

# Toluene

## Product Stewardship Summary

(CAS number: 108-88-3)

### Chemical Formula for Toluene

C<sub>7</sub>H<sub>8</sub>

### What is Toluene?

Toluene, also known as Methyl Benzene, Phenyl Methane and Toluol, is produced by different petroleum conversion processes. It is a clear, colourless liquid, with a characteristic aromatic smell.

### How is Toluene Used?

Toluene is used to make isocyanates, which are combined with polyols in the manufacture of polyurethanes. In turn, polyurethanes are used in a wide variety of consumer goods, such as foams for furniture and bedding, coatings for floors and furniture, artificial sports tracks, ski suits and waterproof leisure wear.

Toluene is used in the solvent market and in the production of phenol.

Toluene is also used as feed in the hydrodealkylation process, which strips off the methyl group from toluene to make benzene.

Toluene is produced in very large quantities, most of which is never removed from the gasoline manufacturing streams. Most commercial grade toluene is returned to the gasoline pool as a blend component resulting in higher-octane grades.

### Health, Safety and Environmental Considerations

Toluene can irritate the eyes. Low-to-moderate levels of long-term exposure can cause tiredness, confusion, weakness and 'drunken-type' actions. Breathing in high levels of toluene in a short period of time can cause light-headedness and dizziness. Repeated exposure to high levels of toluene – for example by glue-sniffers, can cause permanent brain damage or even death. Toluene can also damage the kidneys following prolonged or repeated exposure to high concentrations. There is no evidence that toluene causes cancer and the International Agency for Research on Cancer (IARC) has not classified toluene for carcinogenic effects.

In a workplace environment, maximum occupational exposure limits for toluene are in the range of 50-100 ppm, but in practice the levels present in normal circumstances are much lower.

Toluene is flammable. Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire. Electrostatic charges may be generated during pumping which may ignite and cause a fire.

Toluene is toxic to fish; however, in view of the high rate of loss due to evaporation, it is unlikely to pose a significant hazard to aquatic life. It is readily biodegradable and does not bioaccumulate significantly. From air, toluene will be naturally eliminated from the environment through rapid degradation by sunlight. If toluene enters soil, it will be highly mobile and may contaminate groundwater.

### Storing and Transporting Toluene

Toluene is stored in mild steel or stainless-steel tanks. Toluene is transported by tank truck, rail car and vessel. Toluene is flammable and can accumulate static electricity during transfer; therefore, precautionary measures to prevent static discharge must be taken.

### Risk Characterization Summary

Risks associated with exposure to this product have been evaluated for the following “chain-of-commerce” activities: manufacture, storage, product transfer, transportation, and customers/markets. It is manufactured, stored and transported to customers in closed systems. Depending on the customer, end uses may vary from use as an intermediate for the manufacture other chemicals, commercial products, or certain formulated consumer products. Proper equipment design and handling procedures maintain low risk from exposure to toluene where the product is used as a chemical intermediate. Exposures may be higher in commercial and consumer applications. To minimize risk, additional controls, such as, special handling procedures and protective packaging are implemented.

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This product stewardship summary is intended to give general information about the chemical or categories of chemicals addressed. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the chemical’s applicable [Safety Data Sheet](#), which should be consulted before use of the chemical. This product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.



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