

**SAFETY DATA SHEET**

according to the Global Harmonized System (and with all of the information required by the CPR)

Revision Date 06/05/2017

Version 1.6

**SECTION 1. Identification****Product identifier**

Product number	ACS003
Product name	ACETIC ACID ACS
CAS-No.	64-19-7

**Relevant identified uses of the substance or mixture and uses advised against**

Identified uses	Reagent for analysis
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**Details of the supplier of the safety data sheet**

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.
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<b>Emergency telephone</b>	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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**SECTION 2. Hazards identification****GHS Classification**

Flammable liquid, Category 3, H226  
Corrosive to Metals, Category 1, H290  
Skin corrosion, Category 1A, H314  
Serious eye damage, Category 1, H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

**GHS-Labeling***Hazard pictograms*

*Signal Word*  
Danger

*Hazard Statements*

H226 Flammable liquid and vapor.  
H290 May be corrosive to metals.  
H314 Causes severe skin burns and eye damage.

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## *Precautionary Statements*

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P234 Keep only in original container.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P264 Wash skin thoroughly after handling.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER/doctor.  
P321 Specific treatment (see supplemental first aid instructions on this label).  
P363 Wash contaminated clothing before reuse.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.  
P390 Absorb spillage to prevent material damage.  
P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.  
P406 Store in corrosive resistant stainless steel container with a resistant inner liner.  
P501 Dispose of contents/ container to an approved waste disposal plant.

## **Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Formula	CH <sub>3</sub> COOH	C <sub>2</sub> H <sub>4</sub> O <sub>2</sub> (Hill)
Molar mass	60.05 g/mol	

## **Hazardous ingredients**

*Chemical name (Concentration)*  
CAS-No.  
*acetic acid (>= 90 % - <= 100 % )*  
64-19-7

Exact percentages are being withheld as a trade secret.

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## **SECTION 4. First aid measures**

### **Description of first-aid measures**

#### *General advice*

First aider needs to protect himself.

#### *Inhalation*

After inhalation: fresh air. Call in physician.

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### *Skin contact*

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

### *Eye contact*

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

### *Ingestion*

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

### **Most important symptoms and effects, both acute and delayed**

Irritation and corrosion, bronchitis, Shortness of breath, gastric spasms, Nausea, Vomiting, Circulatory collapse, shock

Risk of corneal clouding.

Risk of blindness!

### **Indication of any immediate medical attention and special treatment needed**

No information available.

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## **SECTION 5. Fire-fighting measures**

### **Extinguishing media**

#### *Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### **Special hazards arising from the substance or mixture**

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

Acetic acid vapors

### **Advice for firefighters**

#### *Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system. Remove container from danger zone and cool with water.

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## **SECTION 6. Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

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Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### Environmental precautions

Do not let product enter drains. Risk of explosion.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralizing material (e.g. Chemizorb® H<sup>+</sup>, Art. No. 101595).

Dispose of properly. Clean up affected area.

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## SECTION 7. Handling and storage

### Precautions for safe handling

Observe label precautions.

#### *Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

### Conditions for safe storage, including any incompatibilities

Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place.

No declaration

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**SECTION 8. Exposure controls/personal protection**

**Exposure limit(s)**

*Ingredients*

Basis	Value	Threshold limits	Remarks
<i>acetic acid 64-19-7</i>			
CAD AB OEL	Time Weighted Average (TWA):	10 ppm 25 mg/m <sup>3</sup>	
	Short Term Exposure Limit (STEL):	15 ppm 37 mg/m <sup>3</sup>	
CAD BC OEL	Short Term Exposure Limit (STEL):	15 ppm	
	Time Weighted Average (TWA):	10 ppm	
CAD MB OEL	Time Weighted Average (TWA):	10 ppm	
	Short Term Exposure Limit (STEL):	15 ppm	
CAD ON OEL	Time Weighted Average (TWAEV):	10 ppm	
	Short Term Exposure Limit (STEV):	15 ppm	
OEL (QUE)	Time Weighted Average (TWA):	10 ppm 25 mg/m <sup>3</sup>	
	Short Term Exposure Limit (STEL):	15 ppm 37 mg/m <sup>3</sup>	

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

**Individual protection measures**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

*Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

*Eye/face protection*

Tightly fitting safety goggles

*Hand protection*

full contact:

Glove material: butyl-rubber  
Glove thickness: 0.7 mm  
Break through time: > 480 min

splash contact:

Glove material: natural latex  
Glove thickness: 0.6 mm  
Break through time: > 30 min

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The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (full contact), KCL 706 Lapren® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

*Other protective equipment:*

Flame retardant antistatic protective clothing.

*Respiratory protection*

required when vapors/aerosols are generated.

Recommended Filter type: filter E-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer. These measures have to be properly documented.

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## SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	stinging
Odor Threshold	0.2 - 100.1 ppm
pH	2.5 at 50 g/l 68 °F (20 °C)
Melting point	63 °F (17 °C)
Boiling point/boiling range	241 - 244 °F (116 - 118 °C) at 1,013 hPa
Flash point	102 °F (39 °C) Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	Not applicable
Lower explosion limit	4 %(V)
Upper explosion limit	19.9 %(V)

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Vapor pressure	15.4 hPa at 68 °F (20 °C)
Relative vapor density	2.07
Density	1.05 g/cm <sup>3</sup> at 68 °F (20 °C)
Relative density	No information available.
Water solubility	602.9 g/l at 77 °F (25 °C)
Partition coefficient: n-octanol/water	log Pow: -0.17 (25 °C) (experimental) (ECHA) Bioaccumulation is not expected.
Autoignition temperature	No information available.
Decomposition temperature	Distillable in an undecomposed state at normal pressure.
Viscosity, dynamic	1.22 mPa.s at 68 °F (20 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	905 °F (485 °C)
Viscosity, kinematic	1.17 mm <sup>2</sup> /s at 68 °F (20 °C)
Corrosion	May be corrosive to metals.

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## SECTION 10. Stability and reactivity

### Reactivity

Vapor/air-mixtures are explosive at intense warming.

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Risk of explosion with:

peroxi compounds, perchloric acid, fuming sulfuric acid, phosphorus halides, hydrogen peroxide, chromium(VI) oxide, potassium permanganate, Peroxides, Strong oxidizing agents

Risk of ignition or formation of inflammable gases or vapors with:

Metals, Iron, Zinc, magnesium, Mild steel

Possible formation of:

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Hydrogen

Violent reactions possible with:

strong alkalis, anhydrides, Aldehydes, alkali hydroxides, nonmetallic halides, ethanolamine, Acetaldehyde, Alcohols, halogen-halogen compounds, chlorosulfonic acid, chromosulfuric acid, Potassium hydroxide, Nitric acid

## Conditions to avoid

Temperatures < 63 °F.

Heating.

## Incompatible materials

various metals

## Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### Information on toxicological effects

*Likely route of exposure*

Inhalation, Eye contact, Skin contact

*Acute oral toxicity*

LD50 Rat: 3,310 mg/kg (RTECS)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach., Nausea, Vomiting, Risk of aspiration upon vomiting., Pulmonary failure possible after aspiration of vomit.

*Acute inhalation toxicity*

LCLO Rat: 39.95 mg/l; 4 h

(RTECS)

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:., damage of respiratory tract, Pneumonia, bronchitis, Inhalation may lead to the formation of oedemas in the respiratory tract., Symptoms may be delayed.

Corrosive to respiratory system.

*Skin irritation*

Rabbit

Result: Causes burns.

(IUCLID)

Causes severe burns.

*Eye irritation*

Rabbit

Result: Causes burns.

(IUCLID)

Causes serious eye damage.

Risk of blindness!

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Risk of corneal clouding.

### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Mutagenicity (mammal cell test): chromosome aberration.

Result: negative

Method: OECD Test Guideline 473

### *Teratogenicity*

Did not show teratogenic effects in animal experiments. (IUCLID)

### *Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

### *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

## **Further information**

Systemic effects:

Shortness of breath, gastric spasms, shock, Circulatory collapse, acidosis

Possible damages:

Damage to:

Kidney

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## **SECTION 12. Ecological information**

### **Ecotoxicity**

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### *Toxicity to fish*

semi-static test LC50 *Oncorhynchus mykiss* (rainbow trout): > 300.8 mg/l; 96 h  
OECD Test Guideline 203

### *Toxicity to daphnia and other aquatic invertebrates*

EC5 *E.sulcatum*: 78 mg/l; 72 h neutral (maximum permissible toxic concentration) (Lit.)  
EC50 *Daphnia magna* (Water flea): 47 mg/l; 24 h (Lit.)

### *Toxicity to algae*

IC5 *Scenedesmus quadricauda* (Green algae): 4,000 mg/l; 16 h (maximum permissible toxic concentration) (Lit.)

### *Toxicity to bacteria*

EC5 *Pseudomonas putida*: 2,850 mg/l; 16 h neutral (maximum permissible toxic concentration) (Lit.)

microtox test EC50 *Photobacterium phosphoreum*: 11 mg/l; 15 min (IUCLID)

## **Persistence and degradability**

### *Biodegradability*

99 %; 30 d  
OECD Test Guideline 301D  
(HSDB)  
Readily biodegradable.

95 %; 5 d  
OECD Test Guideline 302B  
Readily eliminated from water

### *Biochemical Oxygen Demand (BOD)*

880 mg/g (5 d)  
(Lit.)

### *Ratio BOD/ThBOD*

BOD5 76 %  
(IUCLID)

## **Bioaccumulative potential**

### *Partition coefficient: n-octanol/water*

log Pow: -0.17 (25 °C)  
(experimental)  
(ECHA) Bioaccumulation is not expected.

## **Mobility in soil**

No information available.

### *Additional ecological information*

Biological effects:  
Harmful effect due to pH shift. Caustic even in diluted form.  
Discharge into the environment must be avoided.

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## **SECTION 13. Disposal considerations**

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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**SECTION 14. Transport information**

**Land transport (DOT)**

UN number UN 2789  
Proper shipping name ACETIC ACID, GLACIAL  
Class 8 (3)  
Packing group II  
Environmentally hazardous --

**Air transport (IATA)**

UN number UN 2789  
Proper shipping name ACETIC ACID, GLACIAL  
Class 8 (3)  
Packing group II  
Environmentally hazardous --  
Special precautions for user no

**Sea transport (IMDG)**

UN number UN 2789  
Proper shipping name ACETIC ACID, GLACIAL  
Class 8 (3)  
Packing group II  
Environmentally hazardous --  
Special precautions for user yes  
EmS F-E S-C

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**SECTION 15. Regulatory information**

United States of America

Canada

**WHMIS Classification**

B3 Combustible Liquid  
E Corrosive Material  
Combustible Liquid, May be corrosive to metals., Corrosive to skin, Corrosive to eyes, Corrosive by inhalation.

This product has been classified according to the hazard criteria of the HPR and the SDS contains all of the information required by the HPR.

**Notification status**

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL

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**SECTION 16. Other information**

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## Training advice

Provide adequate information, instruction and training for operators.

## Labeling

*Hazard pictograms*



## Signal Word

Danger

## Hazard Statements

H226 Flammable liquid and vapor.

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

## Precautionary Statements

Prevention

P210 Keep away from heat.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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