

## Global Product Strategy (GPS) Safety Summary

### Ethyl Alcohol

This GPS 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, the Ethyl Alcohol Handbook and the Product Stewardship Bulletin (PSB).

#### Chemical Identity

**Name:** Ethyl Alcohol

**Brand names:** Ethyl Alcohol

**Chemical name (IUPAC):** Ethanol

**CAS number:** 64-17-5

**EC number:** 200-578-6

**Molecular formula:** C<sub>2</sub>H<sub>6</sub>O

#### Uses and Applications

Ethyl alcohol is one of the most important chemicals available to the chemical industry and is used in a wide variety of applications. It is used extensively in the personal care industry in such products as fragrances, mouthwashes, hair sprays, astringents, cough suppressants, liniments and nail enamel. Ethyl alcohol is widely used in the healthcare industry in the preparation of pharmaceuticals.

LyondellBasell produces both 95% and 100% (190 and 200 proof) pure ethanol and a wide variety of industrial denatured ethanol formulations, which are regulated by the Alcohol and Tobacco Tax and Trade Bureau (TTB). These include specially denatured alcohols (SDAs), several proprietary solvent grades and completely denatured alcohols (CDAs).

#### Physical / Chemical Properties

Pure ethyl alcohol is a colorless highly flammable liquid with a sweet, alcohol-like odor. The flash point for ethyl alcohol is 13 - 16 °C (55.4 – 60.8 °F). The atmospheric boiling and freezing points of ethyl alcohol are 78.5 °C (173.3 °F) and -114.1 °C (-173.38 °F), respectively.

Ethyl alcohol is classified as hazardous under the Globally Harmonized System (GHS) on classification and labeling for its high flammability.

## **Health Effects**

Pure ethyl alcohol has not been classified as hazardous under GHS or OSHA for its health effects. However, denaturants used in SDA products may be hazardous.

The table below gives an overview of the health effects assessment results for pure ethyl alcohol. Denaturants may have additional health effects. The Safety Data Sheet should be consulted.

<b>Effect Assessment</b>	<b>Result</b>
Acute Toxicity Oral / inhalation / dermal	Gastrointestinal effects may occur with symptoms such as nausea and vomiting.
Irritation / corrosion Skin / eye/ respiratory tract	May cause eye and upper respiratory tract irritation.
Sensitization	Not expected to be a sensitizer.
Toxicity after repeated exposure Oral / inhalation / dermal	Exposure to more than 1,000 ppm may cause headache, drowsiness and lassitude, loss of appetite, inability to concentrate and irritation of the throat.
Genotoxicity / Mutagenicity	Not considered to be mutagenic / genotoxic.
Carcinogenicity	Although ethanol itself has not been classified, alcoholic beverages are considered to be carcinogenic.
Toxicity for reproduction	Excessive consumption of alcoholic beverages during pregnancy can cause fetal alcohol syndrome.

## **Environmental Effects**

The table below gives an overview of the environmental assessment results for ethyl alcohol. Denaturants may have additional environmental effects. The Safety Data Sheet should be consulted.

<b>Effect Assessment</b>	<b>Result</b>
Aquatic Toxicity	Not expected to be hazardous to aquatic organisms.

<b>Fate and behavior</b>	<b>Result</b>
Biodegradation	Expected to be biodegradable.
Bioaccumulation potential	Bioaccumulation is unlikely.
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 may be exposed to ethyl alcohol during the use of consumer products containing ethyl alcohol.

Worker exposure to ethyl alcohol in manufacturing facilities is low because the process, storage and handling operations are generally enclosed. However, worker exposure can potentially occur during operations such as product transfer, 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.

Professional and industrial workers may come into contact with ethyl alcohol as a component of industrial products containing ethyl alcohol. Exposure should be controlled by selecting and applying the appropriate Risk Management Measures.

### **Environment**

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

However, due to its use as a component in products such as cosmetics, pharmaceuticals and solvents, ethyl alcohol has indoor and outdoor environmental release possibilities.

## **Risk Management Measures**

For detailed guidance on the use of ethyl alcohol, please consult the Safety Data Sheet and the Ethyl Alcohol Handbook.

### **Consumer use**

When using an ethyl alcohol containing consumer product at home, all instructions and precautions should be read, understood and followed. Adequate ventilation should be provided, and the product should not be used near open flames or other ignition sources.

### **Flammability**

Because of its flammability potential, ethyl alcohol should not be handled or stored near heat, sparks or flame. Metal containers involved in the handling and storage of this material should be grounded and bonded.

### **Human health**

When using chemicals, make sure that there is adequate ventilation. Use appropriate chemical-resistant gloves to protect your hands and skin. Wear flame-retardant clothing and eye protection such as chemical goggles. 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 recommended exposure limits or there are risks of accidental exposures, additional risk management 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

For a detailed overview of the regulatory status of this substance, please refer to the Product Stewardship Bulletin (PSB) available on the LyondellBasell corporate website.

Under the Globally Harmonized System (GHS) on classification and labeling 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, which can be found on the LyondellBasell corporate website.

### Conclusion Statements

- Pure and denatured ethyl alcohol goes into a variety of consumer products such as cosmetics and pharmaceuticals, as well as professional and industrial applications and products. LyondellBasell ethyl alcohol is not sold as beverage alcohol.
- Ethyl alcohol is classified as hazardous for its high flammability under GHS. Denaturants may introduce other hazards as well.
- Exposure to human health and environment is expected to be below recommended exposure limits if the ethanol is properly handled. The manufacturing process, storage and handling operations are 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: 4 June 2015.

## **Disclaimer**

Before using a product sold by a company of the LyondellBasell family of companies, users should make their own independent determination that the product is suitable for the intended use and can be used safely and legally.

SELLER MAKES NO WARRANTY; EXPRESS OR IMPLIED (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY WARRANTY) OTHER THAN AS SEPARATELY AGREED TO BY THE PARTIES IN A CONTRACT.

This product(s) may not be used in:

(i) any U.S. FDA Class I, Health Canada Class I, and/or European Union Class I medical devices, without prior notification to Seller for each specific product and application; or  
(ii) the manufacture of any of the following, without prior written approval by Seller for each specific product and application: U.S. FDA Class II Medical Devices; Health Canada Class II or Class III Medical Devices; European Union Class II Medical Devices; film, overwrap and/or product packaging that is considered a part or component of one of the aforementioned medical devices; packaging in direct contact with a pharmaceutical active ingredient and/or dosage form that is intended for inhalation, injection, intravenous, nasal, ophthalmic (eye), digestive, or topical (skin) administration; tobacco related products and applications, electronic cigarettes and similar devices, and pressure pipe or fittings that are considered a part or component of a nuclear reactor. Additionally, the product(s) may not be used in: (i) U.S. FDA Class III Medical Devices; Health Canada Class IV Medical Devices; European Class III Medical Devices; (ii) applications involving permanent implantation into the body; (iii) life-sustaining medical applications; and (iv) lead, asbestos or MTBE related applications. All references to U.S. FDA, Health Canada, and European Union regulations include another country's equivalent regulatory classification.

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

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