

## Global Product Strategy (GPS) Safety Summary

### (Glacial) Acetic Acid

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 and the Product Stewardship Bulletin (PSB).

#### Chemical Identity

**Name:** Acetic acid

**Brand names:** Glacial Acetic Acid (GAA)

**Chemical name (IUPAC):** Acetic acid

**CAS number:** 64-19-7

**EC number:** 200-580-7

**Molecular formula:** C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>

#### Uses and Applications

Acetic acid is a raw material used to produce vinyl acetate monomer (VAM), terephthalic acid (PTA), industrial solvents and a variety of other chemicals.

VAM is used to produce a variety of polymers, products used in adhesives, water-based paint, textile coatings and paper coatings. It is the largest end-use for Acetic Acid.

Terephthalic acid is used to produce polyester for textiles and plastic bottles.

Use as a raw material in the production of other chemicals may include:

- Acetic anhydride, which is used in the manufacture of cellulose acetate for the production of textile fibers. Other applications for acetic anhydrides are plastics, agricultural chemicals and pharmaceuticals.
- Monochloroacetic acid (MCA). The primary end use for MCA is carboxymethyl cellulose, which is used in a variety of applications such as foods, pharmaceuticals, cosmetics and textiles. MCA is also used to produce herbicides for agriculture.
- Acetate esters for use in products such as coatings, inks, adhesives and cosmetics.

Acetic acid also has direct applications as a component in cleaning agents, coatings and paints, agrochemicals and water treatment products.

In the US, a food grade Glacial Acetic Acid is available for use as a food additive.

## **Physical / Chemical Properties**

Acetic Acid is a colorless liquid with a pungent, vinegar-like odor. The substance is corrosive and flammable with a flash point of 39°C (102°F). The boiling and freezing points of acetic acid are 118°C (244°F) and 17°C (62°F) respectively. Acetic Acid has been classified as hazardous under the Globally Harmonized System on Classification and Labeling (GHS) for its flammability.

## **Health Effects**

Acetic Acid has low acute toxicity by the oral, inhalation and dermal routes of exposure. However, Acetic Acid has been classified as hazardous under GHS, as it is corrosive to skin and eyes, and can cause severe skin burns and eye damage. Concentrated vapors of Acetic Acid may cause severe irritation of the eyes, nose and respiratory tract. Ingestion may cause severe corrosion injury.

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

<b>Effect Assessment</b>	<b>Result</b>
Acute Toxicity Oral / inhalation / dermal	Low acute toxicity via all 3 routes of exposure.
Irritation / corrosion Skin / eye/ respiratory tract	Corrosive to skin and eyes, will cause severe skin burns and eye damage. Concentrated vapors may cause severe irritation of the eyes, nose and respiratory tract. Ingestion may cause severe corrosion injury to the digestive tract.
Sensitization	Not considered to be sensitizing.
Toxicity after repeated exposure Oral / inhalation / dermal	Moderate concern to health following prolonged oral, inhalation, or dermal exposures based on the potential to cause irritation and damage to tissues at the site of contact. Low concern to health based on the absence of significant target organ effects by any route of exposure.
Genotoxicity / Mutagenicity	Not mutagenic.
Carcinogenicity	Not considered as carcinogenic to humans.
Toxicity for reproduction	No developmental toxicity or reproductive toxicity has been shown.

## **Environmental Effects**

Acetic Acid has low toxicity to water organisms and is readily biodegradable.

The table below gives an overview of the environmental assessment results for Acetic Acid.

<b>Effect Assessment</b>	<b>Result</b>
Aquatic Toxicity	Low toxicity to aquatic organisms.

Fate and behavior	Result
Biodegradation	Readily biodegradable.
Bioaccumulation potential	Not bio-accumulative.
PBT / vPvB conclusion	Not considered to be either PBT or vPvB.

PBT = Persistent, Bio-accumulative and Toxic in the environment.  
vPvB = very Persistent and very Bio-accumulative in the environment.

## **Exposure**

### **Human health**

Consumers may be exposed to small amounts of Acetic Acid during the use of consumer products containing Acetic Acid. However, for supported uses these potential exposures are expected to be below the allowable and recommended exposure limits.

Workers may be exposed to acetic acid during activities such as product transfer, packing and repacking, formulation, laboratory activities, or during use as a component in professional or industrial products. For such activities, exposure should be controlled by selecting and applying the appropriate Risk Management Measures.

Exposure to Acetic Acid in manufacturing facilities where Acetic Acid is used as a chemical intermediate is considered low because the process, storage and handling operations are usually 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.

### **Environment**

Due to its many industrial and professional uses, Acetic Acid has widespread indoor and outdoor environmental release possibilities. Acetic Acid is miscible in water and is expected to be mobile within the environment. If accidentally released to soil or water, some volatilization to the atmosphere can be anticipated.

## **Risk Management Measures**

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

Acetic Acid should only be handled by knowledgeable and trained personnel.

### **Consumer use**

When using an Acetic Acid containing consumer product at home, all instructions and precautions should be read, understood and followed. Adequate ventilation should be provided and it should never be used near open flames or other ignition sources.

### Flammability

For handling and storage of Acetic Acid, the flammability and corrosiveness of the product should be taken into account. 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 at 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.

### **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 available from the LyondellBasell corporate website.

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, please refer to the regional Safety Data Sheet, which can be found on the LyondellBasell corporate website.

## **Conclusion Statements**

- Acetic Acid is one of the most widely used intermediate chemicals with uses in the manufacture of Vinyl Acetate Monomer (VAM), terephthalic acid (PTA), and a variety of other chemicals.
- Acetic Acid is of low acute toxicity. However, it is corrosive and can cause severe skin burns and eye damage, or internal injury when ingested. Concentrated vapors of acetic acid may cause severe irritation of the eyes, nose and respiratory tract.
- Consumer exposure to small amounts of Acetic Acid during supported uses in consumer products containing acetic acid are expected to be below the allowable and recommended exposure levels.

## **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:

- 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
  - 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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