ACETIC ACID

1. CHEMICAL IDENTITY

Chemical Name :	Acetic Acid (Pure compound)	Chemical Classification :	Aliphatic Carboxylic acid
Synonyms :	Gla. Acetic acid, Methane Carboxylic Acid, Ethanoic acid, Pyroligneus acid, Vinegar acid, Methane corboxylic acid, Ethylic acid.	Trade Name :	Glacial acetic acid
Formula :	CH_3COOH	C.A.S. No. :	64-19-7
		U.N. No. :	2789

Regulated Identification :

Shipping Name :	Acetic acid		
Codes/Label :	Corrosive Class 8 Flammable causes severe burns	Hazchem Code No. :	2 P
Hazardous waste I.D. No. :	83		

Hazardous ingredients :	C.A.S. No.	% weight
1. Acetic acid	64-19-7	100.00

2. PHYSICAL AND CHEMICAL DATA

Boiling Range/point degreeC : 118.1 | Physical State : Liquid | Appearance : Colourless

Melting/Freezing Point degree C : 16.7

Vapour Pressure : -- 11.4 mm Hg at 20 degree | Odour : Pungent Odour Acidic vinegar like

Vapour Density : 2.1 (Air = 1) | Solubility in water at 30 degree C : Yes Soluble 100% | Others : Miscible with alcohol and ether.

Specific Gravity : 1.05 Water = 1 | pH : 1 M Sol. is 2.4 | Density : 1049 Kg/m^3 at 20^0 C | Evaporation range : 0.97 Relative to n-butylacetate.

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : Yes | LEL : 4% UEL : 19.9 % | Flash Point degree C : 44.44 (OC) | Autoignition temperature : 426.6 ^{0}C

TDG Flammability : N.A. | Flash Point degree C : 39.0 (CC)

Explosion Sensitivity to Impact : Stable | Explosion Sensitivity to Static Electricity : N.A. | Hazardous Combustion Products : Emits irritating vapour when heated. Irritating and toxic fumes may be emitted upon decomposition. Combustion may produce CO, CO_2

Hazardous Polymerisation : Will not Occur

Combustible liquid : Yes | Explosive : No | Corrosive Material : Yes

Flammable Material : Yes | Oxidiser : No | Others :

Pyrophoric Material : No

Organic Peroxide : No

4. REACTIVITY DATA

Chemical Stability	Stable under condition of normal use.
Incompatibility with other material	Avoid contact with Strong Oxidisers, chromic acid, sodium peroxide, nitric acid, oleum, ammonium nitrate, ClF3, reducing agent, Ethlene diamine, Ethyl amine, Phosphorous trichloride.
Reactivity	React vigorously with oxidising materials. Attacks most common metals including most S.S. Metals.. Excellent solvent for many synthetic resins or rubber. Corrosive to metals.
Hazardous Reaction Products	Irritating and toxic fumes may be emitted upon decomposition. Combustion may produce carbon monoxide and carbondioxide. Reactions with metals may produce hydrogen gas. It can be dangerously reactive with strong acids or oxidizing agents.

5. HEALTH HAZARDS DATA

Routes of Entry	Inhalation, Ingestion, Skin and eyes. Target organs are respiratory system, skin, eyes, teeth.
Effects of Exposure/Symptoms	Extremly irritating and corrosive. Burns eyes.
Eyes	Extremly irritating and corrosive. Burns eyes. Liquid or vapour may cause severe damage and may result in loss of vision. An aqueous solution at concentrations above 10 % will cause severe conjunctival irritation and corneal damage. Direct contact may cause conjunctivitis, redness, pain, blurred vision, conjunctival and corneal destruction and permanent injury.
Skin	Product will cause severe burns.Extremely irritating and corrosive. Contact may cause reddening, itching, inflammation, burns, blistering and tissue damage. May also cause brownish or yellowish stains on the skin. Readily absorbed through the skin. Cause skin sensitization. Causes hyper keratosis, black skin.
Inhalation	Exposure to vapour at concentrations of 15 ppm and above may have the following effects : irritation of nose, throat and respiratory tract. Higher concentrations will have the following effects : Severe irritation of nose, throat and respiratory tract. May cause severe irritation to the respiratory tract. Exposure to fume or mist may cause chemical pneumonitis, bronchitis and pulmonary edema. Severe exposure may result in lung tissue damage and corrosion of the mucous membranes. Chronic exposure may produce erosion of the teeth and jaw necrosis. It causes pharyngeal edema. Chronic exposure may cause chronic bronchitics.
Ingestion	May cause burning pain of the mouth, throat and abdomen and coughing and constriction of the the throat, followed by nausea, abdominal spasms, vomiting, hematemesis and diarrhea. May also cause hematuria, albuminuria, nephrosis, asphyxia and death. Highly corrosive Swallowing have the following effects corrosion of mouth, throat and digestive tract.
Special Toxic effects	Mutagenic in non-mammalian test systems.
Emergency Treatment	See at para 7- First aid Measures for details.
Inhalation	Remove the victim at once to fresh air area, if breathing becomes difficult give oxygen. Remove from exposure.
Skin	Remove the wetted clothes, flush the affected area with plenty of water. Immediately flood the skin with large quantities of Water, preferably under a shower.
Eyes	Irrigate with plenty of water for 15 minutes.
Ingestion	If victim is conscious, have him drink water or milk. Get medical care as quickly as possible. Wash out mouth with water.

TLV (ACGIH)	10 ppm	25 mg/m3	STEL : 15 ppm, 37 mg/m3
Permissible Exposure Limit	10 ppm	25 mg/m3	Odour Threshold 1 ppm, 2.4 mg/m3

LD - 50 (Oral-Rat)	3310 mg/Kg	IDLH	1000 ppm	
NFPA Hazard Signals	Health	Flammability	Reactivity	Special
	2	2	1	--

6. PREVENTIVE MEASURES

Personal Protective Equipment	Avoid contact with liquid or vapours. Do not eat or drink at work place. Provide PVC hand gloves, aprons, complete eye protection and respiratory protection EYE PROTECTION : Wear chemical safety goggles and face shield. Do not wear contact lenses when working with this substance. Have eye washing facilities readily available where eye contact can occur. SKIN PROTECTION : Wear gloves and protective clothing to prevent skin contact. Suggested protective materials are : Neoprene, PVC Nitrile Rubber gloves. Provide safety showers at any location where skin contact can occur. If there is danger of splashing wear PVC or rubber boots.RESPIRATORY PROTECTION : If exposure limits are exceeded or if irritation is experienced NIOSH approved respiratory protection should be worn. For high concentrations and for oxygen-deficient atmospheres, use a NIOSH approved air - supplied respirator. Ventilation and other forms of engineering controls are often the preferred means for controlling chemical exposures. Respiratory protection may be needed for non-routine or emergency situations. Air supplied respirators/breathing apparatus. Self contained breathing apparatus must for exposure above the hygiene standard are likely or for emergency leakage.
Handling and Storage Precautions	Keep in a cool, dry, well ventilated place. Avoid inhaling vapour, contact with eyes, skin and clothing. Emergency shower and eye wash facilities should be readily available. Keep container tightly closed when not in use. Care should be exercised in the choice of materials for pumps, gaskets and lines. Suitable storage materials are : aluminium and its alloys, stainless steel, polyethylene, glass. Do not store in mild steel. For gaskets and seals use butyl rubber, compressed asbestos, PTFE. Note that the vapour may condense and solidify causing blockage of flame arrestors and pressure vaccum valves. Storage temperature should be controll between 20 and 30 degree. Pipes should be heated or adequately lagged to prevent cooling and solidification in the lines. For other areas where product spillage is likely to occur, ridged acid resistant tiles will provide better resistance to attack than concrete.

7. EMERGENCY AND FIRST AID MEASURE

FIRE	FIRE EXTINGUSTING MEDIA :	Carbon dioxide, dry chemical powder, water spray & alcohol resistant form.
FIRE	Special Procedures :	Use water spray, dry chemical, alcohol resistant foam, all purpose AFFF or carbon dioxide to extinguish fire. Use water spray to cool fire-exposed containers, structures and to protect personnel. If leak or spill has not ignited, ventilate the area and use water spray to disperse gas or vapour and to protect personnel attempting to stop leak. use water to dilute spills and to flush them away from sources of ignition. Do not flush down public sewers or other drainage systems. EXPOSED FIREFIGHTERS MUST WEAR MSHA/NIOSH APPROVED POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS with full face mask and full protective clothing.
	Unusual Hazards :	Dangerous when exposed to heat of flame. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Irritating or toxic substances may be emitted upon thermal decomposition.
EXPOSURE	First Aid Measures	INHALATION : Remove the victim to fresh air area keep warm and at rest. If there is a difficulty in breathing give oxygen. If breathing stops or shows signs of failing provide artificial respiration or oxygen if necessary after ensuring clear airway Give CPR. Do not use mouth to mouth ventilation. If heart beat are absent give external cardiac compression. Obtain medical attention urgently. EYES : If substance has gone in eyes wash with plenty of water for 15 mins holding eye open and obtain medical treatment urgent. SKIN : Immediatley flood the skin with large quantities of water. Remove contaminated clothing as washing proceeds. Wash for at least 15 minutes. Wash the area of contact thoroughly with soap and water. Discard contaminated clothing and leather shoes. Obtain medical attention if blistering occurs or redness persists. INGESTION : Wash out mouth with water. Give sips of cold water or milk to soothe the affected parts if the victim is conscious. Do not induce vomiting. Obtain medical attention urgently. Treatment may be needed for shock. Keep the affected part on warm and at rest.
	Antidotes/Dosages	--
Notes to Physician		INHALATION : Delayed pulmonary edema may occur, and patient should be maintained under observation for this complication. INGESTION : The agent is an acid, corrosive and produced coagulative necrosis of the buccal cavity, esophagus and stomach. The major causes of death are circulatory shock, asphyxia due to glottic or laryngeal edema, perforation of the esophagus or stomach. While treatment of acute ingestion is controversial, induction of emesis and use of carbon dioxide producing anti-acids are contraindicated. Nasal gastric intubation should be udertaken only with the risk of perforation recognized in contrast to the value of gastric aspiration and lavage. Late complications may include esophageal, gastric or pyloric stenosis.
SPILLS	Steps to be taken :	Try to prevent the material from entering or going in the water courses. Wear appropriate clothing. Wear Self contained Breathing Apparatus / respiratory protection. Eliminate all sources of ignition. Vapours can explode if ignited in closed area.Contain and absorb using earth, sand or inert material. Transfer into suitable containers for recovery or disposal. Neutralise with sodium carbonate or bicarbonate. Finally flush area with plenty of water.

Waste disposal Method :	Correctly incinerated material will decompose to corbondioxide and water only. Landfill after ensuring that material is no longer reactive and has been neutralised. Labels should not be removed before cleaning the containers. Empty containers may contain hazardous residues. Contaminated containers should not be treated as household waste. Containers should be cleaned by appropriate method and then disposed of by landfill or incineration as appropriate. Do not incinerate closed containers. Treat the contaminated water used for spillage control or used for dilution or for fire fighting.

8. ADDITIONAL INFORMATION / REFERENCES :

A human poison by unspecified routes. Moderately explosive and fire hazard when exposed to heat or flame. Potentially explosive reaction with 5-Azidotetrazole, Bromine Pentafluoride, Chromium Trioxide, Hydrogen Peroxide, Potassium Permanganate, Sodium Peroxide, Phosphorous Trichloride

The product is involatile and water soluble and will partition into the aqueous phase. The product will leach into soil. The product is readily biodegradable. BOD5 = 51 % of ThOD (Closed bottle test - BOD) It is biodegraded under anaerobic conditions. Product is not expected to bioaccumulate. The product is rated slightly toxic to aquatic species. The product is involatile and water soluble and will partition into the aqueous phase. The product will leach into soil. The product is readily biodegradable. BOD5 = 51 % of ThOD (Closed bottle test - BOD) It is biodegraded under anaerobic conditions. Product is not expected to bioaccumulate. The product is rated slightly toxic to aquatic species.

9. MANUFACTURE / SUPPLIERS DATA

Name of Firm Mailing Address	**M/S GNFC Ltd. Po. Narmadanagar, Bharuch - 392 015**	Contact Person in Emergency	
Telephone/Telex Nos. : 47001- 47028		Fax No. :	02642-47057/64/121
Telephonic Address :	Local Bodies Involved		
	Standard Packing		Road Tanker
	Tremcard Detail/Ref.		Yes
	Others.		

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