

## Product Stewardship Summary for Ethylbenzene (EB)

This Product Stewardship Summary provides high level information to the public regarding the product safety of the subject chemical product. This summary is not intended to provide detailed information regarding emergency or medical treatment or detailed environmental and health information. Please refer to the Safety Data Sheet (SDS) for specific information related to this chemical.

### **Product Overview**

Ethylbenzene is commercially manufactured in production plants by reacting benzene and ethylene. It is used primarily to produce styrene monomer and only in industrial uses.

### **Chemical Identity**

Product Name: Ethylbenzene  
Common Names: EB, Phenylethane, Benzene, ethyl-(8Cl) (9Cl)  
CAS No.: 100-41-4  
EC/List No.: 202-849-4

### **Product Uses/Benefits**

Ethylbenzene is an intermediate to produce styrene which in turn is used to produce styrene-derived plastics and rubber products. These products are used in the manufacture of industrial and consumer good applications benefitting society such as appliances, medical devices, food packaging, electronics, auto industry and construction. Ethylbenzene is also used in industrial applications as a solvent and in motor fuels as an additive.

### **Physical/Chemical Properties**

Under ambient conditions, ethylbenzene is a colorless liquid with an aromatic odor. Ethylbenzene is classified as a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200 and is classified as a Flammable Liquid, Category 2 under GHS (Globally Harmonized System) classification and labeling.

Odor threshold: Air: 2.3 ppm  
Relative density: 0.87 (literature)  
Molecular formula: C<sub>8</sub>H<sub>10</sub>  
Molecular weight: 106.16 g/mol  
Melting point/Freezing point: -139.0°F/ -95.0°C  
Vapor Density: 3.7  
Vapor pressure: 1.12 kPa at 77°F/25°C

Boiling point: 276.8°F/136°C  
Explosion limits in air: 1.0 - 6.7%vol  
Flash point: 64.4°F/18.0°C  
Autoignition temperature: 809.96°F/432.2°C  
Partition coefficient (n-octanol/water): 3.15

## **Exposure Potential**

### **Health Effects**

The below table summarizes the toxicological effects of styrene.

<b>Toxicological Category</b>	<b>Human Health Effects</b>
Acute Toxicity (Inhalation/oral)	<ul style="list-style-type: none"><li>• Inhalation – Harmful</li><li>• Oral (ingestion) – Harmful if swallowed and may be fatal if enters airways</li></ul>
Skin and Eye	<ul style="list-style-type: none"><li>• Skin contact – Irritating</li><li>• Eye contact – Irritating</li></ul>
Sensitization	Not classified as a sensitizer
Chronic Toxicity – repeated exposure	Causes damage to organs
Carcinogenicity	<ul style="list-style-type: none"><li>• International Agency for Research on Cancer (IARC) – Group 2B (Possibly carcinogenic to humans)</li></ul>
Specific target organ toxicity – single exposure	Not classified
Specific target organ toxicity – repeated exposure	Causes damage to organs (auditory)
Mutagenicity	Not classified as a mutagen
Reproductive Toxicity	Not classified as a reproductive toxicant

### **Environmental Effects**

Ethylbenzene is considered to be acutely toxic to aquatic life with long-lasting effects. It readily biodegrades and evaporates in the environment and does not significantly bioaccumulate. Ethylbenzene may contaminate ground water due to mobility in soil and may float on water. It is a flammable liquid, and its flammable vapors can travel across the ground.

## **Exposure Information**

### **Consumers**

Americas Styrenics does not sell ethylbenzene for direct consumer use and must only be used for industrial use. Due to the use of ethylbenzene as an intermediate for styrene which is used in the production of plastics and rubbers used for consumer applications, consumers could be exposed to residual ethylbenzene in these consumer goods.

### **Workers**

Exposure for workers can occur either in a manufacturing facility or in the various industrial or manufacturing facilities that use this product. Each facility should have a thorough training program for employees and appropriate work processes, engineering controls, and personal protective equipment to maintain exposure levels below the exposure limits that have been established for ethylbenzene. The below table summarizes the Occupational Exposure Limits for ethylbenzene.

	<b>Type</b>	<b>Value</b>
U.S. OSHA Table Z-1 (29 CFR 1910.1000)	PEL (Permissible Exposure Limit)	100 ppm 435 mg/m <sup>3</sup>
U.S. ACGIH Threshold Limit Values	TWA (Time Weighted Average)	20 ppm

## **Risk Management/Product Stewardship**

Americas Styrenics LLC has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employees, public health and our environment. The success of our Product Stewardship program rests with every individual involved with Americas Styrenics LLC products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Only trained personnel should handle ethylbenzene. Ethylbenzene should be stored in a dry, cool, well-ventilated place out of direct sunlight and away from potential ignition sources.

## **Information Sources**

1. AmSty Ethylbenzene Safety Data Sheet (SDS)
2. *Ethylbenzene*. (2000). <https://www.epa.gov/sites/production/files/2016-09/documents/ethylbenzene.pdf>.

## **Contact Information**

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