

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1 Product identifier**

Product name	TOLUENE
CAS-No.	108-88-3
Product code	AH1348, AR1207, CG1207, GP1207, IR1347, LC1347, PC1347, RP1347, SM1207

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses	Chemical for analysis and production.
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**1.3 Details of the supplier of the safety data sheet**

Company	RCI LABSCAN LIMITED. 24 Rama 1 Road, Pathumwan, Bangkok 10330 Thailand
Telephone number	(662) 613-7911-4
Fax number	(662) 613-7915

**1.4 Emergency Telephone Number**

Emergency phone	(662) 613-7911-4
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**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008**

Flammable liquids (Category 2), H225  
 Skin irritation (Category 2), H315  
 Reproductive toxicity (Category 2), H361d  
 Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336  
 Specific target organ toxicity - repeated exposure (Category 2), H373  
 Aspiration hazard (Category 1), H304  
 For the full text of the H-Statements mentioned in this Section, see Section 16.

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

F	Highly flammable	R11 R63
Xn	Harmful	R48/20, R65
Xi	Irritant	R38 R67

For the full text of the R-phrases mentioned in this Section, see Section 16.

**2.2 Label elements**

**Labelling according Regulation (EC) No 1272/2008**

Pictogram



Signal word

Danger

Hazard statement(s)

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 statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No 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 measures against static discharge.
P260	Do not breathe vapours.
P261	Avoid breathing vapours.
P264	Wash hand thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/eye protection/face protection.
P281	Use personal protective equipment as required.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P314	Get medical advice/attention if you feel unwell.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use carbon dioxide, dry chemical or foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

2.3 Other hazards None

### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

Synonyms Methylbenzene, Methyl benzol, Toluol, Toluole.

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
108-88-3	203-625-9	601-021-00-3	C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub>	92.14 g/mol	>99

#### Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Concentration	Classification
<b>Toluene</b>		
CAS-No 108-88-3 EC-No 203-625-9 EC-Index-No 601-021-00-3	>99%	Flammable liquids (Category 2), H225 Skin irritation (Category 2), H315 Reproductive toxicity (Category 2), H361d Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336 Specific target organ toxicity - repeated exposure (Category 2), H373 Aspiration hazard (Category 1), H304

**Hazardous ingredients according to Directive 1999/45/EC**

Component	Concentration	Classification
<b>Toluene</b>		
CAS-No 108-88-3 EC-No 203-625-9 EC-Index-No 601-021-00-3	>99%	F, Highly flammable, R11 R63 Xn, Harmful, R48/20, R65 Xi, Irritant, R38 R67

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

**SECTION 4: First aid measures****4.1 Description of first aid measures**

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Move to fresh air in case of accidental inhalation of vapors. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus.
Skin contact	Remove contaminated clothing and wash affected skin with soap and water. If signs of poisoning appear, treat as for inhalation. Obtain medical attention. Wash contaminated clothing before reuse. Contaminated combustible material, e.g. clothing ignites more readily and burns fiercely.
Eye contact	If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention.
Ingestion	Rinse mouth. Do not induce vomiting. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. Obtain medical attention. Never give anything by mouth to an unconscious person.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in section 2.2 and section 11

**4.3 Indication of any immediate medical attention and special treatment needed**

Not Available

**SECTION 5: Firefighting 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.

**5.2 Special hazards arising from the substance or mixture**

Vapors may form explosive mixture with air. Flash back possible over considerable distance.

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus and protective suit.

**5.4 Further information**

Standard procedure for chemical fires. Take measures to prevent electrostatic charging. Prevent firefighting water from entering surface water or groundwater.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

### 6.2 Environmental precautions

Contain or absorb leaking liquid with sand or earth, consults an expert. Prevent liquid entering sewers, basements and workpits. If substance has entered a water course or sewer or contaminated soil, advise police.

### 6.3 Methods and materials for containment and cleaning up

Spillage: May react with combustible substances creating fire or explosion hazard and formation of toxic fumes. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Soak up with inert absorbent material (e.g. sand, silica gel). Prevent liquid entering sewers, basements and workpits; vapor may create explosive atmosphere. Transfer to covered steel drums. Dispose of promptly.

### 6.4 Reference to other sections

For disposal see **Section 13**.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Keep container tightly closed. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Do not empty into drains.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep tightly closed in a dry, cool and well ventilated place. Keep away from heat and sources of ignition. Keep out of direct sunlight and away from incompatible materials. Store in original container. Electrical equipment should be protected to the appropriate standard.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Derived No Effect Level (DNEL)

Application Area	Health Effects	Exposure	Value
Worker	Acute Local effects	Inhalation	343 mg/m <sup>3</sup>
Worker	Acute Systemic effects	Inhalation	384 mg/m <sup>3</sup>
Worker	Long-term Local effects	Inhalation	192 mg/m <sup>3</sup>
Worker	Long-term Systemic effects	Inhalation	192 mg/m <sup>3</sup>
Worker	Long-term Systemic effects	Skin contact	384 mg/kg Body weight
Consumer	Acute Local effects	Inhalation	226 mg/m <sup>3</sup>
Consumer	Acute Systemic effects	Inhalation	226 mg/m <sup>3</sup>
Consumer	Long-term Systemic effects	Ingestion	8,13 mg/kg Body weight
Consumer	Long-term Systemic effects	Inhalation	56,5 mg/m <sup>3</sup>
Consumer	Long-term Systemic effects	Skin contact	226 mg/kg Body weight

#### Predicted No Effect Concentration (PNEC)

Compartment	Value
Fresh water	0.68 mg/l
Fresh water sediment	16.39 mg/kg
Sewage treatment plant	13.61 mg/l

Soil 2.89 mg/kg

## 8.2 Exposure controls

### Appropriate engineering controls

The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Ventilation hoods and fans required when working with organic solvents or in hot melt applications.

### Individual protection measures (Personal protective equipment, PPE)

#### Eye/face protection

Goggles giving complete protection to eyes.

#### Skin protection

Chemical resistant apron / flame retardant antistatic protective clothing, heavy duty work shoes.

Handle with gloves

- Full contact wears gloves from viton material.
- Splash contact wears gloves from nitrile rubber material.

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

#### Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter A (EN 141 or EN 14387).

#### Environmental exposure controls

Prevent liquid entering sewers, basements and workpits.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance: Form	Liquid
: Color	Colorless
Odour	Characteristic
Odour Threshold	Not Available
pH	Not Available
Melting point/range	-95 °C
Boiling point/range	110.6 °C at 1013 hPa
Flash point	4 °C (closed cup)
Evaporation rate	Not Available
Flammability (solid, gas)	Not Available
Explosion limits: lower	1.2 % (V)
upper	8.0 % (V)
Vapor Pressure	29 hPa at 20°C
Relative Vapor Density	3.18
Density	0.870 g/ml at 20°C
Water solubility	0.52 g/l at 20°C
Partition coefficient (n-octanol/water)	log Pow: 2.65
Auto-Ignition temperature	535 °C
Decomposition Temperature	Not Available
Viscosity	0.6 mPa.s at 20°C
Explosive properties	Not Explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Heat sensitive. Explosible with air in avaporous/gaseous state.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

Risk of explosion in contact with nitric acid, 1,3-dichloro-5,5-dimethyl-2,4-imidazolidone, acetic acid, halogen-halogen compounds, non-metallic halides, organic nitro compounds, fuming sulfuric acid, sulfur dichloride, silver perchlorates, nitrogen dioxide, uranium hexafluoride.

The substance can react dangerously with strong acids, strong oxidizing agents, bromine trifluoride, heat, sulphur (heat).

The substance forms an explosive mixture with air on heat.

### 10.4 Conditions to avoid

Heat, flames and sparks.

### 10.5 Incompatible materials

Halogen compounds, nitric acid, nitrogen oxide, organic nitro compounds, oxidizing agent, uranium hexafluoride, sulfur, fuming sulfuric acid

Unsuitable working materials: various plastic, rubber.

### 10.6 Hazardous decomposition products

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

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LC<sub>50</sub> (inhalation, rat): 28.1 mg/l/4 h.

LD<sub>50</sub> (oral, rat): 636 mg/kg.

LD<sub>50</sub> (dermal, rabbit): 12124 mg/kg.

#### Acute oral toxicity

Absorption

Symptoms: nausea, vomiting. Risk of aspiration upon vomiting.

#### Acute inhalation toxicity

Absorption

Symptoms: Irritation in the respiratory tract, headache, drowsiness, dizziness.

#### Skin corrosion/irritation

Slight irritation. Degreasing effect on the skin, possibly followed by secondary inflammation. Danger of skin absorption.

#### Serious eye damage/eye irritation

Slight irritation, mucosal irritations.

#### Respiratory or skin sensitization

Not Available

#### Germ cell mutagenicity

Mutagenicity; mammal cell test is negative (in vitro).

Ames test is negative.

#### **Carcinogenicity**

Not Available

#### **Reproductive toxicity**

Not Available

#### **Teratogenicity**

Suspected of damaging the unborn child

#### **Specific target organ toxicity (STOT) - single exposure**

May cause drowsiness or dizziness.

#### **Specific target organ toxicity (STOT) - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

#### **Aspiration hazard**

Not Available

#### **Further information**

After uptake of large quantities; pneumonia, respiratory paralysis.

After long term exposure to the chemical: dermatitis. Systemic effects; after absorption of large quantities: CNS disorders, inebriation, spasms, unconsciousness, respiratory arrest, cardiovascular failure, death.

The product should be handled with the care usual when dealing with chemicals.

## **SECTION 12: Ecological information**

### **12.1 Toxicity**

Toxicity to fish	LC <sub>50</sub> Onchorhynchus mykiss: 5.8 mg/l /96h.
Toxicity to daphnia and other aquatic invertebrates	EC <sub>50</sub> Daphnia magna: 6mg/l/48h.
Toxicity to algae	IC <sub>50</sub> Pseudokirchneriella subcapitata: 12 mg/l/72h.
Toxicity to bacteria	EC <sub>50</sub> Photobacterium phosphoreum: 20 mg/l/30 min.

### **12.2 Persistence and degradability**

Biodegradability	Not Available
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### **12.3 Bioaccumulative potential**

Partition coefficient (n-octanol/water)	log Pow: 2.65 (experimental) No bioaccumulation is to be expected (log P o/w 1-3)
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### **12.4 Mobility in soil**

Not Available

### **12.5 Other adverse effects**

Biological effects; Harmful effect on aquatic organisms. Toxic effect on fish and plankton. Change in the flavour characteristic of fish protein.

Do not allow to enter waters, waste water or soil.

## **SECTION 13: Disposal considerations**

### **13.1 Waste treatment methods**

#### **Product**

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally

count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding law and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste or burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

#### Contaminated packaging

Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

## SECTION 14: Transport information

#### Land Transport (ADR/RID)

UN Number	1294
UN proper shipping name	TOLUENE
Transport hazard class(es)	3
Packaging group	II
Environmental hazards	No
Special precautions for user	Yes

#### Sea transport (IMDG)

UN Number	1294
UN proper shipping name	TOLUENE
Transport hazard class(es)	3
Packaging group	II
Marine pollutant	No
Special precautions for user	Yes
EmS	F-E S-D

#### Air transport (IATA)

UN Number	1294
UN proper shipping name	TOLUENE
Transport hazard class(es)	3
Packaging group	II
Environmental hazards	No
Special precautions for user	No

#### River transport (AND/ADNR)

(Not examined)

## SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

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

Not Available

#### 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.



## SECTION 16: Other information

### Full text of H-Statements referred to under sections 2 and 3

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.

### Full text of R-phrases referred to under sections 2 and 3

F	Highly flammable
Xi	Irritant
Xn	Harmful
R11	Highly flammable
R38	Irritating to skin.
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R63	Possible risk of harm to the unborn child.
R65	Harmful: may cause lung damage if swallowed.
R67	Vapours may cause drowsiness and dizziness.

### Recommended restrictions

Take notice of labels and safety data sheets for the working. Chemicals Take necessary action to avoid static electricity discharge.

### Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Labelling according to EC Directives 67/548 EEC and Regulation (EC) No 1272/2008.

Transportation information according to Recommendations on the Transport of Dangerous Goods, Model Regulations. Twelfth revised edition. United Nations.

Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany, Source: IFA for Databases on hazardous substances (GESTIS).

### Further information

Contact to RCI Labscan Limited.

### Revision Date

04/08/2016

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.