicity profiles. Typical values are:

Ingredient	 Oral LD50(Rat)	 Skin LD50(Rabbit) 	Inhalation LC50	
Toluene	5580mg/kg	12.196g/kg	28,800mg/m3/4h	

SKIN CORROSION/IRRITATION: Skin - Rabbit Result: Skin irritation - 24 h

SERIOUS EYE DAMAGE/EYE IRRITATION: Eyes - Rabbit Result: No eye irritation (OECD Test Guideline 405)

RESPIRATORY OR SKIN SENSITIZATION: No data available.

MUTAGENIC EFFECTS: Germ cell mutagenicity Rat Liver DNA damage

CARCINOGEN STATUS:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: 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.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

REPRODUCTIVE STATUS: Damage to fetus possible Suspected human reproductive toxicant Reproductive toxicity - Rat - Inhalation Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count). Experiments have shown reproductive toxicity effects in male and female laboratory animals. Developmental Toxicity -Rat - Oral Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

SPECIFIC TARGET ORGAN TOXICITY (STOT-SE) - single exposure (Globally Harmonized System): no data available

SPECIFIC TARGET ORGAN TOXICITY (STOT-RE)- repeated exposure (Globally Harmonized System): no data available

ASPIRATION HAZARD: No data available

11.2 ADDITIONAL DATA: Stimulants such as epinephrine may induce ventricular fibrillation. Alcohol may enhance the toxic effects. The metabolism of other solvents may be inhibited resulting in a potentiation of toxic effects of those chemicals. Uptake is directly proportional to the amount of body fat. Blood levels may be cumulative when exposure is extended.

RTECS: XS5250000

12. ECOLOGICAL INFORMATION

ECOLOGY: Water

**DANGEROUS TO AQUATIC LIFE IN HIGH CONCENTRATIONS
FOULING TO SHORELINE**

May be dangerous if it enters water intakes.

Notify health and wildlife officials.

Notify operators of nearby water intakes.

12.1 AQUATIC TOXICITY (Acute):

Toxicity in fish:

LC50 - Oncorhynchus mykiss (rainbow trout) - 7.63 mg/l - 96 h

NOEC - Pimephales promelas (fathead minnow) - 5.44 mg/l - 7 d

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 8.00 mg/l - 24 h

Immobilization EC50 - Daphnia magna (Water flea) - 6 mg/l - 48 h

Toxicity to algae EC50 - Chlorella vulgaris (Fresh water algae) - 245.00 mg/l - 24 h

EC50 - Pseudokirchneriella subcapitata (green algae) - 10.00 mg/l - 24 h

12.2 PERSISTENCE AND DEGRADABILITY: Readily Biodegradable

Biological Oxygen Demand (BOD): 0% 5 days, 38% (theoretical.) 8 days

12.3 BIOACCUMULATIVE POTENTIAL:

Bioaccumulation Leuciscus idus (Golden orfe) - 3 d - 0.05 mg/l

Bioconcentration factor (BCF): 90

12.4 MOBILITY IN SOIL: No data available

12.5 RESULTS OF PBT AND vPvB:

PBT assessment results: This substance is not classified as PBT or vPvB.

12.6 OTHER ADVERSE EFFECTS: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

13. DISPOSAL GUIDELINES

13.1 WASTE TREATMENT METHODS:

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly it is the responsibility of the user to determine the proper storage, transportation, treatment and or disposal methodologies for spent materials and residues at time of disposition. Dispose in accordance with all applicable disposal regulations. The waste material should be treated and/or disposed of at site authorized to handle hazardous chemical waste. Appropriate Federal, State and Local Regulatory Authorities should be contacted before discharge, treatment or disposal of waste material.

CONTAMINATED PACKAGING: Dispose of as unused product.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

RCRA: The unused product is a RCRA hazardous waste if discarded. The RCRA ID number is: U220

If the waste is a spent solvent, the appropriate spent solvent code should be used.

DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE, 48 CFR 262

14. TRANSPORT INFORMATION

Land Transport (DOT)

14.1 USDOT ID Number-----> UN1294

14.2 USDOT Shipping Name-----> Toluene

14.3 USDOT Hazard Classification-----> 3 (Flammable Liquid)

USDOT Label Codes-----> 3 (Flammable Liquid)

14.4 USDOT Package Code-----> II

14.5 Environmental hazard-----> None

14.6 Special precautions for user-----> None

Emergency Response Guide-----> 127

Reportable quantity-----> 1000lbs.

Poison Inhalation Hazard-----> No

Sea Transport (IMDG)

14.1 ID Number-----> UN1294
14.2 Proper shipping name-----> TOLUENE
14.3 Hazard Classification-----> 3 (Flammable Liquid))
Label Codes-----> 3 (Flammable Liquid)
14.4 Package Code-----> II
14.5 Marine Pollutant-----> No
14.6 Special precautions for user-----> Yes
EMS-Number-----> F-E, S-D

Air Transport (IATA)

14.1 ID Number-----> UN1294
14.2 Proper shipping name-----> Toluene
14.3 Hazard Classification-----> 3 (Flammable Liquid)
Label Codes-----> 3 (Flammable Liquid)
14.4 Package Code-----> II
14.5 Environmental hazard-----> None
14.6 Special precautions for user-----> None

15. REGULATORY INFORMATION

**15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION
SPECIFIC FOR THE SUBSTANCE OR MIXTURE:**

SARA TITLE III (Superfund Amendment and Reauthorization Act)

SECTION 302 AND 304: Extremely Hazardous Substance List (40 CFR 355) - Not Listed

SECTION 313: Toxic Chemicals Listing (40 CFR 372.65) - Listed Toluene CAS-No.108-88-3

SECTION 311: Hazard Categorization (40 CFR 370) - Acute Health Hazard, Chronic Health Hazard, and Fire Hazard.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)

SECTION 102(A) Hazardous Substances (40 CFR 302.4)- Listed

Toluene CAS-No.108-88-3 Reportable Quantity - 1,000 pounds.

SECTION 101(14) Reportable Quantity: 1,000 lbs

Massachusetts Right to Know Components

Toluene CAS-No.108-88-3

Pennsylvania Right to Know Components

Toluene CAS-No.108-88-3

New Jersey Right to Know Components

Toluene CAS-No.108-88-3

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Toluene CAS-No.108-88-3

TSCA (Toxic Substance Control Act)

Toluene CAS-No.108-88-3 is listed on the TSCA Inventory.

International Inventories:

<u>Country or Region</u>	<u>Inventory Name</u>	<u>On inventory yes/no</u>
<u>Australia</u>	Australian Inventory of Chemical Substances (AICS)	Yes
<u>Canada</u>	Domestic Substances List (DSL)	Yes
<u>Canada</u>	Non-Domestic Substances List (NDSL)	No
<u>China</u>	Inventory of Existing Chemical Substances in China (IECSC)	Yes
<u>Europe</u>	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
<u>Europe</u>	European List of Notified Chemical Substances (ELINCS)	No
<u>Japan</u>	Inventory of Existing and New Chemical Substances (ENCS)	Yes
<u>Japan</u>	Industrial Safety & Health Law Inventory (ISHL)	Yes
<u>Korea</u>	Existing Chemicals List (ECL)	Yes
<u>Mexico</u>	National Inventory of Chemical Substances (INSQ)	Yes
<u>New Zealand</u>	New Zealand Inventory	Yes
<u>Philippines</u>	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
<u>Switzerland</u>	Inventory of Notified New Substances (CHINV)	Yes
<u>Taiwan</u>	National Existing Chemical Inventory (NECI)	Yes
<u>United States & Puerto Rico</u>	Toxic Substances Control Act Inventory	Yes

15.2 CHEMICAL SAFETY ASSESSMENT: A chemical safety assessment has been carried out for this substance.

16. OTHER INFORMATION:

NFPA RATINGS (SCALE 0-4): Health=2 Fire=3 Reactivity=0
HMIS RATINGS (Scale 0-4): Health=2 Fire=3 Reactivity=0 PPE= G

Hazard statement(s) from Section 2 and 3:

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.

H401 Toxic to aquatic life.

Date of Preparation: February 24, 2005
Revision Number: 3.0
Revision Content: General update all sections
Revision Date: December 10, 2018

Acronyms:

ACGIH	-	American Conference of Governmental Industrial Hygienists
AIHA	-	American Industrial Hygiene Association
ANSI	-	American Nation Standards Institute
API	-	American Petroleum Institute
CERCLA	-	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	-	U.S. Department of Transportation
EC-50	-	Effective Concentration
EPA	-	U.S. Environmental Protection Agency
HMIS	-	Hazardous Materials Information System
IARC	-	International Agency For Research On Cancer
LD-50	-	Lethal Dose
MAK	-	Germany Maximum Concentration Values
MSHA	-	Mine Safety and Health Administration
NFPA	-	National Fire Protection Association
NIOSH	-	National Institute of Occupational Safety and Health
NOIC	-	Notice of Intended Change (Proposed change to ACGIH TLV)
NTP	-	National Toxicology Program
OPA	-	Oil Pollution Act of 1990
OSHA	-	U.S. Occupational Safety & Health Administration
PEL	-	Permissible Exposure Limit (OSHA)
RCRA	-	Resource Conservation and Recovery Act
REL	-	Recommended Exposure Limit (NIOSH)
SARA	-	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	-	Self-Contained Breathing Apparatus
STEL	-	Short-Term Exposure Limit (generally 15 minutes)
TLV	-	Threshold Limit Value
TSCA	-	Toxic Substances Control Act
TWA	-	Time Weighted Average (8hr.)
WHMIS	-	Canadian Workplace Hazardous Materials Information Syste

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