

SAFETY DATA SHEET

According to Regulation (EC) No 453/2010

Version 1.2

Revision Date: 14.12.2016

Printing Date: 14.12.2016

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name : **Toluene**
 Included product code : TOL010-2.5, TOL010-4.0, TOL012-2.5, TOL012-4.0,
 TOL011-2.5P, TOL011-25P, TOL011-25M,
 TOL011-200M, TOL008-2.5P, TOL008-25P,
 TOL008-25M, TOL008-200M

1.2 Relevant identified uses of the substance or mixture

Identified uses : Laboratory chemicals, Manufacture of substances
 Uses advised against : Not applicable

1.3 Details of the supplier of the safety data sheet

Company : Elite Advanced Materials Sdn Bhd
 Lot 34, Jalan RP2, Rawang Perdana Industrial
 Estate, 48000 Rawang, Selangor, Malaysia

E-mail address : enquiry@eamaterials.com

1.4 Emergency telephone number

Emergency phone : +60 3-6091 4200 (Local business hours only)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flammable liquids	Category 2
Skin corrosion/irritation	Category 2
Reproductive toxicity	Category 2
Specific target organ toxicity - single exposure, Central nervous system	Category 3

Specific target organ toxicity - repeated exposure	Category 2
Aspiration hazard	Category 1

2.2 Label elements

Labelling according to CLASS regulations 2013

Hazard pictograms



GHS02



GHS07



GHS08

Signal word

Danger

Hazard statements

H225	Highly flammable liquid and vapour
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P210	Keep away from heat/ sparks/open flames/hot surfaces. — No smoking
P240	Ground/bond container and receiving equipment
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P281	Use personal protective equipment as required.

Response

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331	Do NOT induce vomiting.

P370 + P378

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

2.3 Other hazards

Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Synonyms : Methylbenzene, Methyl benzol, Toluol, Toluole, Phenylmethane

Formula : C₇H₈

Molecular Weight : 92.14 g/mol

CAS-No. : 108-88-3

Component	Identity	Classification Code	H-Code	Concentration (by wt)
Toluene	CAS-No. : 108-88-3	Flam. Liq. 2	H225	<=100 %
	EC-No. : 203-625-9	Skin Irritat. 2	H315	
	Index-No. : 601-021-00-3	Repr. 2	H361d	
		STOT SE 3	H336	
		STOT SE 2	H373	
		Asp. Tox. 1	H304	

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid measures

General information

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water for 15 minutes. Consult a physician.

In case of eye contact

Flush eyes with plenty of water for 15 minutes as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with plenty of water for 15 minutes. Consult a physician.

4.2 Most important symptoms and delayed symptoms and effects

Irritant effects, respiratory paralysis, respiratory arrest, drowsiness, dizziness, unconsciousness, inebriation, nausea, vomiting, circulatory collapse, headache, convulsions, CNS disorders, death

4.3 Indication of any immediate medical attention and special treatment

No data available.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Extinguish with carbon dioxide, dry chemical or foam. In the event of fire, cool tanks with water spray.

Unsuitable extinguishing media

None

5.2 Special hazards arising from the substance or mixture

Combustible

Vapours are heavier than air and may spread along floors

Form explosive mixtures with air at ambient temperatures

Pay attention to flashback

Development of hazardous combustion gases or vapours possible in the event of fire

5.3 Advice for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precaution for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Handle and store under inert gas.

7.3 Specific end use

No further relevant information available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Toluene	TWA: 20 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 375 mg/m ³ Ceiling: 300 ppm (Vacated) STEL: 150 ppm (Vacated) STEL: 560 mg/m ³ TWA: 200 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m ³ STEL: 150 ppm STEL: 560 mg/m ³

8.2 Exposure control

Personal protection measures, such as personal protective equipment

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas. Wash hands before breaks and at the end of workday.

Eye/ face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact

Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

*Source – Sigma, 2015

Body protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	colorless
Ordor	:	aromatic
Ordor threshold	:	1.74 ppm
pH - value	:	Not determined
Melting point / Range	:	-95 °C
Boiling point / Range	:	110.6 °C
Flash point	:	4.0 °C [closed cup]
Evaporation rate	:	2.4 (Butyl acetate = 1.0)
Flammability limit - LEL	:	1.2 % (V)
Flammability limit - UEL	:	7 % (V)
Vapour pressure	:	29.1 hPa at 20.0 °C
Vapor density (air = 1)	:	3.2 (Air = 1.0)
Density	:	0.8669 g/cm ³ at 20.0 °C
Bulk density	:	Not determined
Solubility(ies)	:	Not determined
Water solubility	:	0.52 g/l at 20 °C
Partition coefficient: n-octanol/water:		log Pow: 2.65
Auto-ignition temperature	:	535.0 °C
Decomposition temperature	:	Not determined
Viscosity	:	0.6 mPa.s at 20°C
Explosive properties	:	Not determined
Oxidising properties	:	Not determined

9.2 Other information

Not applicable

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Vapours may form explosive mixture with air.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature)

10.3 Possibility of hazardous reactions

Risk of explosion with:

Fuming sulfuric acid, nitric acid, silver, perchlorates, nitrogen dioxide, nonmetallic halides, acetic acid, halogen-halogen compounds, uranium hexafluoride, organic nitro compounds

Violent reactions possible with:

Strong acids, strong oxidising agents

Sulfur with heat

10.4 Conditions to avoid

Heat, flames and sparks

10.5 Incompatible materials

Rubber, various plastics

10.6 Hazardous decomposition products

Carbon monoxides, Carbon dioxides (Hazardous decomposition products from under fire condition)

SECTION 11: TOXICOLOGY INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Toluene	> 5,000 mg/kg (Rat)	12,000 mg/kg (Rabbit)	26,700 ppm/1h (Rat)

Skin corrosion/irritation

Skin - Rabbit - Skin irritation - 24 h.

Serious eye damage/eye irritation

Eyes - Rabbit - No eye irritation - OECD Test Guideline 405

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

Genotoxicity in vitro - Rat - Liver

DNA damage

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Toluene)

Reproductive toxicity

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 - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available.

Aspiration hazard

No data available.

Potential health effects

Inhalation Harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.

Ingestion Harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.

Skin Harmful if absorbed through skin. Causes skin irritation.

Signs and Symptoms of Exposure

Lung irritation, chest pain, pulmonary edema. Inhalation studies on toluene have demonstrated the development of inflammatory and ulcerous lesions of the penis, prepuce, and scrotum in animals. Central nervous system.

Additional Information

RTECS: XS5250000

SECTION 12: ECOLOGY INFORMATION

12.1 Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Toluene	EC50 = 12.5mg/L/72h EC50 > 433 mg/L/96h	LC50 = 50 – 70 mg/L/96h LC50 = 5 – 7 mg/L/96h LC50 = 15 – 19 mg/L/96h LC50 = 28 mg/L/96h LC50 = 12 mg/L/96h	EC50 = 19.7 mg/L/30 min	EC50 = 11.5 mg/L/48h EC50 = 5.46 – 9.83 mg/L/48h

12.2 Persistence and degradability

Biodegradability Result: - Readily biodegradable

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 Other adverse effects

Toxic to aquatic life.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment method

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 1294

IMDG: 1294

IATA-DGR: 1294

14.2 UN proper shipping name

ADR/RID: TOLUENE

IMDG: TOLUENE

IATA-DGR: TOLUENE

14.3 Transport hazard class(es)

ADR/RID: 3

IMDG: 3

IATA-DGR: 3

14.4 Packaging group

ADR/RID: II

IMDG: II

IATA-DGR: II

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA-DGR: no

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

No data available

14.7 Special precautions for user

No data available

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

No data available

SECTION 16: OTHER INFORMATION

This information is based on present level of our knowledge, however, this shall not constitute a guarantee product features and shall not establish a legally valid contractual relationship.

Abbreviations:

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

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association

ICAO : International Civil Aviation Organization

RID : Regulations concerning the International Carriage of Dangerous goods by rail.

Notice to reader

The information contained in this Safety Data Sheet is based on the present state of knowledge and current national legislation. It provides guidance on health, safety and environmental aspects of the products and should not be construed as any guarantee of technical performance or suitability for particular application.

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