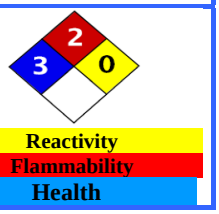
Product Name:

Acetic Acid



1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/ UNDERTAKING

Identification of the substance	**Acetic acid, glacial**
Country of origin:	**Iran (Islamic Republic of Iran)**
CAS Number:	**64-19-7**
Synonyms:	**Acetic acid, methane carboxylic acid, ethanoic acid, glacial acetic acid**
Company/undertaking identification	**National Petrochemical Company (NPC) Iran Petrochemical Commercial Company (IPCC)**
Manufacturer subcontractor:	**None**
Emergency phone number:	**00982188881735**
Contact email:	**msds@petrochem-ir.net**
Fax:	**00982188839511**
Association/Organization:	**None**
Use of the substance/ Application:	**Photo-reagent. Pharmaceuticals. Cellulose acetate. Vinyl acetate. Acetic anhydride. Esterifying agent. Reaction solvents. Monochloroacetic acid.**

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous substances:	**None**
Hazardous label(s):	**Hazard Symbols: C, Risk Phrases: 10 35**
Toxicological characteristics:	**CAS# 64-19-7: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.**
Substances present at a concentration below the minimum danger:	**None**
Other component:	**None**

3. IDENTIFICATION OF HAZARDS

Risk phrases:	**Danger! Flammable liquid. Corrosive. Causes severe eye and skin burns. Causes severe digestive and respiratory tract burns.**
Skin contact:	**Causes severe burns with delayed tissue destruction. Effects may include redness, pain, skin burns. High vapor concentrations may cause skin sensitization.**
Eye contact:	**Causes severe eye burns. Contact with liquid or vapor causes severe burns and possible irreversible eye damage.**

Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. Causes severe pain, nausea, vomiting, diarrhea, and shock.

Inhalation: Effects may be delayed. May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.

4. FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor
NEVER induce swallowing in an unconscious person.

Skin contact: Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately.

In case of exposure by inhalation: Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

In case of splashes or contact with eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately.

In case of swallowing: Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately. Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flammable class: NFPA Rating: flammability-2

Suitable extinguishing media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Use water spray to cool fire-exposed containers.

Special exposure hazards arising from the substance or preparation itself, combustion Above flash point, vapor-air mixtures are explosive within flammable limits. Vapors

products, resulting gases:	**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.**
Special protective equipment for fire fighting :	**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.**
Other information:	**Dilute acetic acid and dilute hydrogen can undergo an exothermic reaction if heated; forming per acetic acid which is explosive at 110 degrees C. Reaction between chlorine trifluoride and acetic acid is very violent, sometimes explosive.**

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	**Use proper personal protective equipment as indicated in Section 8.**
Environmental precautions:	**Ventilate and clear area of all unprotected personnel.**
Methods for cleaning up and disposal:	**Use water spray to dilute spill to a non-flammable mixture. Avoid runoff into storm sewers and ditches which lead to waterways. Wash area with soap and water. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Provide ventilation. Cover with material such as dry soda ash or calcium carbonate and place into a closed container for disposal.**
Other information:	**Contact emergency services. Prevent soil and water pollution. Plug the leak. Collect the spilled acid using explosion proof pumps, or dilute with water to reduce fire danger**

7. HANDLING AND STORAGE

The regulations relating to storage premises apply to workshop where the product is handled :

Handling:	**Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Avoid contact with heat, sparks and flame. Do not get on skin or in eyes. Do not ingest or inhale. Use only in a chemical fume hood. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.**
Storage:	**Keep away from heat, sparks, and flame. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Store in a suitable container in a dry area above the substance's freezing point. Do not store near alkaline substances.**

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit values:	**ACGIH:10 ppm ; 25 mg/m3; 15 ppm STEL; 37 mg/m3 STEL NIOSH: 10 ppm TWA; 25 mg/m3 TWA 50 ppm IDLH OSHA – Final PELs: 10 ppm TWA; 25 mg/m3 TWA**
Exposure controls:	**For Engineering Controls, Use only under a chemical fume hood.**
Personal protective equipment:	**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.
Eye protection:	**Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.**
Respiratory protection:	**Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.**
Hand protection:	**Wear appropriate gloves to prevent skin exposure.**
Skin and body protection:	**Wear appropriate protective clothing to prevent skin exposure. Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.**
Health measures:	**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.**
Environmental exposure controls:	**See section 13.**

9. PHYSICAL AND CHEMICAL PROPERTIES

General information:	**Acetic acid is a liquid product.**
Appearance (at 20°C):	**Clear, colorless liquid.**
Colour:	**Colorless**
Odour:	**Pungent (vinegar) odor. Strong, vinegar-like.**
PH (at 20°C):	**2.4 (1.0M solution)**
Boiling point/range (°C):	**117°C - 118°C @ 760.00mm Hg**
Flash point (°C):	**40 °C (104.00°F)**
Flammability:	**Flammable**
Auto-ignition temperature:	**427°C (800.60° F)**
Explosive properties:	**Not available**
Vapour pressure (at 20°C):	**15 mm Hg**
Density (at 20°C):	**1.0490g/cm3**

Solubility (at 20°C):	**Water solubility: Infinitely soluble.** **Solubility in other chemicals: Soluble in Diethyl ether, acetone. Miscible with Glycerol, alcohol, Benzene, Carbon Tetrachloride, Practically insoluble in Carbon Disulfide.**
Viscosity (40°C):	**1.53 mPas 25 de**
Evaporation rate:	**0.97 (BuAc=1):**
Other information:	**Molecular Formula:C2H4O2**

10. STABILITY AND REACTIVITY

Stability:	**Stable under normal temperatures and pressures. 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**
Conditions to avoid:	**Heat, flame, ignition sources, freezing, incompatibles**
Material to avoid:	**Acetaldehyde, 2-aminoethanol, ammonium nitrate, bromine pent fluoride, chlorine trifluoride, chlorosulfonic acid, chromic acid, chromic anhydride + acetic anhydride, diallyl methyl carbinol + ozone, ethylene diamine, ethyleneimine, hydrogen peroxide, nitric acid, nitric acid + acetone, oleum, perchloric acid, permanganates, phosphorus isocyanate, phosphorus trichloride, potassium hydroxide, potassium-t-butoxide, sodium hydroxide, sodium peroxide, and xylene. See NFPA Fire Protection Guide for specifics.**
Hazardous decomposition products:	**Carbon dioxide and carbon monoxide may form when heated to decomposition. May also release toxic and irritating vapors.**

11. TOXICOLOGICAL INFORMATION

Acute toxicity:	**- LD_{50}, oral, rat ($mg.kg^{-1}$): 3310** **- LC_{50}, mouse: 5620 ppm/1H;** **- LD_{50}, dermal ($mg.kg^{-1}$): 1060 (rabbit)**
Sub chronic – chronic toxicity:	**Not listed**
Sensitization:	**Not listed**
Carcinogenicity:	**CAS# 64-19-7: Not listed by ACGIH,**

	IARC, NIOSH, NTP, or OSHA.
Reproductive effects:	**Fertility: male index, itt-rat TDLo=400 mg/kg. orl-rat TDL0 700 mg/kg (18D post)**
Human experience:	**MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, mucous membranes, skin, teeth**
Other information:	**Teratogenicity: Effects on Newborn: behavioral, orl-rat TDLo=700 mg/kg.**

12. ECOLOGICAL INFORMATION

Ecotoxicity:	**Bluegill (fresh water) TLm=75 ppm/96H Goldfish (fresh water) TLm=100 ppm/96H Shrimp (aerated water) LC50=100-330 ppm/48H Water danger/protection: WGK 1**
Bioaccumulative potential:	**Substance spreads on soil surface and penetrates at rate dependent on soil type and water content. Substance readily degrades in water and shows little potential for bioaccumulation.**
Mobility:	**Not listed**
Persistence and degradability:	**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**
Other adverse effects:	**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.**

13. DISPOSAL CONSIDERATIONS

Disposal of product:	**Dispose of in a manner consistent with federal, state, and local regulations.**
Disposal of packaging:	**Dispose of container and unused contents in accordance with federal, state and local requirements.**

14. TRANSPORT INFORMATION

Land transport:	**Hazard class : 8** **packing group : II**
ADR/RID:	**Class:8 Corrosive material**
Packaging group:	**II**
Maritime transport:	**It can be transported by road and rail and ship.**
	Hazard class : 8 **packing group : II**
Air transport:	**It can be transported by road and rail and ship.**

15. REGULATORY INFORMATION

Hazardous label(s):	**Flammable & Corrosive**
Safety phrases:	**S 23 - Do not inhale gas/fumes/vapor/spray.** **S 26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.** **S 45 - In case of accident of if you feel unwell, seek medical advice immediately. (show the label where possible)**
Risk phrases:	**R 10 - Flammable.** **R 35 - Causes severe burns.**

16. OTHER INFORMATION

None

The contents and format of this MSDS are in accordance with EEC Commission Directive 2001/58/EC

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