

Safety Data Sheet

1. IDENTIFICATION

Product Name:	Toluene
Other Names:	Methylbenzene, Toluol
Recommended Use:	Solvent for resin, lacquers, wax, printing ink, adhesives, plastics and polishes agent. Raw material for used in the chemical industry such as paints, rubbers, plastic, cosmetics, pharmaceuticals, and dehydrate agents.
Supplier:	Global Chemie ASCC Limited
Street Address:	88/123 Moo 2 Bangpoo Industrial Estate (North), Phraek Sa Mai, Mueang Samutprakan, Samutprakan 10280
Telephone:	+66 2324 6888
Fax:	+66 2324 6898-99
Emergency phone:	+66 2324 6888 ext.320

2. HAZARDS IDENTIFICATION

Hazardous Nature

This product is classified as hazardous under GHS criteria

Hazardous Classification

Flammable liquids: Category 2

Reproductive toxicity: Category 2

Aspiration hazard: Category 1

Skin Irritation: Category 2

Specific target organ toxicity following single exposure: Category 3

Specific target organ toxicity following repeated exposure: Category 2

Hazardous Statement

Highly Flammable liquid and vapour

GHS Pictograms



Hazard Statements

H225: Highly flammable liquid and vapour.

H361: Suspected of damaging the unborn child.

H304: May be fatal if swallowed and enters airways.

H373: May cause damage to organs through prolonged or repeated exposure.

H315: Causes skin Irritation.

H336: May cause drowsiness or dizziness.

Precautionary Statements

P210: Keep away from heat/sparks/open flames/hot surface and Non-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 measure against static discharge.

P260: Do not breathe dust/fume/gas/mist/vapors/spray.

P261: Do not breathe dust/fume/gas/mist/vapours/spray.

P264: Wash thoroughly after handling.

P271: Use only outdoors or in a well-ventilated area.

P280: Wear protective glove/eye protection/face protection.

Response Statements

If on skin

No data available.

If inhaled

P304+P340: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P314: Get medical advice/attention if you feel unwell.

If swallowed

P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

Storage Statements

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

Disposal Statements

P501: Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Signal Word Danger

3. COMPOSITION: Information on Ingredients

Chemical Ingredient	CAS No.	UN No.	Proportion (%v/v)
Toluene	108-88-3	1294	>99.5

Molecular Formula: $C_6H_5CH_3$

Molecular Weight: 92.13 g/mol

4. FIRST AID MEASURES

For advice, contact Ramathibodi Poison Center (Phone: 1367) or a doctor.

Ingestion

Do not induce vomiting; Do not eat milk and castor oil, transport to nearest medical facility for additional treatment.

Eye Contact

Immediately flush eyes with large amounts of water for at least 10 minutes while holding eyelids open. Transport to the nearest medical facility for additional treatment.

Skin Contact

Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes and follow by washing with soap and water if available.

Inhalation

Remove to fresh air. If the victim has difficulty breathing or tightness of the chest, give 100% oxygen with rescue breathing or CPR as required and transport to the nearest medical facility.

First Aid facilities

Provide eye baths and safety showers.

Medical Attention

Treat according to symptoms. Avoid gastric lavage: risk of aspiration of product to the lungs with the potential to cause chemical pneumonitis.

5. FIRE FIGHTING MEASURES

Shut off product that may 'fuel' a fire if safe to do so. Allow trained personnel to attend a fire in progress, providing firefighters with this Safety Data Sheet. Prevent extinguishing media from escaping to drains and waterways.

Suitable extinguishing media

Water spray or fog, Dry chemical powder, Alcohol-resistant foam and Carbon dioxide.

Hazards from combustion products

May produce toxic fumes of carbon monoxide, carbon dioxide if burning.

Precautions for fire fighters and special protective equipment

Wear full protective clothing and self-contained breathing apparatus.

Special protective action for fire-fighters

Keep adjacent containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures

Protective Measures

- Observe all relevant local and international regulations.
- Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see chapter 8 this Material Safety Data Sheet. Shut off leaks, if possible, without personal risks. Remove all possible sources of ignition in the surrounding area. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
- Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

Clean-Up Methods

Clear area of personnel and move upwind. Prevent, by any means available, spillage from entering drains or water course. Absorb remaining product with sand, earth or vermiculite and wipe up. Collect recoverable product into labelled containers for recycling. Collect residues in a flammable waste container.

7. HANDLING AND STORAGE

Precautions for safe handling

Do NOT cut, drill, grind, weld or perform similar operations on or near containers. Always release caps or seals slowly to ensure slow dissipation of vapors. Do NOT use compressed air for filling discharging or handling operations. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights or ignition sources. Avoid generation of static electricity. Prevent concentration in hollows and sumps.

Conditions for safe storage

Store in original containers in approved flammable liquid storage area. Store away from incompatible materials in a cool, dry, well-ventilated area. DO NOT store in pits, depressions, basements or areas where vapors may be trapped. Protect containers against physical damage and check regularly for leaks. No smoking, naked lights, heat or ignition sources.

Product Transfer

Keep containers closed when not in use. Do not use compressed air for filling, discharging, or handling operations. If positive displacement pumps are used, these must be fitted with a non-integral pressure relief valve. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

8. EXPOSURE CONTROLS: PERSONAL PROTECTION

National Exposure Standards

Occupational Exposure Limits

		OSHA PEL	Australia Exposure std.	NIOSH REL	ACGIH TLV
TWA 8 hrs	PPM	200	50	100	20
Ceiling	PPM	300	-	-	-
STEL 15 minutes	PPM	-	150	150	-
IDLH	PPM	-	-	500	-

Remark: " - " : No data

BEI:

Metabolite	Limit value
O-cresol in Urinal	0.5 mg/L
Hippuric acid in Urinal (Work Finished)	1.6 g/g-Creatinine

Engineering Controls: exposed individuals are reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Personal Protective Equipment

Respiratory Protection: Organic vapor filter of sufficient capacity.

Eye Protection: Chemical splash goggles (chemical monogoggles).

Skin/ Body Protection: Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.

Hand Protection: Wear chemical protective gloves, eg. PVC, Wear safety footwear or safety gumboots, eg. Rubber.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Unit of Measurement	Typical Value
Appearance	-	Colorless Liquid
Odour	-	Aromatic
pH	-	No data available
Boiling point	°C	110.6
Melting point	°C	-95
Flash point	°C	4-4.4 (close cup)
Flammability	-	Flammable
Autoignition Temperature	°C	480
Decomposition Temperature	°C	No data available
Lower/Upper Flammability Limits	%V	1.1-7.1
Density @ 20°C	g/cm ³	0.865-0.871
Specific Gravity @ 20°C	-	0.866-0.872
Viscosity @ 20°C	cSt.s	No data available
Vapor pressure	kPa	2.93 at 20°C / 3.8 at 25°C
Vapor density	kPa (Air = 1)	1.01 at 20°C
Evaporation Rate	(n-Butyl acetate = 1)	No data available
Water Solubility	g/m ³	No data available

Property	Unit of Measurement	Typical Value
Solubility in other solvents Partition coefficient	(n-octanol/water)	Log P _{ow} = 2.69
Coefficient of Thermal Expansion	per Deg °C	No data available
Particle characteristics	-	No data available

The values listed are indicative of this product's physical and chemical properties. For a full product specification, please consult the Product Data Sheet.

10. STABILITY AND REACTIVITY

Chemical Stability

Stable under normal conditions.

Conditions to avoid

Heat, flame, spark and other ignition sources.

Hazardous decomposition products

Carbon monoxide (CO), carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.

Hazardous reactions

No data available.

Hazardous Polymerisation

No data available.

Materials to Avoid

Avoid contact with incompatible materials, acids, rust, catalysts for vinyl polymerisation, 2,5-dimethyl-2,5-di(tertbutylperox) hexane, peroxides, metals salts (e.g., aluminium chloride, copper chlorate, manganese nitrate, etc.)

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

LD ₅₀ Acute oral toxicity	:	636 mg/kg, (rat)
LC ₅₀ Acute Inhalation Toxicity	:	14,100 ul/kg, (rat)
LD ₅₀ Acute Dermal Toxicity	:	49,000 mg/m ³ /4 hours, (rabbit)
TCL ₀ Acute Inhalation Toxicity	:	200 ppm (Human)

Eye Contact

May produce eye irritation. Severe inflammation may be expected with pain.

Skin Contact

May cause moderate inflammation. May damage the health of the individual; systemic effects may result following absorption.

Inhalation

The product can cause respiratory irritation, and irritation can cause further lung damage.

Ingestion

May cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result.

Carcinogenicity

- International Agency for Research on Cancer (IARC): Group 3 Not classifiable as to its carcinogenicity to humans.
- American Conference of Governmental Industrial Hygienist (ACGIH): Group A4 Not classifiable as to its carcinogenicity to humans.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Aquatic Toxicity

Item	Tester	Timing	Value
LC50	Fish: <i>Lepomis macrochirus (Bluegill)</i>	24 hrs.	17 mg/L
LC50	Fish: <i>Lepomis macrochirus (Bluegill)</i>	96 hrs.	13 mg/L
LC50	Fish: <i>Lebistes reticulatus</i>	96hrs.	59.3 mg/L
EC50	Algae: <i>Chlorella vulgaris</i>	24 hrs	245 g/L
NOECs	Algae: <i>Chlorella vulgaris</i>	10 days	250 mg/L
EC50	Crustacea: <i>Daphnia magna</i>	24 hrs.	18 mg/L

Persistence/ degradability

Readily biodegradable.

Mobility

The product is expected to leach with moderate soil mobility.

Bio-accumulation

Product is not likely to accumulate in biological organisms.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Material Disposal

Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classifications and disposal methods in compliance with applicable regulations.

Container Disposal

Drain container thoroughly. After draining, vent in a safe place away from sparks and fire before handling the product or containers. Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums. Send to drum recovered or metal reclaimer.

Local Legislation

Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN. Number	1294	UN. Number	1294	UN. Number	1294
Class/Item	3	Class/Item	3	Class/Item	3
Hazard Symbol	Flammable Liquid	Hazard Symbol	Flammable Liquid	Hazard Symbol	Flammable Liquid
Proper Shipping Name	Toluene	Proper Shipping Name	Toluene	Proper Shipping Name	Toluene
Packing Group	II	Packing Group	II	Packing Group	II
		Marine Pollutant	No		

15. REGULATORY INFORMATION

EC Label Name:	Toluene
EC Classification:	Highly Flammable, Harmful
EINECS (EC):	203-625-9

EC Annex I Number: 601-021-00-3

MITI (Japan): 3-2

US Toxic Substances Control Act

This product and/or its components are on the TSCA Inventory.

European Inventory of Existing Commercial Chemical Substances (EINECS)

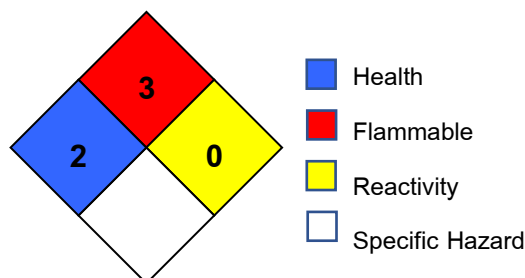
The components of this product are on the EINECS inventory or are exempt from inventory requirements.

HMIS – USA

Health – 2, Flammability – 3, Reactivity – 0

Canada - WHMIS

This product has a WHMIS classification of B2, D2A, D2B.

16. OTHER INFORMATIONNational Fire Protection :
Association (USA)

SDS Distribution : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty of guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Prepared By : Quality Control Department / Global Chemie ASCC Limited

Abbreviations:

DOT: Department of Transportation

ADR: European agreement concerning the international carriage of dangerous goods by road.

RID: Regulations concerning the international carriage of dangerous goods by rail.

IMDG – CODE: International maritime dangerous goods code

ICAO: International Civil Aviation Organization

IATA: International air transport association

GHS: Globally Harmonized System of Classification and labelling of Chemicals

CLP: Classification and labelling of Packaging

IARC: International Agency for Research on Cancer

NFPA: National Fire Protection Association

OSHA: Occupational Safety and Health Administration

NIOSH: The National Institute for Occupational Safety and Health

ACGIH: American Conference of Industrial Hygienists

WHMIS: Workplace Hazardous Materials Information System

References:

- Supplier Material Safety Data Sheets
- <http://chem.sis.nlm.nih.gov/chemidplus> (October 18)
- *Sax's Dangerous Properties of Industrial Materials*, Richard J. Lewis Snr., pub. Canada (2000)

The information sourced for the preparation of this document was correct and complete at the time of writing to the best of the writer's knowledge. The document represents the commitment to the company's responsibilities surrounding the supply of this product, undertaken in good faith. This document should be taken as a safety guide for the product and its recommended uses but is in no way an absolute authority. Please consult the relevant legislation and regulations governing the use and storage of this type of product. No warranty and guarantee are expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product for further information, please contact Global Chemie ASCC Limited.