1. CHEMICAL PRODUCT and COMPANY IDENTIFICATION

Product Name: ACETIC ACID, GLACIAL
Product Code: 111111
MSDS Number: #2
SYNONYMS: ETHANOIC ACID
METHANECARBOXYLIC ACID

HOECHST CELANESE CHEMICAL GROUP
1601 W. LBJ FREEWAY
PO BOX 819005
DALLAS, TX 753819005
USA

TRANSPORTATION EMERGENCY PHONE
(24 HOURS/DAY):
In USA, call ............ 800 424 9300.
Outside USA, call*.... 202 483 7617.
*collect calls accepted
In Canada, call ......... 403 477 8339.
In Europe, call (31) 10 400 22 64.

2. COMPOSITION / INFORMATION on INGREDIENTS

COMPONENT CAS NUMBER
ACETIC ACID* 64-19-7 99.8%
*OSHA hazardous according to 29 CFR 1910.1200

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:
Acetic acid is a clear, colorless mobile liquid with a strong, acrid, vinegar-like odor.

CAUTION!
Combustible liquid and vapor

POTENTIAL HEALTH EFFECTS

TRANSPORTATION EMERGENCY: (800) 424 9300 IN U.S., CHEMTREC - 24 HRS/DAY
PRODUCT EMERGENCY: (800) 835 5235 HOECHST CELANESE, 24 HRS/DAY
PRODUCT INFORMATION: (214) 277 4000 (7:30 AM TO 4:15 PM, CST)

The Hoechst name and logo are registered trademarks of Hoechst AG.
3. HAZARDS IDENTIFICATION (Continued)

ROUTES OF EXPOSURE:
Skin, Eyes, Inhalation, Ingestion

IMMEDIATE EFFECTS

SKIN:
Can cause chemical burn.
Can cause chemical burn - damage irreversible. Vapors are severely irritating.

INHALATION:
Causes severe irritation of nasal passages, throat and lungs. Can cause pulmonary edema (accumulation of fluid in the lungs); signs and symptoms can be delayed for several hours.

INGESTION:
Causes severe irritation of and damage to mouth, throat and stomach.

DELAYED/LONG TERM EFFECTS

REPRODUCTION: No evidence of reproductive effects (human experience).

CARCINOGENIC:
No evidence of carcinogenicity (human experience).

MUTAGENIC:
No evidence of mutagenicity (human experience)

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
Significant exposure to this chemical may adversely affect people with chronic disease of the respiratory system, skin eyes and/or teeth.

FOR FURTHER INFORMATION, SEE:
Section 4 - First Aid Measures
Section 5 - Fire Fighting Measures
Section 6 - Accidental Release Measures
Section 8 - Exposure Controls/Personal Protection
Section 9 - Physical and Chemical Properties
Section 10 - Stability and Reactivity
4. FIRST AID MEASURES

SKIN: Remove contaminated clothing and wash contaminated skin with large amounts of soap and water. If irritation persists, contact a physician.

EYES: Flush eyes with water for at least 15 minutes. Contact a physician immediately.

INHALATION: Remove patient from contaminated area. If breathing has stopped, give artificial respiration, then oxygen if needed. Contact a physician immediately.

INGESTION: Patient should be made to drink large quantities of water. Do not induce vomiting. Contact a physician immediately.

5. FIRE FIGHTING MEASURES

NFPA (H, F, R): 2, 2, 1

FLAMMABLE PROPERTIES
FLASHPOINT CLOSED CU: 109.0 F (42.8 C)
FLASHPOINT OPEN CUPE: 112.0 F (44.5 C)

UPPER EXPLOSIVE LMT : 16.6 %
In air by volume
LOWER EXPLOSIVE LMT: 5.3 %
In air by volume

HAZARDOUS PRODUCTS OF COMBUSTION:
Carbon monoxide.

EXTINGUISHING MEDIA:
Use carbon dioxide or dry chemical for small fires; alcohol-type aqueous film-forming foam or water spray for large fires.

FIRE FIGHTING INSTRUCTIONS:
If potential for exposure to vapors or products of combustion exists, wear complete personal protective equipment, including self-contained breathing apparatus with full face-piece operated in pressure demand or other positive pressure mode. Water spray can be used to reduce intensity of flames.
FIRE FIGHTING INSTRUCTIONS: (Continued)

and to dilute spills to nonflammable mixture. Use water spray to cool fire-exposed structures and vessels.

----- 6. ACCIDENTAL RELEASE MEASURES -----

Eliminate ignition sources. Avoid eye or skin contact; see "Section 8: Exposure Controls/Personal Protection" for respirator information. Place leaking containers in well-ventilated area with spill containment. If fire potential exists, blanket spill with alcohol-type aqueous film-forming foam or use water spray to disperse vapors. Contain spill to facilitate clean-up. Clean-up methods may include absorbent materials, vacuum truck, etc. Avoid run-off into storm sewers and ditches leading to water ways.

Call the National Response Center (800 424 8802) if the quantity spilled is equal to or greater than the reportable quantity (RQ) under CERCLA "Superfund": 5000 lb/day.

If an odor or acidity problem exists, neutralize with lime or sodium bicarbonate.

For more information, see "Section 15 Regulatory Information".

------------------ 7. HANDLING and STORAGE -------------------

HANDLING:
Use with adequate ventilation. Keep containers closed when not in use. Always open containers slowly to allow any excess pressure to vent. Avoid breathing vapor. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Decontaminate soiled clothing thoroughly before re-use. Destroy contaminated leather clothing.

When transferring, follow proper grounding procedures
Keep away from heat, sparks and flame.

STORAGE:
Store in a well-ventilated area Use only DOT-approved containers.

Do not store with incompatible materials; see "Section 10 Stability and Reactivity".
8. EXPOSURE CONTROLS | PERSONAL PROTECTION

ENGINEERING CONTROLS:
General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred.

PROTECTIVE EQUIPMENT
A safety shower and eye bath should be readily available.

SKIN:
Wear impervious clothing and gloves to prevent repeated or prolonged contact. The recommended material of construction is: Nitrile rubber.

EYES:
Wear chemical goggles when there is a reasonable chance of eye contact.

INHALATION:
Based on workplace contaminant level and working limits of the respirator, use a respirator approved by NIOSH/MSHA. The following is the minimum recommended equipment for an acceptable level of exposure. To estimate an acceptable level of exposure, see "Section 3 - Hazards Identification", "Section 8 - Exposure Controls/Personal Protection" and "Section 11 - Toxicological Information".

For concentrations $\geq 1$ and $\leq 10$ times the acceptable level: Use air-purifying respirator with full facepiece and organic vapor cartridge(s) or air-purifying full facepiece respirator with an organic vapor canister or a full facepiece powered air-purifying respirator filled with organic vapor cartridge(s).

For concentrations $> 10$ and the lower of either $< 100$ times the acceptable level or $< \text{IDLH}$: Use Type C full facepiece supplied-air respirator operated in pressure-demand or continuous-flow mode.

For concentrations $\geq 100$ times the acceptable level or IDLH level or unknown concentration (such as in emergencies): Use self-contained breathing apparatus with full facepiece in pressure-demand mode. Type C positive-pressure full facepiece supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus escape system.

**TRANSPORTATION EMERGENCY:** (800) 424 9300 IN U.S., CHEMTREC - 24 HRS/DAY

**PRODUCT EMERGENCY:** (800) 835 5335 HOECHST CELANESE, 24 HRS/DAY

**PRODUCT INFORMATION:** (214) 377 4000 (7:30 AM TO 4:15 PM, CST)

The Hoechst name and logo are registered trademarks of Hoechst AG.
INHALATION: (Continued)

For escape: Use self-contained breathing apparatus with full facepiece or any respirator specifically approved for escape.

EXPOSURE GUIDELINES:

ACETIC ACID, GLACIAL (64-19-7)

OSHA PEL: 10 PPM (PEL)

ACGIH TLV: 15 PPM (STEL)

10 PPM (TWA)

Hoechst Celanese has adopted the ACGIH TLV.

Immediately Dangerous to Life or Health (IDLH) level: 1000 ppm.

9. PHYSICAL and CHEMICAL PROPERTIES ---

APPEARANCE: Clear, colorless mobile liquid.
ODOR: Strong, acrid, vinegar-like odor.
PHYSICAL STATE: Liquid.
VAPOR PRESSURE: 11.4 MMHG

20 deg C
VAPOR DENSITY: 2.07

Air = 1 @ 20 deg C
BOILING POINT: 118.1 C (244.6 F)

(760 mm Hg)
FREEZING POINT: 16.6 C (61.9 F)

SOLUBILITY: Complete @ 20 deg C
SPECIFIC GRAVITY: 1.051

H2O =1 @ 20/20 deg C
EVAPORATION RATE:

1.0
BuAc = 1
% VOLATILES: 100.0
MOLECULAR WEIGHT: 60.0
Product Name: ACETIC ACID, GLACIAL
Product Code: 111111
MSDS Number: #2
Version Date: 11/09/1994

10. STABILITY and REACTIVITY

CHEMICAL STABILITY:
Stable.

CONDITIONS TO AVOID:
Flame.

INCOMPATIBILITY:
Oxidizing agents, for example, hydrogen peroxide, nitric acid, perchloric acid or chromium trioxide; strong alkalis such as sodium hydroxide.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon monoxide.

HAZARDOUS POLYMERIZATION:
Will not occur

11. TOXICOLOGICAL INFORMATION

Oral LD50 3.3 g/kg (rats); slightly toxic to animals.
Dermal LD50 1.1 g/kg (rabbits); moderately toxic to animals by absorption.
Inhalation LcLo 16,000 ppm (rats, 4 hrs.); practically non-toxic to animals.

12. ECOLOGICAL INFORMATION

This information is being researched

13. DISPOSAL CONSIDERATIONS

Note: This information applies to the manufactured product

All notification, clean-up and disposal should be carried out in accordance with federal, state and local regulations. Preferred methods of waste disposal are incineration or biological treatment in federal/state approved facility.

Hazardous waste (40 CFR 261): Yes; D001 D002.

TRANSPORTATION EMERGENCY: (800) 424-9300
PRODUCT EMERGENCY: (800) 835-5235
PRODUCT INFORMATION: (214) 277-4000

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Product Name: ACETIC ACID, GLACIAL
Product Code: 111111
MSDS Number: #2
Version Date: 11/09/1994

14. TRANSPORT INFORMATION

Shipping name: Acetic Acid, Glacial
Hazard class: 8, Corrosive Material
Subsidiary hazard: UN2789
United Nations no.: II
Packing group: 29
DOT Reportable Quantity (RQ): 5000 lb/2270 kg
Classification: Corrosive 8 (9.2)
Subsidiary hazard: Flammable Liquid 3.3

15. REGULATORY INFORMATION

RECIPIENT MUST COMMUNICATE ALL PERTINENT INFORMATION HEREIN TO EMPLOYEES AND CUSTOMERS.

STATE REGULATIONS
The following chemicals associated with the product are subject to the right-to-know regulations in these states:

ACETIC ACID (64-19-7): CT, FL, IL, LA, MA, NJ, NY, PA, RI

U.S. FEDERAL REGULATIONS

We certify that all components are either on the TSCA inventory or qualify for an exemption.

SARA 313: No components listed

ENVIRONMENTAL:
CERCLA: ACETIC ACID, GLACIAL 99.8% (64-19-7)

SARA 304: ACETIC ACID, GLACIAL 99.8% (64-19-7)

SARA 311:
Acute health: Yes
Chronic health: No
Fire: Yes
Sudden release of pressure: No
Reactive: No

TRANSPORTATION EMERGENCY: (800) 424 9300
PRODUCT EMERGENCY: (800) 835 5235
PRODUCT INFORMATION: (214) 277 4000

IN U.S., CHEMTREC: 24 HRS/DAY
HOECHST CELANESE, 24 HRS/DAY
(7:30 AM TO 4:15 PM, CST)
15. REGULATORY INFORMATION (Continued)

INTERNATIONAL REGULATIONS
Listed on the chemical inventories of the following countries: Australia, Canada, Europe (EINECS), Japan and Korea.

WHMIS INGREDIENT DISCLOSURE LISTED COMPONENTS:
WHMIS CLASSIFICATION: Class B, Division 3; Class E; Class D, Division 2, Subdivision B.

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

MSDS prepared by: Product Stewardship Department
Hoechst Celanese Chemical Group

HAZARD RATINGS

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<th>HEALTH</th>
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This information is intended solely for the use of individuals trained in the NFPA and HMIS systems.

REVISION INDICATORS:
The following sections have been revised:

SECTION 3: HAZARDS IDENTIFICATION
SKIN
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION
SKIN INHALATION
SECTION 16: OTHER INFORMATION
HAZARD RATINGS

DISCLAIMER:
The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist.
Hoechst Celanese Chemical Group, Inc. makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. Effects can be aggravated by other materials and/or this material may aggravate or add to the effects of

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DISCLAIMER: (Continued)

other materials. This material may be released from gas, liquid, or solid materials made directly or indirectly from it. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.