

Safety Data Sheet

Toluene, Reagent Grade

SECTION 1 : Identification of the substance/mixture and of the supplier

Product name : Toluene, Reagent Grade

Manufacturer/Supplier Trade name:

SECTION 2 : Hazards identification

Classification of the substance or mixture:



Flammable

Flammable liquids, category 2



Irritant

Skin irritation, category 2

Specific target organ toxicity following single exposure, category 3



Health hazard

Reproductive toxicity, category 2

Specific target organ toxicity following repeated exposure, category 2

Aspiration hazard, category 2

Flam. Liq. 2

Skin Irrit. 2

Repr. 2

STOT SE 3, Central nervous system

STOT RE 2

Asp. Tox. 1

Aquatic Acute 2

Signal word : Danger

Hazard statements:

Highly flammable liquid and vapour

May be harmful if swallowed and enters airways

Causes skin irritation

May cause drowsiness or dizziness

Suspected of damaging fertility or the unborn child

May cause damage to organs through prolonged or repeated exposure

Toxic to aquatic life

Precautionary statements:

If medical advice is needed, have product container or label at hand

Keep out of reach of children

Read label before use

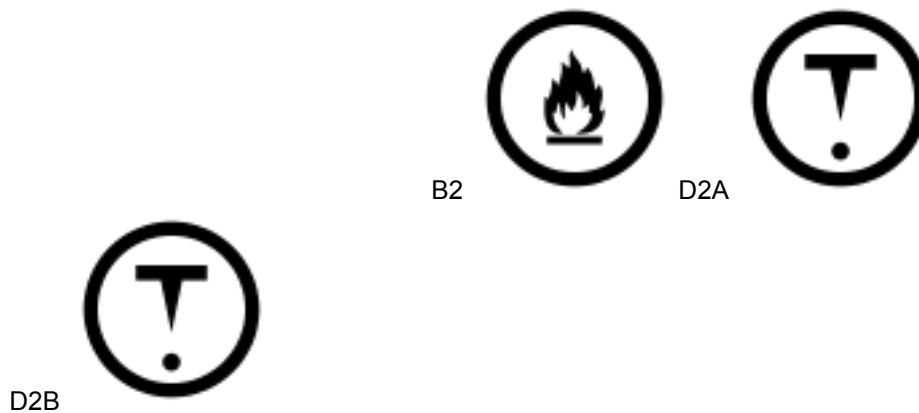
Obtain special instructions before use

Wash skin thoroughly after handling

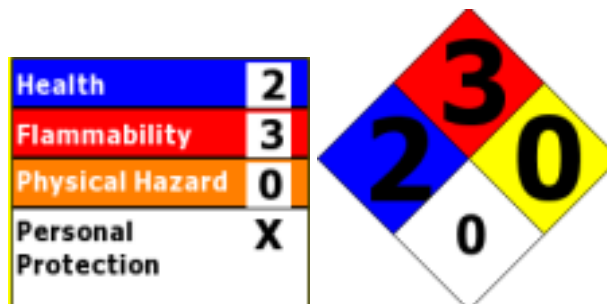
Use only outdoors or in a well-ventilated area
 Avoid release to the environment
 Wear protective gloves/protective clothing/eye protection/face protection
 Do not handle until all safety precautions have been read and understood
 Keep away from heat/sparks/open flames/hot surfaces. No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use explosion-proof electrical/ventilating/light/equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge
 Do not breathe dust/fume/gas/mist/vapours/spray
 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
 Specific treatment (see supplemental first aid instructions on this label)
 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 agents recommended in section 5 for extinction
 Store in a well ventilated place. Keep container tightly closed
 Store in a well ventilated place. Keep cool
 Store locked up
 Dispose of contents and container to an approved waste disposal plant

Other Non-GHS Classification:

WHMIS



NFPA/HMIS



NFPA SCALE (0-4) HMIS RATINGS (0-4)

SECTION 3 : Composition/information on ingredients

Ingredients:

Percentages are by weight

SECTION 4 : First aid measures**Description of first aid measures**

After inhalation: Move exposed to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen. Loosen clothing and place exposed in a comfortable position. Seek immediate medical attention. **After skin contact:** IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. If symptoms such as redness or irritation develop, IMMEDIATELY call a physician and be prepared to transport the victim to a hospital for treatment.

After eye contact: Protect unexposed eye. Flush exposed eye gently using water for 15-20 minutes. Remove contact lenses while rinsing. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

After swallowing: Rinse mouth with water. Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital.

Most important symptoms and effects, both acute and delayed:

Irritation. Shortness of breath. Headache. Nausea. Dizziness. The substance is irritating to the eyes and respiratory tract. The substance may cause effects on the central nervous system. If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. Exposure at high levels could cause cardiac dysrhythmia and unconsciousness. The substance defats the skin, which may cause dryness or cracking. The substance may have effects on the central nervous system. Exposure to the substance may increase noise-induced hearing loss. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

Indication of any immediate medical attention and special treatment needed: If seeking medical attention provide SDS document to physician. Physician should treat symptomatically.

SECTION 5 : Firefighting measures**Extinguishing media**

Suitable extinguishing agents: Use foam, dry chemical, or carbon dioxide.

For safety reasons unsuitable extinguishing agents: Solid streams of water may spread fire.

Special hazards arising from the substance or mixture:

Thermal decomposition can lead to release of irritating gases and vapors. Vapors may ignite and cause explosion if in confined space. Vapors can flow across ignition source and flashback.

Advice for firefighters:

Protective equipment: Wear protective eyewear, gloves, and clothing. Refer to Section 8. **Additional information (precautions):** Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols. Avoid contact with skin, eyes, and clothing. Cool closed containers exposed to fire with water spray. Approach fire from upwind to avoid hazardous vapors and toxic decomposition. If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped or safely confined. Use water in flooding quantities as fog. Solid streams of water may spread fire. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible.

SECTION 6 : Accidental release measures**Personal precautions, protective equipment and emergency procedures:**

Ensure adequate ventilation.Ensure that air-handling systems are operational. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.Remove all sources of ignition. **Environmental precautions:**

Should not be released into environment.Prevent from reaching drains, sewer, or waterway.

Methods and material for containment and cleaning up:

Wear protective eyeware, gloves, and clothing. Refer to Section 8.Always obey local regulations.If necessary use trained response staff or contractor. Evacuate personnel to safe areas. Containerize for disposal. Refer to Section 13.Keep in suitable closed containers for disposal.Remove all sources of ignition.Have extinguishing agent available in case of fire. Use non-sparking equipment.

Reference to other sections:

SECTION 7 : Handling and storage

Precautions for safe handling:

Avoid contact with skin, eyes, and clothing.Follow good hygiene procedures when handling chemical materials. Refer to Section 8.Follow proper disposal methods. Refer to Section 13.Do not eat, drink, smoke, or use personal products when handling chemical substances.Use explosion-proof equipment.Keep away from open flames, hot surfaces and sources of ignition.

Conditions for safe storage, including any incompatibilities:

Store in a cool location.Keep away from food and beverages.Protect from freezing and physical damage.Provide ventilation for containers. Keep container tightly sealed. Store away from incompatible materials. Store as flammable. Keep away from sources of ignition.

SECTION 8 : Exposure controls/personal protection



Control Parameters: 108-88-3 ,

Toluene, ACGIH TLV TWA 20 ppm

108-88-3, Toluene, OSHA PEL TWA 200 ppm

Appropriate Engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.Use under a chemical fume hood.Use explosion-proof equipment.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls.When necessary use NIOSH approved breathing equipment. Use under a chemical fume hood.

Protection of skin: Select glove material impermeable and resistant to the substance.Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves.Wear protective clothing.

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

General hygienic measures: Perform routine housekeeping.Wash hands before breaks and immediately after

handling the product. Avoid contact with skin, eyes, and clothing. Before rewearing wash contaminated clothing.

SECTION 9 : Physical and chemical properties

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|---|------------------------------------|--|--|
| Appearance (physical state,color): | Clear, colorless liquid | Explosion limit lower: Explosion limit upper: | 7 %(V) 1.2 %(V) |
| Odor: | Sweet, pungent, benzene like odor. | Vapor pressure: | 28.4 mm Hg @ 25 deg C |
| Odor threshold: | 1.03 to 140 ug/cu m | Vapor density: | 3.1 |
| pH-value: | Not Determined | Relative density: | 0.865 g/mL at 25 °C (77 °F) |
| Melting/Freezing point: | 95°C (-139°F) | Solubilities: | Insoluble in water |
| Boiling point/Boiling range: | 110 - 111 °C (230 - 232 °F) | Partition coefficient (n octanol/water): | log Kow 2.73 |
| Flash point (closed cup): | 4.0 °C (39.2 °F) | Auto/Self-ignition temperature: | 535.0 °C (995.0 °F) |
| Evaporation rate: | 2.4 | Decomposition temperature: | Not Determined |
| Flammability (solid,gaseous): | Highly flammable | Viscosity: | a. Kinematic: Not determined b. Dynamic: Not Determined |
| Density: Not Determined | | | |

SECTION 10 : Stability and reactivity

Reactivity: Nonreactive under normal conditions. Reacts violently with strong oxidants. This generates fire and explosion hazard.

Chemical stability: Stable under normal conditions.

Possible hazardous reactions: None under normal processing. Vapours may form explosive mixture with air.

Conditions to avoid: Incompatible materials. excess heat. Direct Sunlight

Incompatible materials: Oxidizing agents. Acids.

Hazardous decomposition products: Carbon oxides.

SECTION 11 : Toxicological information

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|------------------------|--------------------|---------------------------|
| Acute Toxicity: | | |
| Dermal: | 108-88-3 (Toluene) | LD50 Rabbit: 12,124 mg/kg |
| Oral: | 108-88-3 (Toluene) | LD50 Rat: 5000mg/kg |

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|---|--------------------|--|
| Inhalation: | 108-88-3 (Toluene) | LC50 Rat: 12,500 - 28,800 mg/m ³ /4 h |
| Chronic Toxicity: No additional information. | | |
| Corrosion Irritation: | | |
| Dermal: | 108-88-3 (Toluene) | Rabbit: Skin Irritation - 24 h |
| Sensitization: | | No additional information. |
| Single Target Organ (STOT): | | No additional information. |
| Numerical Measures: | | No additional information. |
| Carcinogenicity: | | IARC:: Group 3: Not classifiable as to its carcinogenicity to humans (Toluene) |
| Mutagenicity: | | rat Liver DNA damage |
| Reproductive Toxicity: | | Suspected human reproductive toxicant. rat - Inhalation Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). rat - Oral Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). |

SECTION 12 : Ecological information

Ecotoxicity

Fish LC50 - Oncorhynchus mykiss (rainbow trout) - 7.63 mg/l - 96 h: 108-88-3 (Toluene)

Invertebrates EC50 - Daphnia magna (Water flea) - 6 mg/l - 48 h: 108-88-3 (Toluene) **Persistence**

and degradability: Readily biodegradable

Bioaccumulative potential: bioconcentration in aquatic organisms is low to moderate

Mobility in soil: toluene is expected to have high to moderate mobility in soil. 2.65 log Pow

Other adverse effects:

SECTION 13 : Disposal considerations

Waste disposal recommendations:

Contact a licensed professional waste disposal service to dispose of this material. Dispose of empty containers as unused product. Product or containers must not be disposed together with household garbage. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations. Ensure complete and accurate classification.

SECTION 14 : Transport information

UN-Number

1294

UN proper shipping name

Toluene

Transport hazard class(es)



Class:

3 Flammable liquids

Packing group:II

Environmental hazard:

Transport in bulk:

Special precautions for user:

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| SECTION 15 : Regulatory information |
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United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

Acute, Chronic, Fire

SARA Section 313 (Specific toxic chemical listings):

None of the ingredients is listed

RCRA (hazardous waste code):

108-88-3 Toluene - U220

TSCA (Toxic Substances Control Act):

All ingredients are listed.

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

108-88-3 Toluene 1000 lb

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed

Chemicals known to cause developmental toxicity:

108-88-3 Toluene

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients is listed

Canadian NPRI Ingredient Disclosure list (limit 1%):

108-88-3 Toluene

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| SECTION 16 : Other information |
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This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: . The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information

contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.