

# SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

## Toluene

Version	Revision Date:	SDS Number:	Print Date: 09/03/2022
22.0	06/12/2018	800001033904	Date of last issue: 09/03/2015

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### SECTION 1. IDENTIFICATION

Product name : Toluene

Product code : Q9131, Q9138, Q9250, Q9300, Q9308, T1402, X211H

CAS-No. : 108-88-3

#### Manufacturer or supplier's details

Company : **Shell Chemical LP**  
PO Box 576  
HOUSTON TX 77001  
USA

SDS Request : 1-800-240-6737

Customer Service : 1-855-697-4355

#### Emergency telephone number

Chemtrec Domestic (24 hr) : 1-800-424-9300

Chemtrec International (24 hr) : 1-703-527-3887

#### Recommended use of the chemical and restrictions on use

Recommended use : Solvent., Raw material for use in the chemical industry.

Restrictions on use : This product must not be used in applications other than the above without first seeking the advice of the supplier.

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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids : Category 2

Aspiration hazard : Category 1

Skin irritation : Category 2

Specific target organ toxicity - single exposure : Category 3 (Narcotic effects)

Reproductive toxicity : Category 2

Specific target organ toxicity - repeated exposure (Inhalation) : Category 2 (Central nervous system)

Chronic aquatic toxicity : Category 3

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### GHS label elements

Hazard pictograms

:



Signal word

:

Danger

Hazard statements

:

**PHYSICAL HAZARDS:**  
H225 Highly flammable liquid and vapour.  
**HEALTH HAZARDS:**  
H304 May be fatal if swallowed and enters airways.  
H315 Causes skin irritation.  
H336 May cause drowsiness or dizziness.  
H361 Suspected of damaging fertility or the unborn child.  
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.  
**ENVIRONMENTAL HAZARDS:**  
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

:

#### Prevention:

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 dust/ fume/ gas/ mist/ vapours/ spray.  
P264 Wash hands thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P273 Avoid release to the environment.

#### Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P370 + P378 In case of fire: Use appropriate media to extinguish.  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.  
P331 Do NOT induce vomiting.  
P302 + P352 IF ON SKIN: Wash with plenty of water and soap.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P362 + P364 Take off contaminated clothing and wash it before reuse.

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P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312 Call a POISON CENTER/doctor if you feel unwell.  
P308 + P313 IF exposed or concerned: Get medical advice/attention.

### Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P235 Keep cool.  
P405 Store locked up.

### Disposal:

P501 Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

### Other hazards which do not result in classification

May form flammable/explosive vapour-air mixture.  
This material is a static accumulator.  
Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.  
If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.  
The classification of this material is based on OSHA HCS 2012 criteria.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance  
Chemical nature : Contains Toluene, CAS # 108-88-3.

### Hazardous components

Chemical name	Synonyms	CAS-No.	Concentration (% w/w)
toluene	toluene	108-88-3	>= 99.5 - <= 100

## SECTION 4. FIRST-AID MEASURES

General advice : DO NOT DELAY.  
Keep victim calm. Obtain medical treatment immediately.

If inhaled : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

In case of 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. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

In case of eye contact : Flush eye with copious quantities of water.

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	<p>Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>If persistent irritation occurs, obtain medical attention.</p>
If swallowed	<p>: Call emergency number for your location / facility.</p> <p>If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.</p>
Most important symptoms and effects, both acute and delayed	<p>: Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.</p> <p>Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters.</p> <p>If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.</p> <p>The onset of respiratory symptoms may be delayed for several hours after exposure.</p> <p>Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination.</p> <p>Continued inhalation may result in unconsciousness and death.</p> <p>Auditory system effects may include temporary hearing loss and/or ringing in the ears.</p> <p>Visual system disturbances may be evidenced by decreases in the ability to discriminate between colours.</p>
Protection of first-aiders	<p>: When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.</p>
Indication of any immediate medical attention and special treatment needed	<p>: Potential for chemical pneumonitis.</p> <p>Potential for cardiac sensitisation, particularly in abuse situations. Hypoxia or negative inotropes may enhance these effects. Consider: oxygen therapy.</p> <p>Call a doctor or poison control center for guidance.</p>

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### SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable extinguishing media	: Do not use water in a jet.
Specific hazards during fire-fighting	: Clear fire area of all non-emergency personnel.
	Hazardous combustion products may include:
	A complex mixture of airborne solid and liquid particulates and

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gases (smoke).  
Carbon monoxide.  
Unidentified organic and inorganic compounds.  
Flammable vapours may be present even at temperatures below the flash point.  
The vapour is heavier than air, spreads along the ground and distant ignition is possible.  
Will float and can be reignited on surface water.

- Specific extinguishing methods : Standard procedure for chemical fires.
- Further information : Keep adjacent containers cool by spraying with water.
- Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

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### SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Observe all relevant local and international regulations.  
Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.  
Local authorities should be advised if significant spillages cannot be contained.  
Avoid contact with skin, eyes and clothing.  
Isolate hazard area and deny entry to unnecessary or unprotected personnel.  
Do not breathe fumes, vapour.  
Do not operate electrical equipment.
- Environmental precautions : Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.  
Monitor area with combustible gas indicator.
- Methods and materials for containment and cleaning up : For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.  
For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain

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as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely

Ventilate contaminated area thoroughly.  
If contamination of site occurs remediation may require specialist advice.

Additional advice : For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet.  
For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet.

U.S. regulations may require reporting releases of this material to the environment which exceed the reportable quantity (refer to Chapter 15) to the National Response Center at (800) 424-8802.

Under Section 311 of the Clean Water Act (CWA) this material is considered an oil. As such, spills into surface waters must be reported to the National Response Center at (800) 424-8802.

This material is covered by EPA's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Petroleum Exclusion. Therefore, releases to the environment may not be reportable under CERCLA.

## SECTION 7. HANDLING AND STORAGE

Technical measures : Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet.  
Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.  
Ensure that all local regulations regarding handling and storage facilities are followed.

Advice on safe handling : Avoid inhaling vapour and/or mists.  
Avoid contact with skin, eyes and clothing.  
Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks.  
Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.  
Bulk storage tanks should be diked (bunded).  
When using do not eat or drink.

The vapour is heavier than air, spreads along the ground and distant ignition is possible.

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|--|---|
| Avoidance of contact                     | : Strong oxidising agents.  |
| Product Transfer                         | : Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge ( $\leq 1$ m/s until fill pipe submerged to twice its diameter, then $\leq 7$ m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations.<br><br>Refer to guidance under Handling section. |
| Conditions for safe storage              | : Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.   |
| Further information on storage stability | : Storage Temperature:<br>Ambient.<br><br>Bulk storage tanks should be diked (bunded).<br>Locate tanks away from heat and other sources of ignition.<br>Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions.<br>Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat.<br>Keep away from aerosols, flammables, oxidizing agents, corrosives and from other flammable products which are not harmful or toxic to man or to the environment.<br>Electrostatic charges will be generated during pumping.<br>Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk.<br>The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable.   |
| Packaging material                       | : Suitable material: For containers, or container linings use mild steel, stainless steel., For container paints, use epoxy paint, zinc silicate paint.<br>Unsuitable material: Avoid prolonged contact with natural, butyl or nitrile rubbers.   |
| Container Advice                         | : Do not cut, drill, grind, weld or perform similar operations on or near containers.   |

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Specific use(s) : Not applicable

See additional references that provide safe handling practices for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity).  
IEC/TS 60079-32-1: Electrostatic hazards, guidance

### SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
toluene	108-88-3	TWA	20 ppm	ACGIH
toluene		TWA	200 ppm	OSHA Z-2
toluene		CEIL	300 ppm	OSHA Z-2
toluene		Peak	500 ppm (10 minutes)	OSHA Z-2

#### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
toluene	108-88-3	Toluene	In blood	Prior to last shift of work-week	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI
		o-Cresol	Urine	End of shift (As soon as possible after exposure ceases)	0.3 mg/g Creatinine	ACGIH BEI

#### Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.



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Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.  
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.  
National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods <http://www.cdc.gov/niosh/>  
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods <http://www.osha.gov/>  
Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances <http://www.hse.gov.uk/>  
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany <http://www.dguv.de/inhalt/index.jsp>  
L'Institut National de Recherche et de Sécurité, (INRS), France <http://www.inrs.fr/accueil>

**Engineering measures** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:  
Use sealed systems as far as possible.  
Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.  
Local exhaust ventilation is recommended.  
Firewater monitors and deluge systems are recommended.  
Eye washes and showers for emergency use.  
Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

### General Information:

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.  
Practice good housekeeping.  
Define procedures for safe handling and maintenance of controls.  
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.  
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.  
Drain down system prior to equipment break-in or maintenance.  
Retain drain downs in sealed storage pending disposal or subsequent recycle.

### Personal protective equipment

**Respiratory protection** : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.

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Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. If air-filtering respirators are suitable for conditions of use: Select a filter suitable for organic gases and vapours [Type A boiling point >65°C (149°F)].

Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

### Hand protection Remarks

: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: Nitrile rubber gloves. Incidental contact/Splash protection: PVC or neoprene rubber gloves. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

### Eye protection

: If material is handled such that it could be splashed into eyes, protective eyewear is recommended.

### Skin and body protection

: Wear chemical resistant gloves/gauntlets and boots. Where risk of splashing, also wear an apron. Wear antistatic and flame retardant clothing, if a local risk assessment deems it so.

### Protective measures

: Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

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Thermal hazards : Not applicable

Hygiene measures : Wash hands before eating, drinking, smoking and using the toilet.  
Launder contaminated clothing before re-use.  
Do not ingest. If swallowed then seek immediate medical assistance.

### Environmental exposure controls

General advice : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.  
Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.  
Information on accidental release measures are to be found in section 6.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid.
Colour	: colourless
Odour	: aromatic
Odour Threshold	: 1.74 ppm
pH	: Data not available
Melting point/freezing point	: Typical -95 °C / -139 °F
Boiling point/boiling range	: Typical 110 - 111 °C / 230 - 232 °F
Flash point	: 4 °C / 39 °F
Evaporation rate	: Data not available
Flammability (solid, gas)	: Not applicable
Upper explosion limit / upper flammability limit	: 7.1 %(V)
Lower explosion limit / Lower flammability limit	: 1.2 %(V)
Vapour pressure	: Typical 3.5 kPa (20 °C / 68 °F)
Relative vapour density	: 3.1

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Relative density	:	0.87
Density	:	Typical 871 kg/m <sup>3</sup> (15 °C / 59 °F)
Solubility(ies)	:	
Water solubility	:	0.515 kg/m <sup>3</sup>
Partition coefficient: n-octanol/water	:	log Pow: 2.65
Auto-ignition temperature	:	> 480 °C / 896 °F
Decomposition temperature	:	Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
Viscosity	:	
Viscosity, dynamic	:	Data not available
Viscosity, kinematic	:	0.63 mm <sup>2</sup> /s (25 °C / 77 °F)
Explosive properties	:	Not applicable
Oxidizing properties	:	Data not available
Surface tension	:	Data not available
Conductivity	:	Low conductivity: < 100 pS/m
	:	The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10,000 pS/m., Whether a liquid is nonconductive or semi-conductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid
Molecular weight	:	92 g/mol

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### SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.
Chemical stability	:	No hazardous reaction is expected when handled and stored according to provisions Stable under normal conditions of use.
Possibility of hazardous reactions	:	Reacts with strong oxidising agents.

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Conditions to avoid	: Avoid heat, sparks, open flames and other ignition sources.  In certain circumstances product can ignite due to static electricity.
Incompatible materials	: Strong oxidising agents.
Hazardous decomposition products	: Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

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### SECTION 11. TOXICOLOGICAL INFORMATION

Basis for assessment : Information given is based on product data.

#### Information on likely routes of exposure

Inhalation is the primary route of exposure although absorption may occur through skin contact or following accidental ingestion.

#### Acute toxicity

##### Product:

Acute oral toxicity	: LD50 : > 5000 mg/kg Remarks: Low toxicity:
Acute inhalation toxicity	: Remarks: Low toxicity by inhalation. High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea.
Acute dermal toxicity	: LD50 : > 5000 mg/kg Remarks: Low toxicity:

#### Skin corrosion/irritation

##### Product:

Remarks: Causes skin irritation.

#### Serious eye damage/eye irritation

##### Product:

Remarks: Slightly irritating to the eye.

#### Respiratory or skin sensitisation

##### Product:

Remarks: Not a sensitiser.

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Based on available data, the classification criteria are not met.

### Germ cell mutagenicity

#### Product:

: Remarks: Not mutagenic.

### Carcinogenicity

#### Product:

Remarks: Not a carcinogen., Based on available data, the classification criteria are not met.

#### IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

#### OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

#### NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### Reproductive toxicity

#### Product:

:  
Remarks: Suspected of damaging the unborn child., Does not impair fertility.

### STOT - single exposure

#### Product:

Remarks: Vapours may cause drowsiness and dizziness., Inhalation of vapours or mists may cause irritation to the respiratory system.

### STOT - repeated exposure

#### Product:

Remarks: May cause damage to central nervous system, respiratory system, visual system, and auditory system through prolonged or repeated exposure., Effects were seen at high doses only., Visual system: may cause decreased color perception. , These subtle changes have not been found to lead to functional colour vision deficits., Auditory system: prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. , Solvent abuse and noise interaction in the work environment may cause hearing loss.

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### Aspiration toxicity

#### Product:

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

### Further information

#### Product:

Remarks: Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest., Abuse of vapours has been associated with organ damage and death., Classifications by other authorities under varying regulatory frameworks may exist.

## SECTION 12. ECOLOGICAL INFORMATION

Basis for assessment : Ecotoxicological data are based on product testing.

### Ecotoxicity

#### Product:

Toxicity to fish (Acute toxicity) : LL50: > 1 - 10 mg/l  
Remarks: Toxic

Toxicity to daphnia and other aquatic invertebrates (Acute toxicity) : EL50: > 1 - 10 mg/l  
Remarks: Toxic

Toxicity to algae (Acute toxicity) : EL50: > 100 mg/l  
Remarks: Practically non toxic:

Toxicity to fish (Chronic toxicity) : Remarks: NOEC/NOEL > 1.0 - <=10 mg/l (based on test data)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: NOEC/NOEL > 0.1 - <=1.0 mg/l

Toxicity to microorganisms (Acute toxicity) : Remarks: Data not available

### Persistence and degradability

#### Product:

Biodegradability : Remarks: Readily biodegradable.  
Oxidises rapidly by photo-chemical reactions in air.

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### Bioaccumulative potential

#### Product:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

### Mobility in soil

#### Product:

Mobility : Remarks: If the product enters soil, one or more constituents will or may be mobile and may contaminate groundwater.  
Floats on water.

### Other adverse effects

no data available

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : 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 classification and disposal methods in compliance with applicable regulations.

Do not dispose into the environment, in drains or in water courses

Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.

Waste, spills or used product is dangerous waste.

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.

Contaminated packaging : Drain container thoroughly.  
After draining, vent in a safe place away from sparks and fire.  
Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums.  
Send to drum recoverer or metal reclaimer.  
Comply with any local recovery or waste disposal regulations.

## SECTION 14. TRANSPORT INFORMATION

### National Regulations

#### **US Department of Transportation Classification (49 CFR Parts 171-180)**

UN/ID/NA number	: UN 1294
Proper shipping name	: Toluene
Class	: 3



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Packing group : II  
Labels : 3  
Reportable quantity TOLUENE  
(1,000 lb)  
ERG Code : 130  
Marine pollutant : no

### International Regulations

#### IATA-DGR

UN/ID No. : UN 1294  
Proper shipping name : Toluene  
Class : 3  
Packing group : II  
Labels : 3

#### IMDG-Code

UN number : UN 1294  
Proper shipping name : TOLUENE  
Class : 3  
Packing group : II  
Labels : 3  
Marine pollutant : no

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

Pollution category : Y  
Ship type : 3; Must be Double Hulled  
Product name : Toluene

### Special precautions for user

Remarks : Special Precautions: Refer to Chapter 7, Handling & Storage,  
for special precautions which a user needs to be aware of or  
needs to comply with in connection with transport.

**Additional Information** : This product may be transported under nitrogen blanketing.  
Nitrogen is an odourless and invisible gas. Exposure to nitro-  
gen enriched atmospheres displaces available oxygen which  
may cause asphyxiation or death. Personnel must observe  
strict safety precautions when involved with a confined space  
entry.

## SECTION 15. REGULATORY INFORMATION

### EPCRA - Emergency Planning and Community Right-to-Know Act

#### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
toluene	108-88-3	1000	1000

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toluene	108-88-3	100	100 (F005)
benzene	71-43-2	10	10 (D018)

\*: Shell classifies this material as an "oil" under the CERCLA Petroleum Exclusion, therefore releases to the environment are not reportable under CERCLA.

### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
Skin corrosion or irritation  
Reproductive toxicity  
Specific target organ toxicity (single or repeated exposure)  
Aspiration hazard

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

toluene	108-88-3	>= 90 - <= 100 %
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### Clean Water Act

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

toluene	108-88-3	100 %
benzene	71-43-2	0.09 %

### US State Regulations

#### Pennsylvania Right To Know

toluene	108-88-3
benzene	71-43-2

#### California Prop. 65

WARNING: This product can expose you to chemicals including benzene, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

#### California List of Hazardous Substances

toluene	108-88-3
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#### Other regulations:

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

#### The components of this product are reported in the following inventories:

AIIC	: Listed
DSL	: Listed
IECSC	: Listed

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ENCS	: Listed
KECI	: Listed
NZIoC	: Listed
PICCS	: Listed
TSCA	: Listed
EINECS/ELINCS/EC	: Listed
TCSI	: Listed

### SECTION 16. OTHER INFORMATION

#### Further information

NFPA Rating (Health, Fire, Reactivity) 2, 3, 0

#### Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	: ACGIH - Biological Exposure Indices (BEI)
OSHA Z-2	: USA. Occupational Exposure Limits (OSHA) - Table Z-2
ACGIH / TWA	: 8-hour, time-weighted average
OSHA Z-2 / TWA	: 8-hour time weighted average
OSHA Z-2 / CEIL	: Acceptable ceiling concentration
OSHA Z-2 / Peak	: Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
Abbreviations and Acronyms	: The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

ACGIH = American Conference of Governmental Industrial Hygienists

ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road

AICS = Australian Inventory of Chemical Substances

ASTM = American Society for Testing and Materials

BEL = Biological exposure limits

BTEX = Benzene, Toluene, Ethylbenzene, Xylenes

CAS = Chemical Abstracts Service

CEFIC = European Chemical Industry Council

CLP = Classification Packaging and Labelling

COC = Cleveland Open-Cup

DIN = Deutsches Institut für Normung

DMEL = Derived Minimal Effect Level

DNEL = Derived No Effect Level

DSL = Canada Domestic Substance List

EC = European Commission

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EC50 = Effective Concentration fifty  
ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals  
ECHA = European Chemicals Agency  
EINECS = The European Inventory of Existing Commercial Chemical Substances  
EL50 = Effective Loading fifty  
ENCS = Japanese Existing and New Chemical Substances Inventory  
EWC = European Waste Code  
GHS = Globally Harmonised System of Classification and Labelling of Chemicals  
IARC = International Agency for Research on Cancer  
IATA = International Air Transport Association  
IC50 = Inhibitory Concentration fifty  
IL50 = Inhibitory Level fifty  
IMDG = International Maritime Dangerous Goods  
INV = Chinese Chemicals Inventory  
IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables  
KECI = Korea Existing Chemicals Inventory  
LC50 = Lethal Concentration fifty  
LD50 = Lethal Dose fifty per cent.  
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading  
LL50 = Lethal Loading fifty  
MARPOL = International Convention for the Prevention of Pollution From Ships  
NOEC/NOEL = No Observed Effect Concentration / No Observed Effect Level  
OE\_HPVS = Occupational Exposure - High Production Volume  
PBT = Persistent, Bioaccumulative and Toxic  
PICCS = Philippine Inventory of Chemicals and Chemical Substances  
PNEC = Predicted No Effect Concentration  
REACH = Registration Evaluation And Authorisation Of Chemicals  
RID = Regulations Relating to International Carriage of Dangerous Goods by Rail  
SKIN\_DES = Skin Designation  
STEL = Short term exposure limit  
TRA = Targeted Risk Assessment  
TSCA = US Toxic Substances Control Act  
TWA = Time-Weighted Average  
vPvB = very Persistent and very Bioaccumulative

A vertical bar (|) in the left margin indicates an amendment from the previous version.

|| Due to a change in detail in Section 15, this document has been released as a significant change.

Sources of key data used to compile the Safety Data Sheet : The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID data base, EC 1272 regulation, etc).

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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 a 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.

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