



## MATERIAL SAFETY DATA SHEET

### ACETIC ACID

#### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Acetic Acid

**SYNONYM:** Ethanoic Acid

**MOLECULAR FORMULA:** C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:** 60.05 g/mol

**CREATION DATE:** September 1, 2018

**CONTACT PERSON:**

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#### 2. HAZARDS IDENTIFICATION

**Warning!** Causes severe eye irritation. **Flammable liquid and vapor.** Causes respiratory tract irritation. This substance has caused adverse reproductive and fetal effects in humans. May cause central nervous system depression. May cause liver, kidney and heart damage. Causes moderate skin irritation.

**Target Organs:** The substance may be toxic to kidneys, mucous membranes, skin, teeth. Repeated or prolonged exposure to the substance can produce target organs damage.

**Potential Health Effects**

**Eye:** Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes. Causes severe eye irritation and eye damage.

**Skin:** Causes severe skin burns.

**Ingestion:** Moderately toxic, Corrosive. Causes gastrointestinal tract irritation (burning and pain of the mouth, throat, and abdomen, coughing, ulceration, bleeding, nausea, abdominal spasms, vomiting, hematemesis, diarrhea. May Also affect the liver (impaired liver function), behavior (convulsions, giddiness, muscular weakness), and the urinary system - kidneys (Hematuria, Albuminuria, Nephrosis, acute renal failure, acute tubular necrosis). May also cause dyspnea or asphyxia. May also lead to shock, coma and death.

**Inhalation:** Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath.

**Chronic:** Chronic exposure via inhalation may cause asthma and/or bronchitis with cough, phlegm, and/or shortness of breath, It may also affect the blood (decreased leukocyte count), and urinary system (kidneys). Repeated or prolonged skin contact may cause thickening, blackening, and cracking of the skin.

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### 3. COMPOSITION, INFORMATION ON INGREDIENTS

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CAS No.	EC No.	Chemical Name	Percent
64-19-7	200-580-7	Acetic Acid	Min 99.5

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### 4. FIRST AID MEASURES

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**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

**Skin:** Immediately wash exposed skin with soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. Never

give anything by mouth to an unconscious person. Get medical attention immediately. If swallowed, rinse mouth with water (only if the person is conscious). If affected person is conscious, give plenty of water to drink.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**General Information:** Move out of dangerous area. Take off all contaminated clothing immediately. Take copy of label and MSDS to health professional with contaminated individual.

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## 5. FIRE FIGHTING MEASURES

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**General Information:** Flammable liquid and vapor. Vapors may form explosive mixtures with air. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. This material is not explosive as defined by established regulatory criteria.

**Extinguishing Media:**

Suitable extinguishing media: In case of fire, use water fog, alcohol resistant foam, dry chemical or carbon dioxide extinguisher or spray.

Unsuitable extinguishing media: Do not use water jet.

**Advice for fire-fighters:** Wear full protective clothing and self-contained breathing apparatus.

**Hazardous combustion products:** Carbon oxides

**Flash Point:** 39 °C

**Auto ignition Temperature:** 463 °C

**Explosion Limits, Lower:** 4 %

**Upper:** 19.9 %

**NFPA Rating:** (estimated) Health: 2; Flammability: 3; Instability: 0

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## 6. ACCIDENTAL RELEASE MEASURES

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**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

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## 7. HANDLING AND STORAGE

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**Handling:** Wash thoroughly after handling. Use only in a well-ventilated area. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Storage:** Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Do not store near per chlorates, peroxides, chromic acid or nitric acid.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

## Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Acetic Acid	1000 ppm TWA	1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA 3300 ppm IDLH	1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA

**OSHA Vacated PELs:** Acetic Acid: 1000 ppm TWA; 1900 mg/m<sup>3</sup> TWA

## Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>Physical State:</b>	Clear liquid
<b>Appearance:</b>	colorless
<b>Odor:</b>	Pungent
<b>pH:</b>	2.4 at 60.05 g/l
<b>Vapor Pressure:</b>	20.79 hPa at 25 °C
<b>Vapor Density:</b>	Not available
<b>Evaporation Rate:</b>	Not available
<b>Viscosity:</b>	Not available
<b>Boiling Point:</b>	117.9 °C

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<b>Flash Point:</b>	39 °C
<b>Freezing/Melting Point:-</b>	16.64 °C
<b>Decomposition Temperature:</b>	Not available
<b>Solubility:</b>	Miscible
<b>Relative Density:</b>	1.04 g/cm <sup>3</sup> at 25 °C

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## 10. STABILITY AND REACTIVITY

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**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Incompatible materials, ignition sources, excess heat, oxidizers.

**Incompatibilities with Other Materials:** Oxidizing agents, soluble carbonates and phosphates, Hydroxides, Metals, Peroxides, permanganates,

e.g. potassium permanganate, Amines, Alcohols, Nitric acid

**Hazardous Decomposition Products:** Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

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## 11. TOXICOLOGICAL INFORMATION

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**LD50/LC50:**

LD50 Oral - Rat - 3,310 mg/kg(Acetic acid)

LC50 Inhalation - Mouse - 1 h - 5620 ppm(Acetic acid)

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste): Eye: Conjunctive irritation.

Sense Organs and Special Senses (Nose, Eye, Ear, and Taste): Eye: Other. Blood: Other changes.

LC50 Inhalation - Rat - 4 h - 11.4 mg/l(Acetic acid)

LD50 Dermal - Rabbit - 1,112 mg/kg(Acetic acid)

**Carcinogenicity:**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Epidemiology:** Acetic Acid has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Prenatal exposure to Acetic Acid is associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome".

**Teratogenicity:** No data available

**Reproductive Effects:** No data available

**Mutagenicity:** No data available

**Neurotoxicity:** No data available

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## 12. ECOLOGICAL INFORMATION

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**Ecotoxicity:** Toxicity to fish: Semi-static test LC50

Species: *Oncorhynchus mykiss* (previous name: *Salmo gairdneri*)

Value: - >300.82 mg/l

Exposure time: 96 h

Toxicity to aquatic invertebrates:

Species: *Daphnia magna*

Value: >300.82 mg/l

Exposure time: 48 h

Toxicity to Microorganisms:

EC3

Species: *Pseudomonas putida*

Value: 850mg/l

Exposure time: 16 h

**Physical:** No information available.

**Other:** No information available.

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## 13. DISPOSAL CONSIDERATIONS

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Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

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**UN number**

ADR/RID: 2789

IMDG: 2789

IATA: 2789

**UN proper shipping name**

ADR/RID: Acetic Acid

IMDG: Acetic Acid

IATA: Acetic Acid

**Transport hazard class(es)**

ADR/RID: 8(3)

IMDG: 8(3)

IATA: 8(3)

**Packaging group**

ADR/RID: II

IMDG: II

IATA: II

**Environmental hazards**

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

**Special precautions for user**

No data available

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## 15. REGULATORY INFORMATION

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**Safety, health and environmental regulations/legislation specific for the substance or mixture:**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

**National regulations**

Follow national regulation for work with chemical agents. Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended.

US. Toxic Substances Control Act

On TSCA Inventory

Australia. Industrial Chemical (Notification and Assessment) Act

On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)

All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List

On the inventory, or in compliance with the inventory

Korea. Toxic Chemical Control Law (TCCL) List



On the inventory, or in compliance with the inventory  
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act  
On the inventory, or in compliance with the inventory  
China. Inventory of Existing Chemical Substances  
On the inventory, or in compliance with the inventory  
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand  
On the inventory, or in compliance with the inventory

**Chemical Safety Assessment:**

A Chemical Safety Assessment has been carried out for this substance.

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**16. OTHER INFORMATION**

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The information in this safety data sheet is based on data and samples provided. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes.

The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. Godavari Biorefineries Limited does not guarantee the accuracy or exhaustiveness of the information provided.