MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**ACETIC ACID GLACIAL**
Version #	06
Revision date	01-17-2012
CAS #	64-19-7
Product Codes	**J.T.Baker: 6903, 9502, 9503, 9507, 9508, 9511, 9513, 9514, 9515, 9517, 9522, 9523, 9524, 9526** **Macron: 0565, 10127, 1302, 2502, 2504, 3121, 37827, 8817, V005, V128, V136, V155, V185, V190, V193, V223, V624, V625, V631**
Synonym(s)	ETHANOIC ACID * METHANECARBOXYLIC ACID * ACETIC ACID
Manufacturer	Avantor Performance Materials, Inc.
Address	3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US
Customer Service	855-282-6867
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	DANGER Flammable liquid and vapor. Will be easily ignited by heat, spark or flames. Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Mist or vapor extremely irritating to eyes and respiratory tract.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Ingestion. Inhalation. Skin contact. Eye contact.
Eyes	Corrosive. Causes severe eye burns. Vapor or spray may cause eye damage, impaired sight or blindness.
Skin	Corrosive. Causes severe skin burns.
Inhalation	Corrosive. May cause damage to mucous membranes in nose, throat, lungs and bronchial system.
Ingestion	Corrosive. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.
Target organs	Eyes. Skin. Lungs. Respiratory system.
Chronic effects	Corrosive. Prolonged contact causes serious tissue damage.
Potential environmental effects	Harmful to aquatic organisms. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

3. Composition / Information on Ingredients

Components	CAS #	Percent
ACETIC ACID GLACIAL	64-19-7	99 - 100

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately.
Skin contact	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.
Inhalation	Move to fresh air. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.
Notes to physician	Keep victim under observation. Treat symptomatically.
General advice	In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Show this safety data sheet to the doctor in attendance. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties	HIGHLY FLAMMABLE! Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Heat may cause the containers to explode.

Extinguishing media

Suitable extinguishing media	Water spray. Foam. Dry powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

Protection of firefighters

Specific hazards arising from the chemical	Can be ignited easily and burns vigorously. Vapor from the solvent may accumulate in container headspace resulting in flammability hazard.
Protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Move containers from fire area if you can do so without risk. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. Some of these materials, if spilled, may evaporate leaving a flammable residue. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for fire-fighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Specific methods	In the event of fire and/or explosion do not breathe fumes. Use water spray to cool unopened containers.
Hazardous combustion products	Carbon monoxide and carbon dioxide.

6. Accidental Release Measures

Personal precautions	Wear appropriate protective equipment and clothing during clean-up. Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.
Methods for containment	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). 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.

Methods for cleaning up

Use only non-sparking tools. All equipment used when handling the product must be grounded.

Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Dike far ahead of spill for later disposal.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Collect in a non-combustible container for prompt disposal.

Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations. Neutralize spill area and washings with soda ash or lime. Collect in a non-combustible container for prompt disposal.

J. T. Baker NEUTRASORB® acid neutralizers are recommended for spills of this product.

7. Handling and Storage

Handling

DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Wear appropriate personal protective equipment. Do not get in eyes, on skin, on clothing. Do not taste or swallow. Wash thoroughly after handling. Do not eat, drink or smoke when using the product. Use caution when combining with water; DO NOT add water to acid, ALWAYS add acid to water while stirring to prevent release of heat, steam and fumes. See Section 8 of the MSDS for Personal Protective Equipment.

Storage

Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children. Do not store in metal containers. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids. Keep tightly closed in a dry, cool and well-ventilated place.

8. Exposure Controls / Personal Protection

ACGIH

Material	Type	Value
ACETIC ACID GLACIAL (64-19-7)	STEL	15.0000 ppm
	TWA	10.0000 ppm

Occupational exposure limits

U.S. - OSHA

Material	Type	Value
ACETIC ACID GLACIAL (64-19-7)	PEL	10.0000 ppm
		25.0000 mg/m3

Engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. 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. Explosion-proof general and local exhaust ventilation.

Personal protective equipment

Eye / face protection

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with acid gas cartridge.

General hygeine considerations

Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

General	Wear chemical protective equipment that is specifically recommended by the manufacturer. Launder contaminated clothing before reuse.

9. Physical & Chemical Properties

Appearance	Clear.
Color	Colorless.
Odor	Strong. Vinegar-like.
Odor threshold	Not available.
Physical state	Liquid.
Form	Liquid.
pH	2.4 (1.0 M Solution)
Melting point	62.6 °F (16.6 °C)
Freezing point	62.6 °F (16.6 °C)
Boiling point	244.4 °F (117.9 °C)
Flash point	103 °F (39.4 °C) Closed Cup
Evaporation rate	0.97 BuAc
Flammability limits in air, upper, % by volume	16 %
Flammability limits in air, lower, % by volume	4 %
Vapor pressure	2.093 kPa at 25°C
Vapor density	2.1
Specific gravity	1.0446
Relative density	Not available.
Solubility (water)	Miscible
Partition coefficient (n-octanol/water)	-0.17
Auto-ignition temperature	798.8 °F (426 °C)
Molecular weight	60.05 g/mol
Molecular formula	C2-H4-O2

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions. The substance is hygroscopic and will absorb water by contact with the moisture in the air.
Conditions to avoid	Heat, flames and sparks. Moisture.
Incompatible materials	Strong oxidizing agents. Peroxides. Caustics. Glycol. Metals.
Hazardous decomposition products	At thermal decomposition temperatures, carbon monoxide and carbon dioxide.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Test Results
ACETIC ACID GLACIAL (64-19-7)	Acute Dermal LD50 Rabbit: 1060 mg/kg
	Acute Inhalation LC50 Rat: 11.4 mg/l 4.00 Hours
	Acute Oral LD50 Rat: 3.31 g/kg

Sensitization	Not a skin sensitizer.
Acute effects	Strongly corrosive. May cause deep tissue damage.

Local effects	Causes severe burns.
Chronic effects	Corrosive. Prolonged contact causes serious tissue damage.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin corrosion/irritation	Corrosive to skin and eyes.
Epidemiology	No epidemiological data is available for this product.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Neurological effects	No data available for this product.
Reproductive effects	Contains no ingredient listed as toxic to reproduction
Teratogenicity	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Symptoms and target organs	Corrosive effects.
Further information	Danger of very serious irreversible effects. Symptoms may be delayed.

12. Ecological Information

Ecotoxicological data

Product	Test Results
ACETIC ACID GLACIAL (64-19-7)	EC50 Water flea (Daphnia magna): 65 mg/l 48.00 hours LC50 Bluegill (Lepomis macrochirus): 75 mg/l 96.00 hours

Ecotoxicity	Harmful to aquatic life. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability	Expected to be readily biodegradable.
Partition coefficient (n-octanol/water)	-0.17

13. Disposal Considerations

Waste codes	D001: Waste Flammable material with a flash point <140 F
Disposal instructions	Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.
Contaminated packaging	Since emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

14. Transport Information

DOT

Basic shipping requirements:	
UN number	UN2789
Proper shipping name	Acetic acid, glacial
Hazard class	8
Subsidiary hazard class	3
Packing group	II
Additional information:	
Special provisions	A3, A6, A7, A10, B2, IB2, T7, TP2
Basic shipping requirements:	
Labels required	8, 3
Additional information:	
Packaging exceptions	154
Packaging non bulk	202

Packaging bulk	243
Reportable quantity	5000
ERG number	132

IATA

Basic shipping requirements:	
UN number	2789
Proper shipping name	Acetic acid, glacial
Hazard class	8
Subsidiary hazard class	3
Packing group	II
Additional information:	
ERG code	8F

IMDG

Basic shipping requirements:	
UN number	2789
Proper shipping name	ACETIC ACID, GLACIAL
Hazard class	8
Subsidiary hazard class	3
Packing group	II

DOT

IATA

IMDG

15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA (Superfund) reportable quantity

ACETIC ACID GLACIAL: 5000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No
Section 311 hazardous chemical	Yes

Clean Water Act (CWA) Hazardous substance

Food and Drug Administration (FDA)

Total food additive
Direct food additive
GRAS food additive

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
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
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - Pennsylvania RTK - Hazardous Substances: Listed substance

ACETIC ACID GLACIAL (CAS 64-19-7) Listed.

Saf-T-Data

Health: 2 - Moderate (Poison)
Flammability: 2 - Moderate
Reactivity: 1 - Slight
Contact: 4 - Extreme (Corrosive)
Lab Protective Equip: DB - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER
Storage Color Code: R - Red (Flammable)

16. Labeling Info

Label Hazard Warning

DANGER

FLAMMABLE LIQUID AND VAPOR. Will be easily ignited by heat, spark or flames. Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Mist or vapor extremely irritating to eyes and respiratory tract.

Label Precautions

Keep away from heat, sparks and flame. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Use only with adequate ventilation. Wash thoroughly after handling. Keep container tightly closed in a cool, well-ventilated place.

Label First Aid

Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention immediately. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance.

17. Other Information

NFPA ratings

Health: 3
Flammability: 2
Instability: 0

Disclaimer

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