MSDS Number: A0326 Effective Date: 07/02/02
Supercedes: 05/17/01

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MSDS MATERIAL SAFETY DATA SHEET CHEMTREC: 800-424-9300 (USA)
==== ---------- 703-527-3887
From: Mallinckrodt Baker, Inc. (Outside USA & CANADA)
222 Red School Lane CANUTEC: 613-996-6666
Phillipsburg, NJ 08865
NOTE: Use CHEMTREC and CANUTEC
Emergency Telephone Number: 908-859-2151 phone numbers only in the event
of a chemical emergency.

All non-emergency questions should be directed to Customer Service
(1-800-582-2537) for assistance.

M A L L I N C K R O D T J. T. B A K E R
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ACETIC ACID GLACIAL
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1. Product Identification

Synonyms: Acetic acid, methane carboxylic acid; ethanoic acid
CAS No: 64-19-7
Molecular Weight: 60.05
Chemical Formula: CH3COOH
Product Codes: J.T. Baker:
5355, 5579, 5844, 6903, 9500, 9501, 9503, 9505, 9507,
9508, 9511, 9513, 9515, 9522, 9524, 9526
Mallinckrodt:
2501, 2504, 3121, 7711, 8817, H979, H983, V155, V193,
V194

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2. Composition / Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Acetic Acid	64-19-7	99.5 - 100%	Yes

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3. Hazards Identification

Emergency Overview

POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY
TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE
LUNG AND TOOTH DAMAGE. FLAMMABLE LIQUID AND VAPOR.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Poison)
Flammability Rating: 2 - Moderate
Reactivity Rating: 2 - Moderate
Contact Rating: 4 - Extreme (Corrosive)
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER
Storage Color Code: Red (Flammable)

Potential Health Effects

Inhalation:
Inhalation of concentrated vapors may cause serious damage to the lining of the nose, throat, and lungs. Breathing difficulties may occur. Neither odor nor degree of irritation are adequate to indicate vapor concentration.

Ingestion:
Swallowing can cause severe injury leading to death. Symptoms include sore throat, vomiting, and diarrhea. Ingestion of as little as 1.0 ml has resulted in perforation of the esophagus.

Skin Contact:
Contact with concentrated solution may cause serious damage to the skin. Effects may include redness, pain, skin burns. High vapor concentrations may cause skin sensitization.

Eye Contact:
Eye contact with concentrated solutions may cause severe eye damage followed by loss of sight. Exposure to vapor may cause intense watering and irritation to eyes.

Chronic Exposure:
Repeated or prolonged exposures may cause darkening of the skin, erosion of exposed front teeth, and chronic inflammation of the nose, throat, and bronchial tubes.

Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems, or impaired respiratory function may be more susceptible to the effects of the substance.

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4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

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5. Fire Fighting Measures

Fire:
Flash point: 40C (104F) CC
Autoignition temperature: 427C (801F)
Flammable limits in air % by volume:
lel: 4.0; uel: 16.0
Flammable Liquid and Vapor!

Explosion:
Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Reacts with most metals to produce hydrogen gas, which can form an explosive mixture with air.

Fire Extinguishing Media:
Water, dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures. Water diluted acid can react with metals to form hydrogen gas.

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6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Use water spray to dilute spill to a nonflammable mixture. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Use non-sparking tools and equipment. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802. J. T. Baker NEUTRASORB(R) or TEAM(R) 'Low Na+' acid neutralizers are recommended for spills of this product.

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7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage

and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Protect from freezing. Store above 17C (63F). Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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8. Exposure Controls / Personal Protection

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL):
10 ppm (TWA).
-ACGIH Threshold Limit Value (TLV):
10 ppm (TWA); 15 ppm (STEL).

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, a full facepiece respirator with organic vapor cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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9. Physical and Chemical Properties

Appearance: Boiling Point:
Clear, colorless liquid. 118C (244F)

Odor: Melting Point:
Strong, vinegar-like. 16.6C (63F)

Solubility: Vapor Density (Air=1):
Infinitely soluble. 2.1

Density: Vapor Pressure (mm Hg):
1.05 11 @ 20C (68F)

pH: Evaporation Rate (BuAc=1):
2.4 (1.0M solution) 0.97

% Volatiles by volume @ 21C (70F):
100

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10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability. Releases heat and toxic, irritating vapors when mixed with water. Acetic acid contracts slightly upon freezing which may cause the container to burst.

Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition. May also release toxic and irritating vapors.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Acetic Acid is incompatible with chromic acid, nitric acid, ethylene glycol, perchloric acid, phosphorous trichloride, oxidizers, sodium peroxide, strong caustics, most metals (except aluminum), carbonates, hydroxides, oxides, and phosphates.

Conditions to Avoid:
Heat, flame, ignition sources, freezing, incompatibles

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11. Toxicological Information

Oral rat LD50: 3310 mg/kg; skin rabbit LD50: 1.06 g/kg; inhalation mouse LC50: 5620ppm/1-hr; investigated as a mutagen, reproductive effector.

\Cancer Lists\

---NTP Carcinogen---

Ingredient	Known	Anticipated	IARC Category
Acetic Acid (64-19-7)	No	No	None

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12. Ecological Information

Environmental Fate:
When released into the air, this material may be moderately degraded by

reaction with photochemically produced hydroxyl radicals. When released into air, this material is expected to have a half-life between 10 and 30 days. When released into water, this material is expected to readily biodegrade. When released into the water, this material is expected to have a half-life between 1 and 10 days. Standard dilution BOD5/TOD = 58% When released into the soil, this material is expected to readily biodegrade. This material is not expected to significantly bioaccumulate. This material has an estimated bioconcentration factor (BCF) of less than 100.

Environmental Toxicity:
This material is expected to be slightly toxic to aquatic life. The LC50/96-hour values for fish are between 10 and 100 mg/l.

For glacial acetic acid:
EC50 (wheat fumigation) = 23.3 mg/m3/2-hr, effect: leaf injury
LC50 (shrimp) = 100 - 300 mg/l/48-hr
LC50 (fathead minnow) = 88 mg/l/96-hr
This material may be toxic to aquatic life.

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13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

Dispose of container and unused contents in accordance with federal, state and local requirements.

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14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: ACETIC ACID, GLACIAL (WITH MORE THAN 80% ACID, BY MASS)
Hazard Class: 8, 3
UN/NA: UN2789 Packing Group: II
Information reported for product/size: 450LB

International (Water, I.M.O.)

Proper Shipping Name: ACETIC ACID, GLACIAL (WITH MORE THAN 80% ACID, BY MASS)
Hazard Class: 8, 3
UN/NA: UN2789 Packing Group: II
Information reported for product/size: 450LB

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15. Regulatory Information

\Chemical Inventory Status - Part 1\

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Ingredient TSCA EC Japan Australia
---------------------------------------------- ---- --- ----- ---------
Acetic Acid (64-19-7) Yes Yes Yes Yes
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\Chemical Inventory Status - Part 2\

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--Canada--
Ingredient Korea DSL NDSL Phil.
---------------------------------------------- ----- --- ---- -----
Acetic Acid (64-19-7) Yes Yes No Yes
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\Federal, State & International Regulations - Part 1\

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-SARA 302- ------SARA 313------
Ingredient RQ TPQ List Chemical Catg.
---------------------------------------- --- ----- ---- --------------
Acetic Acid (64-19-7) No No No No
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\Federal, State & International Regulations - Part 2\

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-RCRA- -TSCA-
Ingredient CERCLA 261.33 8(d)
---------------------------------------- ------ ------ ---
Acetic Acid (64-19-7) 5000 No No
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Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
Reactivity: Yes (Pure / Liquid)

Australian Hazchem Code: 2P
Poison Schedule: S6

WHMIS: This MSDS has been prepared according to the hazard criteria of
the Controlled Products Regulations (CPR) and the MSDS contains
all of the information required by the CPR.

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16. Other Information

NFPA Ratings:
Health: 3 Flammability: 2 Reactivity: 0

Label Hazard Warning:
POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY
TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE
LUNG AND TOOTH DAMAGE. FLAMMABLE LIQUID AND VAPOR.

Label Precautions:

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

Label First Aid:
In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.

Product Use:
Laboratory Reagent.

Revision Information:
MSDS Section(s) changed since last revision of document include: 3.

Disclaimer:
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