

**Safety Data Sheet**

**1. IDENTIFICATION**

**Product Identifier:** Acetic Acid, Glacial

**Product Code(s):** A1010, A1053, MMSK886A100

**Synonyms:** Acetic Acid; Ethanoic Acid; Methanecarboxylic Acid; Alcohol of Vinegar

**Recommended Use:** For manufacturing, industrial, and laboratory use only. For use as a solvent or a laboratory reagent.

**Uses Advised Against:** Not for food, drug, or household use.

**Supplier:** Rocky Mountain Reagents, Inc.  
4621 Technology Drive, Golden, CO 80403  
Phone: (303) 762-0800 Fax: (303) 762-1240

**Emergency Phone Number:** (800) 255-3924 (CHEM-TEL)

**2. HAZARDS IDENTIFICATION**

**Hazard Classifications:**

Acute Toxicity – Dermal:	Category 4
Acute Toxicity – Inhalation:	Category 4
Skin Corrosion/Irritation:	Category 1A
Eye Damage/Irritation:	Category 1
Specific Target Organ Toxicity (Single Exposure):	Category 3
Aspiration Hazard:	Category 1
Flammable Liquids:	Category 3

**Signal Word:** DANGER

**Hazard Statements:**

- Harmful in contact with skin.
- Harmful if inhaled.
- Causes severe skin burns and serious eye damage.
- May cause respiratory irritation.
- May be fatal if swallowed and enters airways.
- Flammable liquid and vapor.

**Pictograms:**



## Precautionary Statements:

<b>Prevention:</b>	Wear protective gloves, protective clothing, eye protection, and face protection. Do not breathe fumes, vapors, mists, or spray. Use only outdoors or in a well ventilated area. Wash thoroughly after handling. Keep away from heat, sparks, open flames, and hot surfaces. – No smoking. Keep container tightly closed. Ground container and receiving equipment. Use explosion-proof electrical, ventilating, lighting, and transportation equipment. Use only non-sparking tools. Take precautionary measures against static discharge.
<b>Response:</b>	Immediately call a poison center or doctor. If on skin (or hair): Rinse skin with water. Take off immediately all contaminated clothing and wash it before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. If swallowed: Rinse mouth. Do NOT induce vomiting. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. In case of fire, use water spray, dry powder, alcohol resistant foam, or carbon dioxide to extinguish.
<b>Storage:</b>	Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
<b>Disposal:</b>	Dispose of contents and container in accordance with local, regional, national, and international regulations.
<b>Hazards Not Otherwise Classified:</b>	May be toxic to reproduction. Excessive exposure may cause skin or respiratory sensitization and tooth decay.
<b>Toxicity Statement:</b>	Not applicable.

## 3. COMPOSITION AND INFORMATION ON INGREDIENTS

Component	Common Name / Synonyms	CAS#	Chemical Formula	% by Weight
Acetic Acid	Ethanoic Acid; Alcohol of Vinegar	64-19-7	C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	≥ 99.7

**Trade Secret Statement:** Not applicable.

## 4. FIRST AID MEASURES

### First Aid Procedures:

<b>Inhalation:</b>	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious, or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.
<b>Ingestion:</b>	Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. Get medical attention immediately.

<b>Skin Contact:</b>	Remove contaminated clothing and shoes. Wash skin with plenty of water for at least 15 minutes. Wash clothing before reuse. Get medical attention immediately.
<b>Eye Contact:</b>	Check for and remove contact lenses if present and easy to do. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
<b>General Advice:</b>	Poison information centers in each state can provide additional assistance for scheduled poisons. Ensure that medical personnel and those providing first aid are aware of the material(s) involved and take precautions to protect themselves.
<b>Symptoms and Effects:</b>	Inhalation of vapors may cause coughing and dizziness. Ingestion may cause nausea, vomiting, blood in vomit, diarrhea, abdominal pain, constipation, and shock. Contact with the skin may cause blistering. May affect the blood, liver, kidneys, eyes, and central nervous system.
<b>Immediate Medical Care/ Special Treatment:</b>	Immediate medical attention is required. Call a physician or poison control center immediately. Treat symptomatically.

## 5. FIREFIGHTING MEASURES

<b>Suitable Extinguishing Media:</b>	Water spray, dry powder, alcohol resistant foam, carbon dioxide.
<b>Unsuitable Extinguishing Media:</b>	Do not use a solid (straight) water stream, as it may scatter and spread fire.
<b>Hazardous Combustion Products:</b>	Carbon oxides.
<b>Specific Hazards:</b>	Highly flammable. Vapors may cause flash fire or ignite explosively. Can be ignited easily by heat, sparks, or flames and burns vigorously. Material may burn with an invisible flame. Sealed containers may explode when heated or involved in fire. Material is sensitive to static discharge. Vapors may travel considerable distance to source of ignition and flash back. Vapor from the solvent may accumulate in container headspace, resulting in flammability hazard. High vapor concentration in air may cause an explosion hazard. Combustion may yield corrosive and/or toxic fumes.
<b>Special Protective Equipment/ Precautions for Firefighters:</b>	As in any fire, wear MSHA/NIOSH approved (or equivalent) self-contained, positive-pressure or pressure-demand breathing apparatus and full protective gear. Use water spray to cool unopened containers. Move containers from fire area, if you can do so without risk. Product may evaporate and leave a flammable residue. In the event of fire and/or explosion, do not breathe fumes.

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions and Protective Equipment:</b>	Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Keep upwind. Keep out of low areas. Wear appropriate personal protective equipment (see Section 8). Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. Avoid contact with eyes, skin, and clothing.
<b>Emergency Procedures:</b>	Evacuate surrounding personnel as needed. In case of chemical emergency, or if unsure how to address an accidental release, consult a professional (see Section 1).

**Methods for Containment:** Eliminate all sources of ignition. Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements, or confined areas. Dike the spilled material, where this is possible. Product should not be released to the environment. Contain and recover waste when possible.

**Methods for Cleanup:** Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, or fleece) and place in a non-combustible container for reclamation or disposal. Do not flush to sewer. Clean contaminated surface thoroughly. Residues from spills can be neutralized with a dilute sodium carbonate solution. Never return spills in original containers for reuse. Clean up in accordance with all applicable regulations.

## 7. HANDLING AND STORAGE

**Handling:** Do not handle, store, or open near an open flame, sources of heat, or sources of ignition. Wear personal protective equipment (see Section 8). Use only in well-ventilated areas. Provide sufficient air exchange and/or exhaust in work areas. Avoid contact with skin, eyes, and clothing. Do not breathe vapors or spray mist. Do not ingest. When using, do not eat, drink, or smoke. Take precautionary measures against static discharge. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials (see Section 10). Limit exposure to moisture. Use caution when opening product container, as pressure buildup may occur. Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty, as they retain product residues. Observe all warnings and precautions listed for this product.

**Storage:** Keep from freezing. Store in a cool, dry, ventilated area above 17 °C. Store in a segregated and approved area away from incompatible materials (see Section 10). Store in original container. Keep containers tightly closed and upright. Keep away from food, drink, and animal foodstuffs. Keep out of the reach of children. Ground container and transfer equipment. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of this product.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

<b>Exposure Limits:</b>	ACGIH:	TWA:	10 ppm
		STEL:	15 ppm
	OSHA:	PEL:	10 ppm
		NIOSH:	IDLH:
	TWA:		10 ppm
	STEL:	15 ppm	

**Engineering Controls:** Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

### Personal Protective Measures:

**Eye/Face Protection:** Wear safety glasses with side shields or goggles and a face shield. Maintain approved eye wash station and accessible rinse facilities in work area.

**Skin Protection:** Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

**Respiratory Protection:** An air-purifying, NIOSH-approved respirator with appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to

exceed exposure limits. Use a positive-pressure, air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are unknown, or if any other circumstances exist where air-purifying respirators may not provide adequate protection.

**Specific Requirements  
for Personal Protective  
Equipment:**

Ensure that glove material is compatible with this product. This information is available from glove manufacturers.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

*Unless otherwise indicated, all properties are given at 25 °C and standard pressure.*

<b>Appearance:</b>	Colorless, transparent liquid.
<b>Odor:</b>	Pungent, vinegar.
<b>Odor Threshold:</b>	< 1 ppm
<b>Formula Weight:</b>	60.05
<b>pH:</b>	2.4 (1 M aqueous)
<b>Melting/Freezing Point:</b>	16.2 °C
<b>Boiling Point/Range:</b>	117.9 °C
<b>Decomposition Temperature:</b>	No information found.
<b>Flash Point:</b>	39 °C
<b>Auto-ignition Temperature:</b>	483 °C
<b>Flammability:</b>	Explosive as vapor; flammable as liquid.
<b>Flammability/Explosive Limits:</b>	Lower: 4.0 % by volume Upper: 19.9 % by volume
<b>Solubility:</b>	Miscible with water, alcohol, ether, acetone, glycerol, tetrachloromethane.
<b>Vapor Pressure:</b>	11.4 mmHg at 20 °C, 55.0 mmHg at 50 °C
<b>Vapor Density:</b>	2.1 at 20 °C (Air = 1)
<b>Specific Gravity:</b>	1.049 (Water = 1)
<b>Evaporation Rate:</b>	0.97 (Butyl Acetate = 1)
<b>Viscosity:</b>	Dynamic: 1.53 mPa s Kinematic: 1.168 mm <sup>2</sup> /s
<b>Partition Coefficient (n-octanol/water):</b>	-0.17

## 10. STABILITY AND REACTIVITY

<b>Reactivity Data:</b>	Highly flammable. See Section 9. Corrosive to several materials, especially certain metals.
<b>Chemical Stability:</b>	Stable under normal conditions. Hygroscopic.
<b>Conditions to Avoid:</b>	Heat, flames, sparks, sources of ignition, cold temperatures, moisture, incompatible materials.
<b>Incompatible Materials:</b>	Oxidizing agents, strong bases, metals, amines, carbonates, phosphates.
<b>Hazardous Decomposition Products:</b>	Carbon oxides, hydrogen.

**Possibility of Hazardous Reactions:** May react vigorously, violently, or explosively if exposed to excess thermal conditions or in contact with the incompatible materials listed above. Contact with metals may yield hazardous concentrations of hydrogen gas.

**Hazardous Polymerization:** Will not occur.

## 11. TOXICOLOGICAL INFORMATION

**Routes of Exposure:** Inhalation, ingestion, skin contact, eye contact.

**Acute Effects:** Corrosive. Harmful if swallowed or inhaled. Causes burns and damage to the eyes, skin, respiratory tract, and gastrointestinal tract. May affect the mucous membranes, blood, brain, urinary system, liver, eyes, and kidneys.

**Chronic Effects:** Prolonged or repeated exposure may cause tooth damage, skin discoloration, and respiratory irritation. Prolonged or repeated exposure may cause mutagenic effects, skin sensitization, and adverse reproductive effects.

**Toxicological Data:**

LD <sub>50</sub> Oral, Rat:	3310 mg/kg
LC <sub>50</sub> Inhalation, Rat:	11.4 mg/L 4 h
LD <sub>50</sub> Dermal, Rabbit:	1060 mg/kg

Corrosive to skin and eyes based on animal data.  
May cause reproductive effects based on animal data.

**Symptoms of Exposure:** Irritation, blistering, burns, dizziness, visual disturbances, metabolic acidosis, suffocation, shortness of breath, coughing, nausea, vomiting, blood in vomit, diarrhea, constipation, abdominal pain, blindness, bronchitis, shock.

**Carcinogenic Effects:** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicological Data:**

EC <sub>50</sub> Water Flea ( <i>Daphnia magna</i> ):	47 mg/L 24 h
LC <sub>50</sub> Fathead Minnow ( <i>Pimephales promelas</i> ):	88 mg/L 96 h
LC <sub>50</sub> Rainbow Trout ( <i>Oncorhynchus mykiss</i> ):	> 1000 mg/L 96 h

**Persistence and Degradability:** Expected to be readily biodegradable. Not expected to bioaccumulate.

**Environmental Effects:** Harmful to aquatic life. Avoid release to the environment.

Partition Coefficient (n-octanol/water): -0.17

## 13. DISPOSAL INFORMATION

**Disposal Instructions:** All wastes must be handled in accordance with local, state, and federal regulations. Minimize exposure to product waste (see Section 8). Do not dispose unused waste down drains or into sewers.

**Contaminated Packaging:** Because emptied containers retain product residue, follow label warnings even after container is emptied. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near product container. Offer rinsed packaging material to local recycling facilities.

**Waste Codes:** No information found.

## 14. TRANSPORT INFORMATION

### DOT:

**UN Number:** UN2789

**Proper Shipping Name:** Acetic acid, glacial

**Hazard Class:** 8, (3)

**Packing Group:** II

**ERG Number:** 132

**Environmental Hazard Regulations:** Not listed.

**Other Transport Precautions:** DOT Reportable Quantity: 5000 lb

## 15. REGULATORY INFORMATION

### U.S. Federal Regulations:

**OSHA:** This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Inventory:** All components of this product are on the U.S. TSCA Inventory.

### U.S. EPCRA (SARA Title III):

**Section 302:** No information found.

**Sections 311/312:**

Hazard Category	List (Yes/No)
Section 311 – Hazardous Chemical	Yes
Immediate Hazard	Yes
Delayed Hazard	Yes
Fire Hazard	Yes
Pressure Hazard	No
Reactivity Hazard	No

**Section 313:** No information found.

**CERCLA Reportable Quantities:** Acetic Acid, Glacial: 5000 lb

**International Inventories:**

Country or Region	Inventory Name	On Inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

\*A "Yes" indicates that the listed component(s) of this product comply with the inventory requirements administered by the governing country(s).

**16. OTHER INFORMATION****Disclaimer:**

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**Issue Date:**

May 18, 2016

**Reason for Revision:**

Update of Section 9 over 01/04/2016 version.