



SECTION 1: Identification of the Substance / Mixture and of the Company / Undertaking

1.1. Product Identifier

Product name : TOLUENE
CAS-No. : 108-88-3
Synonyms : TOLUENE, TOLUOL, METHYLBENZENE

1.2. Details of the Distributor of the Safety Data Sheet

Company Name : GreenSol Limited
Address : #39-41 Marryat Street, San Fernando, Trinidad, West Indies
Telephone : +1(868) 225-4858
Mobile : +1(868) 720-2517
Email : sdeokiesingh@greensolltd.com

1.3. Emergency Telephone Number

Emergency Number : +1(868) 720-2517 (GREENSOL)
: +1(800) 424-9300 (CHEMTREC)

SECTION 2: Hazard Identification

Emergency Overview : FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE.

MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY BE HARMFUL IF SWALLOWED. ASPIRATION HAZARD.

CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LIVER, HEART, RESPIRATORY TRACT, SKIN, EYES, CENTRAL NERVOUS SYSTEM, BLOOD, LUNGS, BRAIN.

CANCER HAZARD. CONTAINS MATERIAL WHICH CAN CAUSE CANCER.

ROUTES OF ENTRY : ABSORBED THROUGH SKIN. EYE CONTACT. INHALATION. INGESTION.

POTENTIAL ACUTE HEALTH EFFECTS

Eyes : May cause eye irritation.
Skin : May cause skin irritation. Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering. Prolonged or repeated contact can defeat the skin and lead to irritation, cracking and/or dermatitis.

Inhalation : May cause respiratory tract irritation. Can cause central nervous system (CNS) depression. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Excessive exposure may cause cardiac



- (heart) sensitization, which can be potentially fatal. May have an effect on your brain and may impair your ability to think clearly. May cause neuromuscular effects and impairment of speech, color vision and hearing at moderate/high doses.
- Ingestion : Aspiration hazard if swallowed. Can enter lungs and cause damage. Can cause gastrointestinal disturbances. Can cause central nervous system (CNS) depression.
- Potential Chronic Health Effects : Toluene may cause chronic CNS effects, irritation to the eyes and upper respiratory system.
- CARCINOGENIC EFFECTS : Not listed as a carcinogen by OSHA, NTP or IARC. [Toluene]
- Classified 2B (Possible for human.) by IARC, Classified A3 (Animal Carcinogen) by ACGIH [Ethylbenzene].
- TERATOGENIC EFFECTS : Benzene is a known human carcinogen. Studies suggest that toluene may cause developmental toxicity (may damage the developing fetus). However, studies are not conclusive due to many confounding variables. Increased rates of spontaneous abortion have been reported in several studies related to toluene exposure.
- Classified Reproductive system/toxin/female, Reproductive system/toxin/male [PROVEN] [Benzene].
- Medical Conditions Aggravated by Overexposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.
- Overexposure /Signs/ Symptoms : Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Lack of coordination.

See Toxicological Information (Section 11)

SECTION 3: Composition / Information on Ingredients

Occupational exposure limits, if available, are listed in section 8

Substance Name	CAS #	% By Weight
Toluene	108-88-3	>97
Ethylbenzene	100-41-4	<2
Benzene	71-43-2	0.2

SECTION 4: First Aid Measures



Eye contact	: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
Skin contact	: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention.
Inhalation	: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	: If swallowed, do not induce vomiting. Never give anything by mouth to an unconscious person. If potentially dangerous quantities of this material have been swallowed, call a physician immediately. Aspiration hazard if swallowed. Can enter lungs and cause damage. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention.

SECTION 5: Firefighting measures

FLAMMABILITY OF PRODUCT	: FLAMMABLE
AUTO-IGNITION TEMPERATURE	: 480°C (896°F)
FLASH POINTS	: CLOSED CUP: 4.4°C (40°F). (Tagliabue.). OPEN CUP: 4°C (39.2°F)
FLAMMABLE LIMITS	: Lower: 1.1% Upper: 7.1%
PRODUCTS OF COMBUSTION	: These products are carbon oxides (CO, CO ₂)
FIRE HAZARDS IN PRESENCE OF VARIOUS SUBSTANCES	: Extremely flammable in presence of open flames and sparks
EXPLOSION HAZARDS IN PRESENCE OF VARIOUS SUBSTANCES	: Risks of explosion of the product in the presence of mechanical impact is not expected. Risk of explosion of the product in presence of static discharge IS expected
FIRE FIGHTING MEDIA AND INSTRUCTIONS	: Recommended: alcohol-resistant foam, CO ₂ , powders, water spray
PROTECTIVE CLOTHING (FIRE)	: Wear MSHA/NIOSH approved self-contained breathing apparatus or equivalent and full protective gear (Bunker gear)
SPECIAL REMARKS ON FIRE HAZARDS	: Flammable liquid. Do not use near open flames, electric sparks, or on hot surfaces. Evolves toxic fumes when heated
SPECIAL REMARKS ON EXPLOSION HAZARDS	: May explode if ignited in an enclosed area. Flashback along vapor trail may occur

SECTION 6: Accidental Release Measures



- SMALL SPILL AND LEAK : Absorb with an inert material and place in an appropriate waste disposal container. Warn personnel to move away. Eliminate ignition sources and ventilate area.
- LARGE SPILL AND LEAK : Isolate the area. Flammable liquid, insoluble in water. Contain spill and safely stop the flow. Warn personnel to move away. Eliminate all sources of ignition. Ventilate. Absorb with DRY earth, sand or other non-combustible material. Dike spill area and do not allow product to reach sewage system or surface or ground water. Notify any reportable spill to authorities. (See section 12 for environmental risks and 13 for disposal information.) Do not allow any potentially contaminated water, including rainwater, runoff from firefighting or spills, to enter any waterway, sewer or drain.

SECTION 7: Handling & Storage

- HANDLING : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- STORAGE : Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Take precautionary measures against static discharges. Ground all equipment containing material. All efforts should be made to prevent any leaks or spills. Storage tanks containing should be engineered to prevent contact with water resources, as this material could contaminate the water resources. Surface spills can reach groundwater through porous soil or cracked surfaces. The storage tanks should be monitored regularly for leaks. Where spills or leaks are possible, a comprehensive response plan should be developed and implemented.



SECTION 8: Exposure Controls / Personal Protection

ENGINEERING CONTROLS : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment

PERSONAL PROTECTION

EYES : Safety glasses with side shields
BODY : Flame retardant clothing covering the entire body
RESPIRATORY : Be sure to use a MSHA/NIOSH approved respirator or equivalent at high concentrations
HANDS : Chemical resistant gloves if contact is possible
FEET : Shoes
PERSONAL PROTECTION IN CASE OF A LARGE SPILL : Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

PRODUCT NAME

TOLUENE

EXPOSURE LIMITS

: OSHA PEL Z2 (United States, 11/2006).
TWA: 200 ppm 8 hour(s).
CEIL: 300 ppm
AMP: 500 ppm 10 minute(s).
NIOSH REL (United States, 6/2009).
TWA: 100 ppm 10 hour(s).
STEL: 150 ppm 15 minute(s).
ACGIH TLV (United States, 3/2012).
TWA: 20 ppm 8 hour(s).

ETHYLBENZENE

: OSHA PEL (United States, 11/2006).
TWA: 100 ppm 8 hour(s).
NIOSH REL (United States, 6/2009).
TWA: 100 ppm 10 hour(s).
STEL: 125 ppm 15 minute(s).
ACGIH TLV (United States, 3/2012).
TWA: 20 ppm 8 hour(s).

BENZENE

: NIOSH REL (United States, 6/2009).
TWA: 0.1 ppm 10 hour(s).
STEL: 1 ppm 15 minute(s).
OSHA PEL (United States, 11/2006).
TWA: 1 ppm 8 hour(s).
STEL: 5 ppm 15 minute(s).
ACGIH TLV (United States, 3/2012). Absorbed through skin.
TWA: 0.5 ppm 8 hour(s).

CONSULT LOCAL AUTHORITIES FOR ACCEPTABLE EXPOSURE LIMITS



SECTION 9: Physical and Chemical Properties

Physical State and Appearance	: Liquid. (Liquid)
Colour	: Clear, colorless liquid with characteristic odor (model airplane glue).
Odour	: Not available
Odour Threshold	: 2.5 ppm
Molecular Weight	: 92.15
Molecular Formula	: C ₆ H ₅ -CH ₃
Boiling/Condensation Point	: 110.56°C (231°F)
Melting/Freezing Point	: -95°C (-139°F)
Critical Temperature	: 318.6°C (605.5°F)
Specific Gravity	: 0.866 (Water = 1)
Vapor Pressure	: 28.4 mm of Hg (@ 25°C)
Vapor Density	: 3.1 (Air = 1)
Volatility	: 100% (v/v).
Evaporation Rate	: 2.24 compared to Butyl acetate
VOC	: 100 (%)
Solubility in Water	: 5.1 mg/100 mL at 20°C

SECTION 10: Stability and Reactivity

STABILITY AND REACTIVITY	: The product is stable
CONDITIONS OF INSTABILITY	: No additional remark
INCOMPATIBILITY WITH VARIOUS SUBSTANCES	: Reactive or incompatible with the following materials: Oxidizing materials
HAZARDOUS DECOMPOSITION PRODUCTS	: Under normal conditions of storage and use, hazardous decomposition products should not be produced. In a fire, hazardous decomposition products may be produced
HAZARDOUS POLYMERIZATION	: Under normal conditions of storage and use, hazardous polymerization will not occur

SECTION 11: Toxicological Information

TOXICITY TO ANIMALS

PRODUCT/INGREDIENT NAME	RESULT	SPECIES	DOSE	EXPOSURE
TOLUENE	LD50 Dermal	Rabbit	14100 uL/kg	-
	LD50 Intraperitoneal	Rat	1332 mg/kg	-
	LD50 Intravenous	Rat	1960 mg/kg	-
	LD50 Oral	Rat	636 mg/kg	-
	LD50 Unreported	Rat	6900 mg/kg	-
	LC50 Inhalation Vapor	Rat	49 gm/m ³	4 hours



ETHYLBENZENE	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Dermal	Rabbit	17800 uL/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
	LC50 Inhalation Vapor	Rat	55000 mg/m3	2 hours
BENZENE	LD50 Dermal	Rabbit	>9400 uL/kg	-
	LD50 Intraperitoneal	Rat	1100 ug/kg	-
	LD50 Oral	Rat	930 mg/kg	-
	LD50 Oral	Rat	1 mL/kg	-
	LD50 Oral	Rat	6400 mg/kg	-
	LD50 Oral	Rat	1800 mg/kg	-
	LC50 Inhalation Gas.	Rat	10,000 ppm	7 hours

CHRONIC EFFECTS ON HUMANS

Toluene may cause chronic CNS effects, irritation to the eyes and upper respiratory system.

CARCINOGENIC EFFECTS

Not listed as a carcinogen by OSHA, NTP or IARC. [Toluene]

Classified 2B (Possible for human.) by IARC, Classified A3 (Animal Carcinogen) by ACGIH [Ethylbenzene].

Benzene is a known human carcinogen.

Reproductive effects have been reported in pregnant toluene inhalant abusers following very high (intentional abuse) exposures. Possible decreased ability to produce children and increased spontaneous abortion have also been reported in occupationally exposed female workers. No toluene-induced malformed offspring or significant effects on fertility have been observed in animal studies.

OTHER TOXIC EFFECTS ON HUMANS

Intentional misuse involving repeated and prolonged inhalation exposure to high concentrations of vapor can result in central nervous system damage and eventually death.

Toluene may cause central nervous system (CNS) effects, respiratory tract irritation, eye and skin irritation and intoxication at high doses. Toluene may have an effect on your brain and may impair your ability to think clearly. From animal and human data, toluene can be characterized as a neurotoxic chemical at moderate/high doses, inducing neuromuscular effects and impairment of speech, color vision and hearing. Excessive exposure to toluene may cause cardiac (heart) sensitization, which can be potentially fatal.

Based on the weight-of-evidence, toluene exposure does not appear to affect the immune system in either animals or humans.

Toluene has not demonstrated genotoxic activity, and animal studies indicate that inhalation of toluene does not cause systemic cancer.

SECTION 12: Ecological Information

PRODUCT/INGREDIENT NAME	RESULT	SPECIES	EXPOSURE
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TOLUENE

LC50 (fish). 5.5 mg/L
EC50 3.78 mg/L
IC50 10 mg/L

FISH
DAPHNIA MAGNA
ALGAE

96 hours
48 hours
72 hours

BIODEGRADABLE/OECD

Does not significantly hydrolyze in soil or water under normal environmental conditions. Biodegrades in groundwater and soil. Does not significantly adsorb to sediment or bioconcentrate in aquatic organisms.

MOBILITY

When released into soil, it will be lost by evaporation from near-surface soil and by leaching into the groundwater. Biodegradation occurs in soil and groundwater, but it moves slowly at high concentrations (possibly toxic to microorganisms). The presence of acclimated microbial populations may allow rapid Biodegradation. When released into water, it will evaporate and biodegrade. This may occur rapidly or take several weeks, depending on temperature, mixing conditions, and acclimation of microorganisms. If released to the atmosphere, it will degrade by reaction with photochemically produced hydroxyl radicals (half-life 3 hr to slightly over 1 day) or be washed out in rain. It is not subject to direct photolysis.

SECTION 13: Disposal Considerations

WASTE INFORMATION : Recycle to process, if possible. Recover free liquid. Transfer to safe disposal area in accordance with federal, state and local regulations.

WASTE STREAM : The classification of the product may meet the criteria for a hazardous waste.

Consult your local authorities.

SECTION 14: Transportation Information

DOT Classification for Bulk Shipments (non bulk shipments may differ) 3

PROPER SHIPPING NAME/DESCRIPTION: UN 1294, Toluene, 3,RQ, PG II

UN NUMBER UN 1294

PACKING GROUP: II

MARINE POLLUTANT: not listed in Appendix B to 49CFR172.101

Special Provisions for Transport

TDG Classification 3

IMO/IMDG Classification 3

ICAO/IATA Classification 3

USCG Proper Shipping Name Toluene

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Product name: Toluene

Pollution category: Y



MARPOL 73/78 and the IBC Code Ship type 2G

HCS Classification Flammable liquid Target organ effects

U.S. Federal Regulations

TSCA 8(a) PAIR: toluene

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: To the best of our knowledge, there are no substances that would be at reportable levels for this regulation in this product.

SARA 302/304 emergency planning and notification: toluene; ethylbenzene; benzene SARA

302/304/311/312 hazardous chemicals: toluene; ethylbenzene; benzene

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: toluene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

SARA 313 Supplier Notification

This product contains the following EPCRA section 313 chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372 -Table 372.65).

PRODUCT NAME	CAS #	CONCENTRATION (%)
TOLUENE	108-88-3	>97
ETHYLBENZENE	100-41-4	<2
BENZENE	71-43-2	0.2

CLEAN WATER ACT (CWA) 307: TOLUENE

CLEAN WATER ACT (CWA) 311: TOLUENE

INTERNATIONAL REGULATIONS

WHMIS (CANADA)

Class B-2: Flammable liquid

Class D-2A: Material causing other toxic effects (Very toxic).

Class D-2B: Material causing other toxic effects (Toxic).

CEPA Toxic substances: None of the components are listed.]

Canadian ARET: None of the components are listed.

Canadian NPRI: The following components are listed: Toluene

Alberta Designated Substances: None of the components are listed.

Ontario Designated Substances: None of the components are listed.

Quebec Designated Substances: None of the components are listed

EINECS: 203-625-9

DSCL (EEC)



R11- Highly flammable.
R63- Possible risk of harm to the unborn child.
R48/20- Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R65- Harmful: may cause lung damage if swallowed.
R38- Irritating to skin.
R67- Vapors may cause drowsiness and dizziness.
CEPA DSL/NDL: All components are listed or exempted

INTERNATIONAL LISTS

Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory (ENCS): All components are listed or exempted.
Japan inventory (ISHL): Not determined.
Korea inventory (KECI): All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.

STATE REGULATIONS:

Massachusetts Substances: The following components are listed: TOLUENE; ETHYL BENZENE
New Jersey Hazardous Substances: The following components are listed: TOLUENE; ETHYL BENZENE;
BENZENE
New York Acutely Hazardous Substances: The following components are listed: Toluene; Ethylbenzene;
Benzene
Pennsylvania RTK Hazardous Substances: The following components are listed: BENZENE, METHYL-;
BENZENE, ETHYL-; BENZENE

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

SECTION 15: Regulatory Information

LABEL REQUIREMENTS:

FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE.
MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY BE HARMFUL IF SWALLOWED.
ASPIRATION HAZARD.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LIVER, HEART, RESPIRATORY TRACT, SKIN, EYES,
CENTRAL NERVOUS SYSTEM, BLOOD, LUNGS, BRAIN.
CANCER HAZARD. CONTAINS MATERIAL WHICH CAN CAUSE CANCER.

HAZARDOUS MATERIAL INFORMATION SYSTEM (USA)

HEALTH	2
FIRE HAZARD	3
REACTIVITY	0



SECTION 16: Other Information

Notice to Reader:

This SDS provides the information contained in this document in good faith but makes no representation as to its accuracy. This document is intended solely to guide the safe handling of the material by a properly trained individual. The final determination of the suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be handled with caution. Although some hazards are described, it cannot be guaranteed that these are the only hazards that exist.

Version	Date of Change	Change Description	Responsible Person
1	15-04-2025	Updated to supplier SDS Rev. 1	Laboratory Coordinator

