

## Global Product Strategy (GPS) Safety Summary

### Toluene

This Product Safety Summary is a high-level summary intended to provide the general public with an overview of product safety information on this chemical substance. It is not intended to provide emergency response, medical or treatment information, or to provide an overview of all safety and health information. This summary is not intended to replace the Safety Data Sheet. For detailed guidance on the use or regulatory status of this substance, please consult the Safety Data Sheet.

#### Chemical Identity

**Name:** Toluene

**Brand names:** Toluene

**Chemical name (IUPAC):** Toluene

**CAS number:** 108-88-3

**EC number:** 203-625-9

**Molecular formula:** C<sub>7</sub>H<sub>8</sub>

#### Uses and Applications

Toluene is used as a component in gasoline. It is also an important chemical intermediate that can be reacted to make other chemical products used to produce products such as polyurethanes, which are used in a variety of consumer products like furniture, bedding, footwear and clothing. Toluene may be reacted to form other industrially important intermediates such as benzene and xylene.

There are no supported uses of toluene in consumer products.

#### Physical / Chemical Properties

Toluene is a colorless, highly flammable liquid with a sweet, aromatic odor. The flash point for toluene is 4.4 °C (40 °F). The atmospheric boiling and freezing points of Toluene are 111 °C (232 °F) and -95 °C (-139 °F), respectively.

Toluene is classified as hazardous under the Globally Harmonized System on Classification and Labeling (GHS) for its high flammability.

## **Health Effects**

Toluene is classified as hazardous under GHS for its aspiration toxicity, skin irritancy and reproductive toxicity.

The table below gives an overview of the health effects assessment results for toluene.

<b>Effect Assessment</b>	<b>Result</b>
Acute Toxicity Oral / inhalation / dermal	Toluene is of slight acute toxicity, although inhalation exposure may cause dizziness and CNS depression, while ingestion may be fatal if aspiration into the lung occurs.
Irritation / corrosion Skin / eye/ respiratory tract	Moderately irritating to skin and eye. Respiratory tract irritation may occur after exposure to high vapor concentrations.
Sensitization	Not expected to be a sensitizer.
Toxicity after repeated exposure Oral / inhalation / dermal	Repeated exposure to high concentrations has been shown to cause neurological changes and hearing loss in animals, and in humans in abuse situations.
Genotoxicity / Mutagenicity	Not considered to be mutagenic / genotoxic.
Carcinogenicity	Not considered to be a carcinogen.
Toxicity for reproduction	May cause developmental toxicity.

## **Environmental Effects**

The atmosphere is the main environmental compartment for the release of toluene. In water, volatilization will result in substantial losses to the atmosphere with a half-life of 1-2 days. The table below gives an overview of the environmental assessment results for toluene.

<b>Effect Assessment</b>	<b>Result</b>
Aquatic Toxicity	May be toxic to fish.

<b>Fate and Behavior</b>	<b>Result</b>
Biodegradation	Readily biodegradable.
Bioaccumulation potential	Not bioaccumulative
PBT / vPvB conclusion	Not considered to be either PBT or vPvB.

PBT = Persistent, Bioaccumulative and Toxic in the environment.  
vPvB = very Persistent and very Bioaccumulative in the environment.

## **Exposure**

### **Human health**

Consumers generally will not come into contact with toluene as there are no supported uses of toluene in consumer products.

Exposure to toluene of personnel in industrial settings and manufacturing facilities is considered low because the process, storage and handling operations are predominantly enclosed. Also, transfer (loading and transport) of toluene is conducted with dedicated equipment in dedicated containers to prevent any release from the system. However, worker exposure can potentially occur during operations such as product transfer operations, product sampling, or maintenance / repair activities on product containing systems. The risk of accidental exposure should be controlled by selecting and applying the appropriate Risk Management Measures.

### **Environment**

The manufacture of toluene is a closed and automated process. Also, transfer (loading and transport) of toluene is conducted in a closed system to prevent release.

However, exposure to the environment can potentially occur during operations such as product transfer operations, product sampling, maintenance / repair activities on product containing systems, or laboratory uses. The risk of accidental exposure should be controlled by selecting and applying the appropriate Risk Management Measures.

## **Risk Management Measures**

For detailed guidance on the use of toluene, the Safety Data Sheet should be consulted.

Toluene should only be handled by knowledgeable and trained personnel.

### **Flammability**

Because of its flammability potential, toluene should not be handled or stored near heat, sparks or flame. Bonding and grounding measures may not be sufficient if nonconductive flammable liquids are involved. This liquid may accumulate static electricity even when transferred into properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water.

### **Human health**

When using chemicals, make sure that there is adequate ventilation. Always use appropriate chemical-resistant gloves to protect your hands and skin, wear eye protection such as chemical goggles, and wear flame-retardant clothing. Do not eat, drink, or smoke where chemicals are handled, processed, or stored. Wash hands and skin following contact. If the substance gets into your eyes, rinse eyes thoroughly for at least 15 minutes with tap water and seek medical attention.

In the case of transfer or maintenance operations, clear transfer lines prior to decoupling, and flush/drain to a closed system for recycle prior to opening equipment.

In cases where engineering controls cannot maintain airborne substance concentrations below exposure limits, or in cases with a risk of accidental exposure, additional risk management measures may be necessary, such as the use of a complete suit protecting against chemicals and supplied air, a self-contained breathing apparatus, or respirator.

#### Environmental

In case of accidental release or spill, do not allow the product to enter sewers, surface or ground water. Clean up contamination/spills as soon as they occur. Sludge should be incinerated, contained or reclaimed. Do not use clay based absorbent materials for clean up.

#### **Regulatory Information / Classification and Labeling**

Under the Globally Harmonized System on Classification and Labeling (GHS), substances are classified according to their physical, health and environmental hazards. The hazards are communicated via specific labels on the product packaging and the Safety Data Sheet. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.

For a detailed overview of the classification and labeling of this substance, reference is made to the regional Safety Data Sheet found on the LyondellBasell corporate website.

#### **Conclusion Statements**

- Toluene is primarily used as a gasoline component and a chemical intermediate for other products. It has no supported uses in consumer products.
- Toluene has been classified as hazardous under GHS for its high flammability; aspiration toxicity, skin irritancy and reproductive toxicity
- Exposure to human health and environment is considered low if properly handled. Also the manufacturing process, storage and handling operations are predominantly enclosed.

#### **Contact Information within Company**

For further information on this product in general, please consult the LyondellBasell corporate website ([www.lyb.com](http://www.lyb.com)).

#### **Date of issue**

Date of issue: 5 June 2015

## **Disclaimer**

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Users should review the applicable Safety Data Sheet before handling the product.

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Toluene is a product of Equistar Chemicals, LP and Houston Refining LP.