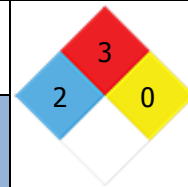




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1 Identification of the substance or mixture and of the supplier

1.1. Product name or GHS product identifier

1.1.1. Common name :	TOLUENE
1.1.2. Chemical formula :	
1.1.3. Commercial name :	TOLUENE
1.1.4. CAS number :	108-88-3
1.1.5. Molecular weight :	

1.2. Other product identifier :

1.2.1. UN Number :	1294
1.2.2. Annex I, EU directive 67/948/EC :	203-625-9
1.2.3. EC number :	601-021-00-3

1.3. Recommendation for use and other prohibitions for use

1.4. Manufacturer or Supplier Details

1.4.1. Manufacturer or Supplier	1.4.2. Address
PTT Global Chemical Public Company Limited	4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong 21150 Thailand.
1.4.3. Telephone number :	66(0) 3899-4000 ext. 5755, 5799
1.5. Emergency telephone number :	66(0) 3897-2222

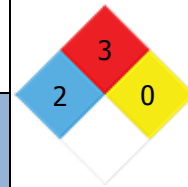
1.6. Other information

1.6.1. Hazardous substance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
1.6.2. Hazardous category	N/A	
1.6.3. Max quantity storage		
1.6.4. Uses		
1.6.5. Other		



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Hazards identification

2.1. GHS classification of the substance/mixture and any national or regional information

2.1.1. Hazard classification according to the GHS

Flammable liquids - Category 2
Acute Toxicity: Oral - Category 5
Acute Toxicity: Inhalation - Category 4
Skin Corrosion/Irritation - Hazard category 2 Irritant
Toxic To Reproduction - Hazard category 1 (Both 1A and 1B)
Specific Target Organ Toxicity (Repeated Exposure) - Category 2
Aspiration Hazard - Hazard category 2

2.2. GHS label elements, including precautionary statements

2.2.1. Chemical name :

2.2.2. Product name or GHS product identifier :

TOLUENE

2.2.3. Symbol and Hazard pictograms



2.2.4. Signal words :

Danger

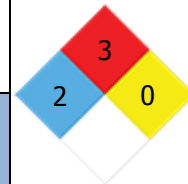
2.2.5. Hazard statement

Highly flammable liquid and vapour
May be harmful if swallowed
Harmful if inhaled
Causes skin irritation
May damage fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
May cause damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
May be harmful if swallowed and enters airways



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2

Hazards identification (cont.)

2.2.6. Precautionary information

- Keep away from heat, [sparks] [and flame] [- No Smoking]
- Keep container tightly closed
- Use CO2, dry chemical, or foam
- Wear protective clothing and gloves (specify protective clothing and type of gloves)
- Wear protective eyewear (goggles, face shield, or safety glasses)
- Avoid contact with skin and eyes
- Prevent release to the environment

2.2.7. Supplemental information

2.3. Other hazards which do not result in classification or are not covered by the GHS

2.3.1. Potential Chronic Health Effects

2.3.1.1. Carcinogen effects

- Maybe-Carcinogen Carcinogen Non-Carcinogen N/A

ACGIH Type 4: A4 Not Classifiable as a Human Carcinogen

2.3.1.2. Mutagenic effects

- Mutagenic Non-Mutagenic N/A

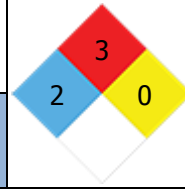
2.3.1.3. Other information

2.4. Environmental Hazards



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3

Composition / information on ingredients

3.1. Homogeneous substance

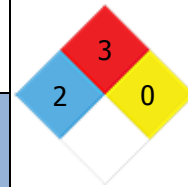
3.1.1. Chemical identity :	TOLUENE
3.1.2. Common name :	TOLUENE
3.1.3. Synonym :	Toluol, Tolu-Sol; Methylbenzene; Methacide
3.1.4. CAS number and other unique identifiers :	108-88-3

3.1.5. Impurities and stabilizing additives



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4

First-aid measures

4.1. First-aid

4.1.1. Inhalation

Move to fresh air. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician

4.1.2. Skin contact

If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

4.1.3. Eyes contact

Immediately flush eye (s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

4.1.4. Ingestion

Keep respiratory tract clear. Never give anything by mouth to an unconscious person. Take victim immediately to hospital.

4.2. Most important symptoms/effects

4.2.1. Acute Effects

4.2.2. Delayed effects

4.3. Indication of immediate medical attention

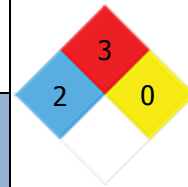
4.4. Special treatment needed, if necessary.

4.5. Other



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5

Firefighting measures

5.1. Unsuitable extinguishing media :

none

5.2. Suitable extinguishing media :

water spray , Dry chemical, Carbon dioxide (CO₂), Alcohol-resistant foam

5.3. Specific hazards arising from the chemical.

5.4. Special protective equipment and precautions for fire-fighters.

SCBA

5.5. Precautions for fire fighters.

5.6. Other.

6

Accidental release measures

6.1. Personal precautions

Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations.

6.2. Protective equipment



6.3. Emergency procedures

6.3.1. Large Spill

-

6.3.2. Small Spill

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations.

6.4. Environmental precautions

Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities

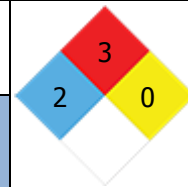
6.5. Methods and materials for containment and cleaning up.

No smoking. 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.



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7

Handling and storage

7.1. Precautions for safe handling.

Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Smoking, eating and drinking should be prohibited in the application area.

7.2. Incompatibility.

7.2.1. Safe storage condition.

Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

7.2.2. Incompatible chemicals condition.

7.3. Storage area :

GC4

7.4. Incompatible chemicals condition.

7.5. Hazard Class by UN :

7.6. Classification :

8

Exposure controls/personal protection

8.1. Occupational exposure limit values or biological limit values

Name	TLV-TWA	TLV-STEL	TLV-C	PEL	IDLH	Thai	biological limit values
	20 ppm			200 ppm	500 ppm	200 ppm	

8.2. Appropriate engineering controls

8.3. Personal protective equipment



8.4. Personal hygiene

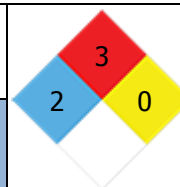
Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure.

8.5. Other protection



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Physical and chemical properties

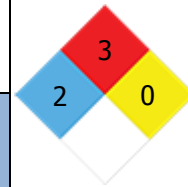
9.1. Appearance :	Liquid Clear		
9.2. Odour :			
9.3. Odour threshold limit :	1.6 ppm		
9.4. pH-value :	7 neutral		
9.5. Melting point & Freezing point :	Melting point	-95 °C	
	Freezing point	na °C	
9.6. Initial boiling point/Boiling range	Boiling/condensation point	110.6 °C	
	Evaporation rate	na °C – na °C	
9.7. Flash point :	4.4 °C (Close cup)		
9.8. Evaporation rate :	na mg/sec		
9.9. Flammability (solid, gas) :	Burning time	- sec	
	Burning Rate	- mm/sec	
9.10. Upper/lower flammability or explosive limits :	1.1 % LEL and/or 7.1 %UEL		
9.11. Vapour pressure :	9 kPa at 20 °C		
9.12. Vapour density :	Respect to air	3.1 kPa	
9.13. Relative density :	na g/cm ³ or kg/m ³ at 20 °C		
9.14. Solubility(ies) :			
9.15. Partition coefficient : n-octanol/water :	na		
9.16. Auto-ignition temperature :	480 °C		
9.17. Decomposition temperature :	na °C		
9.18. Viscosity :	na		
9.19. Heat of Combustion :	- °C		
9.20. The ignition distance test :	- cm		
9.21. The enclosed space ignition test	na s/m ³		
9.22. The foam test :	Vapor density	na	cm
	Flames burning up	na	sec

Detail	Type of Substance		Unit
	Other substance	Powders or dusts	
Use water spray to blanket fire, cool fire exposed containers, to stop leak, and burn	-	-	minute
Burning time	-	-	sec
Burning rate	-	-	mm/s



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Stability and reactivity

10.1. Reactivity

Reacts violently with (some) halogens. Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion. Violent to explosive reaction with (some) acids.

10.2. Chemical Stability :

- Stability Instability and emit gas N/A

10.3. Possibility of Hazardous reaction :

No additional information available

10.4. Conditions to avoid :

Heat. Direct sunlight. Sparks. Open flame.

10.5. Incompatible materials :

Strong oxidizers.

10.6. Hazardous decomposition products :

Carbon dioxide. Carbon monoxide.

10.7. Corrosively :

11

Toxicological information

11.1. Route of Exposure Inhalation Ingestion Skin contact Eye contact

11.2. Symptoms related to the physical, chemical and toxicological characteristics

11.2.1. Symptom related with physical characteristic

11.2.2. Symptom related with chemical characteristic

11.2.3. Symptom related with toxicology

11. The impact of acute and delayed (delayed and immediate effects) including chronic (chronic effects) exposure (Contact delayed, immediate and chronic effects)

:

11.4. Numerical measures of toxicity

11.4.1. Acute oral toxicity : 636 mg/kg (rat)

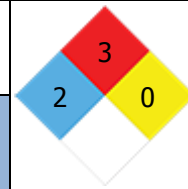
11.4.2. Acute dermal toxicity : 14100 mg/kg (rabbit)

11.4.3. Acute toxic of the vapour : 440 mg/kg (rat) in 24 hr.



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Ecological information

12.1. Eco toxicity (aquatic and terrestrial, where available)

12.1.1. Toxicity to fish : 5.8 mg/l 96 hr.

12.1.2. Crustaceans / Toxicity to crustaceans : 11.5 mg/l 48 hr.

12.1.3. Algae / Toxicity to algae : 12.5 mg/l 72 hr.

12.2. Degradability and persistence

Biodegradable in the soil. Readily biodegradable in water.

12.3. Bio-accumulative potential : Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil :

12.5. Other adverse effects :

13

Disposal considerations

13.1. Waste information : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemi

13.2. Remain materials :

13.3. Waste disposal : Send to a licensed waste management company

13.4. Package contaminated disposal :

14

Transport information

14.1. UN Number : 1294

14.2. UN Proper Shipping Name : TOLUENE

14.3. Transport Class/Division : 3.0

14.4. Package group (if any) : II

14.5. Marine pollution : Yes No N/A

14.6. Special precautionary for user :

14.7. Transport in bulk :

14.8. Classification code :

14.9. Other :

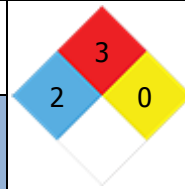
Pictogram





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Regulatory information

15.1. Safety, health and environmental regulations

Listed on the Canadian IDL (Ingredient Disclosure List)

16

Regulatory information

16.1. Date of latest issue

2/4/2020

16.2. Description of point of Safety Data Sheet changing

16.3. Abbreviation explanation

NFPA Hazard Code	HMIS Hazard	Rating System
Hazardous decomposition products Health hazard Possibility of hazardous reactions Specific hazards arising from the chemical	2 Health	0 = No hazard 1 = Slight hazard 2 = Moderate hazard 3 = Serious hazard 4 = Severe hazard
	3 Flammability	
	0 Reactivity	

16.4. Information Safety Data Sheet files

Primary Reference :

Secondary Reference :

16.5. Local Legislation Related

16.6. Reference

16.7. Other details

TOLUENE

NFPA Rating



Emergency Call

66(0) 3897-2222

UN Number : 1294 CAS Number : 108-88-3

Flash point : 4.4°C Auto-ignition : 480°C

TWA-TLV : 20 ppm Classification :

Hazard Statement

Highly flammable liquid and vapour, May be harmful if swallowed, Harmful if inhaled, Causes skin irritation, May damage fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively pro



Health Effects

, Fatal if swallowed, Harmful if inhaled, Causes skin irritation, May cause damage to organs through prolonged or repeated exposure, Suspected of damaging fertility or the unborn child

Protective equipment

Gloves, Safety glasses, Head/neck protection, Protective clothing. Full face mask with filter type A at conc. in air > exposure limit



first aid

Move to fresh air. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician, If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes., Immediately flush eye (s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist., Keep respiratory tract clear. Never give anything by mouth to an unconscious person. Take victim immediately to



Unsuitable extinguishing media

Water spray , Dry chemical, Carbon dioxide (CO₂), Alcohol-resistant foam



Hazardous Materials Handling and Storage

Store at ambient temperature. Ventilation at floor level. Fireproof storeroom. Provide for a tub to collect spills. Provide the tank with earthing. Under a shelter/in the open. Store only in a limited quantity. May be stored under nitrogen. Meet the legal requirements. Keep out of direct sunlight



Methods and materials for containment and cleaning up

Liquid spill: cover with foam. Take up liquid spill into inert absorbent material, e.g.: sand, earth, vermiculite. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

For more information please contact :

038-972222

Code No. 10040111

Number of Revision :

3

Warning :

TOLUENE

UN No : 1294

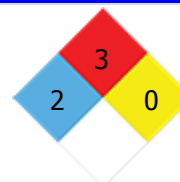
CAS No : 108-88-3



Signal words : Danger

Hazard statement :

Highly flammable liquid and vapour, May be harmful if swallowed, Harmful if inhaled, Causes skin irritation, May damage fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively pro



First Aid :

Move to fresh air. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician. If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes., Immediately flush eye (s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist., Keep respiratory tract clear. Never give anything by mouth to an unconscious person. Take victim immediately to hospital.

Precautionary information :

- Keep away from heat, [sparks] [and flame] [- No Smoking]
- Keep container tightly closed
- Use CO2, dry chemical, or foam
- Wear protective clothing and gloves (specify protective clothing and type of gloves)
- Wear protective eyewear (goggles, face shield, or safety glasses)
- Avoid contact with skin and eyes
- Prevent release to the environment

Emergency number :

66(0) 3897-2222

Manufacturer or Supplier Details

Company : PTT Global Chemical Public Company Limited

Address : 4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong 21150 Thailand.

Telephone number : 66(0) 3899-4000 ext. 5755, 5799

Protective equipment

