

EMERGENCY NUMBERS:

 (USA) CHEMTREC : 1(800) 424-9300 (24hrs)
 (CAN) CANUTEC : 1(613) 996-6666 (24hrs)
 (USA) Anachemia : 1(518) 297-4444
 (CAN) Anachemia : 1(514) 489-5711

WHMIS	Protective Clothing	TDG Road/Rail
WHMIS CLASS: B-2 D-2A D-2B		TDG CLASS: 3 PIN: UN1294 PG: II
 	   	

Section I. Product Identification and Uses

Product name	TOLUENE	CI#	Not available.
Chemical formula	C ₆ H ₅ CH ₃	CAS#	108-88-3
Synonyms	Methylbenzene, Phenylmethane, Toluol, AC-9165, AC-9165SC, AC-9165PG, GD-9165, AC-9165P, AC-9165T, AC-9166, M-12099, 92368, 92362, 92376	Code	AC-9165
Supplier	255 Norman. Lachine (Montreal), Que H8R 1A3	Formula weight	92.14
		Supersedes	
Material uses	For laboratory use only.		

Section II. Ingredients

Name	CAS #	%	TLV
1) TOLUENE	108-88-3	>99	Exposure limits: ACGIH TWA 20 ppm
2) DIMETHYLBENZENE	1330-20-7	0.1-1	Exposure limits: ACGIH TWA 100 ppm ; STEL 150 ppm
3) BENZENE	71-43-2	<100 ppm	Exposure limits: ACGIH TWA 0.5 ppm (1.88 mg/m ³); STEL 2.5 ppm (9.4 mg/m ³) (skin)

Toxicity values of the hazardous ingredients

 TOLUENE:
 ORAL (LD50): Acute: 636 mg/kg (Rat).
 ORAL (LDLo): Acute: 50 mg/kg (Human).
 DERMAL (LD50): Acute: 14100 ul/kg (Rabbit).
 VAPOR (LC50): Acute: 49000 mg/m³ (Rat) (4 hour(s)). 400 ppm (Mouse) (24 hour(s)).

Section III. Physical Data

Physical state and appearance / Odor	Clear, colorless liquid with aromatic odour.
pH (1% soln/water)	Not applicable.
Odor threshold	2.1 ppm
Percent volatile	100% (V/V)
Freezing point	-95°C
Boiling point	110 to 111°C
Specific gravity	0.87 (Water = 1)
Vapor density	3.17 (Air = 1)
Vapor pressure	52.5 mm Hg @ 38°C
Water/oil dist. coeff.	Log P = 2.59
Evaporation rate	2.24 (n-Butyl acetate = 1).
Solubility	Insoluble in cold water.

Section IV. Fire and Explosion Data

Flash point	CLOSED CUP: 4°C (Tag Closed Cup)
Flammable limits	LOWER: 1.1% UPPER: 7.1%
Auto-ignition temperature	480°C
Fire degradation products	Oxides of carbon (CO, CO ₂).
Fire extinguishing procedures	Use DRY chemical, carbon dioxide, or foam. DO NOT use water except as fog. Wear adequate personal protection to prevent contact with material or its combustion products. Self contained breathing apparatus with a full facepiece operated in a pressure demand or other positive pressure mode. Cool containing vessels with flooding quantities of water until well after fire is out.
Fire and Explosion Hazards	Extremely flammable. Vapors formed from this product may travel or be moved by air currents and ignited by pilot lights, other flames, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from handling point. Vapor forms explosive mixture with air. Container explosion may occur under fire conditions or when heated. Contact with oxidizers may cause fire and/or explosion. Sensitive to static discharge. The product is not sensitive to impact. Liquid can accumulate static charge by flow or agitation. Emits toxic fumes under fire conditions. This material may produce a floating fire hazard.

Section V. Toxicological Properties

Routes of entry	Inhalation and ingestion. Eye contact. Skin contact. Skin absorption.
Effects of Acute Exposure	May be fatal by inhalation or ingestion. Irritant. May cause liver or kidney damage. Exposure to and/or consumption of alcohol may increase toxic effects. Target organs: blood, central nervous system, liver, kidneys, bladder, brain, skin, eyes, respiratory system. 500 ppm (TOLUENE) is immediately dangerous to life or health.
Eye	Causes severe irritation. IRRITATION: EYE-RABBIT 2 mg/24H SEVERE(TOLUENE).
Skin	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Readily absorbed through skin. IRRITATION: SKIN-RABBIT 20 mg/24H MODERATE (TOLUENE)
Inhalation	Material is irritating to mucous membranes and upper respiratory tract. May cause central nervous system depression (headache, dizziness, nausea, fatigue, muscle weakness, narcosis, confusion, incoordination). May have anesthetic effect with prolonged use. May cause delayed lung injury. Inhalation of vapors may cause dizziness, an irregular heartbeat, narcosis, nausea or asphyxiation. Exposure can cause lung irritation, chest pain and oedema which may be fatal. In rare cases may sensitize heart muscle causing heart arrhythmia.
Ingestion	Causes gastrointestinal irritation. Nausea, vomiting, diarrhea, and unconsciousness. The liquid is highly toxic when taken into lungs, causing severe chemical pneumonitis (may be fatal).

Section V. Toxicological Properties

Effects of Chronic Overexposure Cardiac sensitization, blood, liver and kidney damage. Can cause gastrointestinal disturbances. Inhalation studies on toluene have demonstrated the development of inflammatory and ulcerous lesions of the penis, prepuce and scrotum in animals. Repeated or prolonged skin contact may cause dermatitis. Solvent abusers exposed to high doses of aromatic solvents (e.g. toluene/xylene) show signs of hearing loss as well as damage to the brain, liver and kidney. Embryotoxic and/or foetotoxic in animal. Passes through the placental barrier in human. Detected in maternal milk in human. Carcinogenic effects: Not available. Mutagenic effects: Not available. Teratogenic effects: Not available. To the best of our knowledge, the chemical, physical, and toxicity of this substance has not been fully investigated. Medical conditions which may be aggravated: Individuals with preexisting diseases of the skin, eye, or respiratory system may be more susceptible to the toxicity of overexposure to this product.

Section VI. First Aid Measures

Eye contact Immediately flush eyes with copious quantities of water for at least 15 minutes holding lids apart to ensure flushing of the entire surface. Seek immediate medical attention.

Skin contact Immediately flush skin with plenty of water and soap for at least 15 minutes while removing contaminated clothing and shoes. If irritation occurs or persists seek medical attention. Wash contaminated clothing before reusing.

Inhalation Remove patient to fresh air. Administer approved oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Seek immediate medical attention.

Ingestion DO NOT induce vomiting. If conscious, wash out mouth with water. Seek immediate medical attention. Never give anything by mouth to an unconscious or convulsing person. Guard against aspiration into lungs. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. See section 10.

Section VII. Reactivity Data

Stability Stable. Conditions to avoid: High temperatures, sparks, open flames and all other sources of ignition, contamination.

Hazardous decomp. products Not available.

Incompatibility Oxidizing agents, acids, alkalis, nitric acid, sulfuric acid, halogens, silver perchlorate, nitrogen tetroxide, tetranitromethane, uranium hexafluoride, 1,3-dichloro-5,5-dimethyl-2,4-imidazolidione, sulfur, bromine trifluoride, nitrogen dioxide. Avoid natural, butyl and neoprene rubbers. Avoid prolonged contact with nitrile rubber and PVC.

Reaction Products Not available. Hazardous polymerization will not occur.

Section VIII. Preventive Measures

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Protective Clothing in case of spill and leak	Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Full suit.
Spill and leak	Evacuate the area. Eliminate all sources of ignition and ensure that all handling equipment is electrically grounded. Stop leak if without risk. Dyke the area with sand or a natural barrier. Absorb on sand or vermiculite and place in a closed container for disposal. Use water spray curtain to divert vapor drift. Use non-sparking tools. Transport outdoors. Ventilate area and wash spill site after material pick up is complete. DO NOT empty into drains. DO NOT touch damaged container or spilled material. Stay upwind: Keep out of low areas.
Waste disposal	Burn in a chemical incinerator equipped with an after burner and scrubber. According to all applicable regulations. Avoid run off. Harmful to aquatic life at low concentrations. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.
Storage and Handling	Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area. Store away from incompatible materials. Do not add any other material to the container. Do not wash down the drain. Do not breathe gas/fumes/vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. Keep away from direct sunlight or strong incandescent light. Keep container tightly closed and dry. Manipulate under an adequate fume hood. Take precautionary measures against electrostatic discharges. Ground the container while dispensing. Ground all equipment containing material. Use only explosion proof equipment. Use non-sparking tools. Watch for accumulation in low confined areas. Do not use pressure to dispense. Empty containers may contain a hazardous residue. Handle and open container with care. Take off immediately all contaminated clothing. This product must be manipulated by qualified personnel. Do not get in eyes, on skin, or on clothing. Wash well after use. In accordance with good storage and handling practices. Do not allow smoking and food consumption while handling. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. In case of accident or if you feel unwell, seek medical advice immediately (show the label when possible.).

Section IX. Protective Measures

Protective clothing	Splash goggles. Impervious polyvinyl alcohol gloves, apron, coveralls, and/or other resistant protective clothing. Sufficient to protect skin. Prior to use, user should confirm impermeability. Have available and use as appropriate: face shields, suits, aprons, and boots. A OSHA/MSHA jointly approved respirator is advised in the absence of proper environmental controls. If more than TLV, do not breathe vapor. Wear self-contained breathing apparatus. Do not wear contact lenses. Make eye bath and emergency shower available. Ensure that eyewash station and safety shower is proximal to the work-station location.
Engineering controls	Use only in a chemical fume hood to keep airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Do not use in unventilated spaces. Vapors are heavier than air and may travel along the ground or pool in low areas. Because vapor is heavy, ventilation must be provided at floor level as well as at higher levels.

Section X. Other Information

Special Precautions or comments	Extremely flammable liquid! Harmful liquid! Embryotoxic and/or foetotoxic! Irritant! Do not breathe vapor. Avoid all contact with the product. Avoid prolonged or repeated exposure. Use only in a chemical fume hood. Keep away from heat, sparks and flame. Take precautionary measures against static discharges. Use non-sparking tools. Liquid can accumulate static charge by flow or agitation. Bond and ground transfer containers and equipment to avoid static accumulation. Handle and open container with care. Container should be opened only by a technically qualified person. NOTE TO PHYSICIAN: This product contains materials that may cause severe chemical pneumonitis if aspirated. If more than 2.0 ml/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered. RTECS NO: XS5250000 (Toluene).
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NFPA

Prepared by MSDS Department/Département de F.S..

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