

Global Product Strategy (GPS) Safety Summary

Allyl 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, nor 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 Product Safety Bulletin and the Product Stewardship Bulletin (PSB).

Chemical Identity

Name: Allyl Alcohol

Brand names: Allyl Alcohol

Chemical name (IUPAC): Prop-2-en-1-ol

CAS number: 107-18-6

EC number: 203-470-7

Molecular formula: C₃H₆O

Uses and Applications

Allyl Alcohol is used as an intermediate and/or monomer in polymerization reactions in the production of various specialty materials, such as:

- Optical resins for lenses, safety glasses, safety shields and antiglare CRT screens;
- Coupling agents for epoxy-fiberglass and other glass fiber or filler/resin compositions, particularly employed as adhesion promoters in waterborne systems;
- Cross linking agents for unsaturated polyester and alkyd resins;
- Styrene-Allyl Alcohol Copolymer (SAA) which is used as a functional additive in coatings, such as urethanes, alkyds and acrylics. SAA has been shown to improve adhesion, increase weather ability, and enhance gloss, hardness and water resistance.

There are no supported uses of Allyl Alcohol in direct consumer products or applications.

Physical / Chemical Properties

At ambient temperature, Allyl Alcohol is a colorless liquid with a pungent, mustard-like odor that is detectable at 0.8 parts per million of air (ppm). The substance is of low molecular weight and is considered to be highly flammable. The flash point for Allyl Alcohol is 21°C (70°F). The boiling and freezing points of Allyl Alcohol are 97°C (207°F) and -129°C (-200°F) respectively.

Allyl Alcohol has been classified as hazardous under GHS (Globally Harmonized System on Classification and Labeling) for its high flammability.

Health Effects

Allyl Alcohol is acutely toxic via the oral, dermal and inhalation routes of exposure. Also, skin and serious eye irritation have been observed from contact with Allyl Alcohol, it causes respiratory irritation and is suspected of damaging fertility or the unborn child. Based on these health effects, Allyl Alcohol has been classified under GHS as hazardous.

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

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Acutely toxic via the oral, dermal and inhalation routes of exposure
Irritation / corrosion Skin / eye/ respiratory tract	Skin and serious eye irritation have been observed from contact with Allyl Alcohol, although no corrosive effects were seen. May cause respiratory irritation.
Sensitisation	Not a sensitizer
Toxicity after repeated exposure Oral / inhalation / dermal	Repeated exposure to allyl alcohol in subchronic oral and inhalation toxicity studies caused mortality at moderate concentrations. The liver is identified as a primary target organ
Genotoxicity / Mutagenicity	Not considered to pose a mutagenic/genotoxic hazard
Carcinogenicity	Not considered as carcinogenic
Toxicity for reproduction	Suspected of damaging fertility or the unborn child

Environmental Effects

Allyl Alcohol is very toxic to aquatic life and has been classified under GHS hazardous accordingly.

The table below gives an overview of the environmental assessment results for Allyl Alcohol.

Effect Assessment	Result
Aquatic Toxicity	Very toxic to aquatic life

Fate and behaviour	Result
Biodegradation	Readily biodegradable
Bioaccumulation potential	Not bioaccumulative
PBT / vPvB conclusion	Not considered to be either PBT nor vPvB.

Exposure

Human health

Consumers generally will not come into contact with Allyl Alcohol, as there are no supported uses of Allyl Alcohol in direct consumer products or applications.

Exposure to Allyl Alcohol of personnel in manufacturing facilities is considered very low because the process, storage and handling operations are enclosed. It is not used in a widespread or dispersive manner. Also, transfer (loading and transport) of Allyl Alcohol is done 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, 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 Allyl Alcohol is in a closed and automated process with no aqueous effluent or gaseous effluent released to the environment. Also, transfer (loading and transport) of Allyl Alcohol is conducted with dedicated equipment in dedicated containers to prevent any release from the system.

Risk Management Measures

For detailed guidance on the use of Allyl Alcohol, the Safety Data Sheet and the Product Safety Bulletin should be consulted.

Allyl Alcohol should only be handled by knowledgeable and trained personnel.

Flammability

Because of its flammability potential, Allyl Alcohol should be handled and stored under inert (nitrogen) atmosphere. Also, equipment should be grounded to prevent build-up of static electricity.

Human health

When using chemicals, make sure that there is adequate ventilation. Always use appropriate chemical-resistant gloves to protect your hands and skin, always wear eye protection, such as chemical goggles, and always 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, always 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 for safe use, 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.

Regulatory Information / Classification and Labeling

This substance has been registered under REACH by relevant companies of LyondellBasell in the European Union.

For a detailed overview of the regulatory status of this substance, please refer to the Product Stewardship Bulletin which is available from the LyondellBasell corporate website.

Under GHS (Globally Harmonized System 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, please refer to the regional Safety Data Sheet, which can be found on the LyondellBasell corporate website.

Conclusion Statements

- Allyl Alcohol is used as a chemical intermediate and/or monomer for industrial purposes only. It has no supported uses in consumer products;
- Allyl Alcohol has been classified as hazardous. The main hazards are high flammability; acutely toxic via oral, dermal and inhalation exposure routes; skin, eye and respiratory irritator and very toxic to aquatic life;
- Exposure to human health and environment is considered very low as the Allyl Alcohol 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).

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Allyl Alcohol is a product of Lyondell Chemical Company and Lyondell Chemie Nederland B.V.