



کیمیا تهران اسید  
مرکز ریسش انواع مواد شیمیایی

# MATERIAL SAFETY DATA SHEET

## 1. Chemical product and company identification

<b>Product name</b>	ACETIC ACID CHEMICALLY PURE
<b>Chemical formula</b>	C2-H4-O2
<b>Product use</b>	Industrial applications
<b>Synonyms</b>	Acetic acid.

## 2. Composition/information on ingredients

Ingredient name	CAS #	% by weight	Exposure limits
Acetic acid	64-19-7	100	<b>ACGIH TLV (United States, 9/2004).</b> STEL: 37 mg/m <sup>3</sup> 15 minute(s). STEL: 15 ppm 15 minute(s). TWA: 25 mg/m <sup>3</sup> 8 hour(s). TWA: 10 ppm 8 hour(s). <b>OSHA PEL (United States, 6/1993).</b> TWA: 25 mg/m <sup>3</sup> 8 hour(s). TWA: 10 ppm 8 hour(s).

## 3. Hazards identification

<b>Physical state</b>	Liquid.
<b>Color</b>	Clear. Colorless.
<b>Emergency overview</b>	DANGER! CORROSIVE.  COMBUSTIBLE LIQUID AND VAPOR. VAPOR MAY CAUSE FIRE. CAUSES EYE DAMAGE. CAUSES SKIN BURNS. CAUSES RESPIRATORY TRACT BURNS.

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

**Routes of entry** Absorbed through skin. Eye contact. Inhalation. Ingestion.

### Potential Health Effects

<b>Eyes</b>	Corrosive. Causes eye damage.
<b>Skin</b>	Corrosive. Causes skin burns
<b>Inhalation</b>	Corrosive. Causes respiratory tract burns.
<b>Ingestion</b>	Corrosive. Causes severe irritation or burns of the mouth, throat, and esophagus.

See toxicological information (section 11)



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#### 4. First aid measures

<b>Eye Contact</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
<b>Skin Contact</b>	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. Thoroughly clean shoes before reuse. Get medical attention immediately.
<b>Inhalation</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
<b>Ingestion</b>	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

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#### 5. Fire-fighting measures

<b>Flammability of the product</b>	COMBUSTIBLE.
<b>Auto-ignition temperature</b>	463 °C
<b>Flash point</b>	39 °C (Closed cup) Pensky-Martens.
<b>Explosion limits</b>	Lower: 4 % Upper: 16 %
<b>Products of combustion</b>	These products are carbon oxides (CO, CO <sub>2</sub> ).
<b>Unusual fire/explosion hazards</b>	Combustible liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.  This material is not explosive as defined by established regulatory criteria.
<b>Fire fighting media and instructions</b>	In case of fire, use water fog, foam, dry chemicals, or carbon dioxide. DO NOT FIGHT FIRE WHEN IT REACHES MATERIAL. Withdraw from fire and let it burn. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. First move people out of line-of-sight of the scene and away from windows. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
<b>Protective clothing (fire)</b>	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

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#### 6. Accidental release measures

<b>Personal Precautions</b>	Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Do not touch or walk through spilled material. Use suitable protective equipment (See Section: "Exposure controls/personal protection"). Follow all fire fighting procedures (See Section: "Fire-fighting measures").
<b>Environmental precautions and clean-up methods</b>	If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal. Minimize contact of spilled material with soils to prevent runoff to surface waterways. See Section 13 for Waste Disposal Information.
<b>Personal protection in case of a large spill</b>	Splash goggles. Full suit. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

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#### 7. Handling and storage

<b>Handling</b>	Do not get in eyes, on skin or on clothing. Use only with adequate ventilation. Avoid breathing vapor or mist. Do not breathe vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling.
<b>Storage</b>	Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).



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## 8. Exposure controls/personal protection

### Occupational exposure limits

#### Ingredient name

Acetic acid

#### Occupational exposure limits

**ACGIH TLV (United States, 9/2004).**

STEL: 37 mg/m<sup>3</sup> 15 minute(s).

STEL: 15 ppm 15 minute(s).

TWA: 25 mg/m<sup>3</sup> 8 hour(s).

TWA: 10 ppm 8 hour(s).

**OSHA PEL (United States, 6/1993).**

TWA: 25 mg/m<sup>3</sup> 8 hour(s).

TWA: 10 ppm 8 hour(s).

#### Control Measures

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the work-station location.

#### Hygiene measures

Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

#### Personal protection

##### Eyes

Do not get in eyes. Wear face shield. Chemical splash goggles.

##### Skin and Body

Do not get on skin or clothing. Wear clothing and footwear that cannot be penetrated by chemicals or oil. Wear face shield.

##### Respiratory

Use only with adequate ventilation. Do not breathe vapor or mist. If ventilation is inadequate, use certified respirator that will protect against organic vapor.

##### Hands

Wear gloves that cannot be penetrated by chemicals or oil. (Butyl rubber gloves.)

The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or S.O.P. for special handling directions

## 9. Physical and chemical properties

Physical state	Liquid.
Odor	Vinegar (Strong.)
Color	Clear. Colorless.
Boiling point / Range	117.9 °C
Melting point / Range	16.6 °C
Chemical formula	C2-H4-O2
Density	1049 kg/m <sup>3</sup> (1.049 g/cm <sup>3</sup> ) at 20°C
Vapor pressure	0.202 kPa (1.52 mm Hg)
Vapor Density (Air = 1)	2.1
Solubility	Soluble in water.
Dispersion properties	See solubility in water.
Viscosity	Kinematic: 1.17 mm <sup>2</sup> /s (1.17 cSt) at 20°C



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## 10. Stability and reactivity

<b>Stability and Reactivity</b>	The product is stable.
<b>Conditions to avoid</b>	This product should be stored away from oxidizing materials and strong bases.
<b>Incompatibility with various substances</b>	Reactive with metals, oxidizing agents, reducing agents.
<b>Hazardous Decomposition Products</b>	carbon oxides (CO, CO <sub>2</sub> )
<b>Hazardous polymerization</b>	Will not occur.

## 11. Toxicological information

### Acute toxicity

Ingredient name	Test	Result	Route	Species
Acetic Acid	LD50	3310 mg/kg	Oral	Rat
	LDLo	600 mg/kg	Oral	Rabbit

### Chronic toxicity

#### Carcinogenic effects

No component of this product at levels greater than 0.1% is identified as a carcinogen by ACGIH or the International Agency for Research on Cancer (IARC). No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program (NTP) or the U.S. Occupational Safety and Health Act (OSHA).

#### Mutagenic effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a mutagen.

#### Reproductive effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a reproductive toxin.

#### Teratogenic effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as teratogenic or embryotoxic.

## 12. Ecological information

<b>Ecotoxicity</b>	106 mg/l [LC50], 24 hour(s) [Fish (Minnows)]. 75 mg/l [LC50], 96 hour(s) [Fish (Bluegill.)]. 47 mg/l [IC50], 96 hour(s) [Daphnia (daphnia)].
<b>Persistence/degradability</b>	Readily biodegradable
<b>Mobility</b>	This product may move with surface or groundwater flows because its water solubility is: 100%
<b>Bioaccumulative potential</b>	This product is not expected to bioaccumulate through food chains in the environment.
<b>Other ecological information</b>	expected to be slightly toxic to aquatic species because of acidity

## 13. Disposal considerations

<b>Waste information</b>	Avoid contact of spilled material and runoff with soil and surface waterways. Consult an environmental professional to determine if local, regional or national regulations would classify spilled or contaminated materials as hazardous waste. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Dispose of in accordance with all applicable local and national regulations.
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Consult your local or regional authorities.



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## 14. Transport information

### International transport regulations

Regulatory Information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
<b>DOT Classification</b>	UN2789	Acetic acid, glacial or Acetic acid solution, more than 80 per cent acid, by mass acid solution	8 (3)	II	Not determined.	<p><b>Reportable quantity</b> 5000 lbs. (2268 kg)</p> <p><b>Limited quantity</b> Yes.</p> <p><b>Packaging instruction</b> <b>Passenger Aircraft</b> Quantity limitation: 1 L</p> <p><b>Cargo Aircraft</b> Quantity limitation: 30 L</p>
<b>TDG Classification</b>	UN2789	Acetic acid, glacial or Acetic acid solution, more than 80 per cent acid, by mass acid solution	8 (3)	II	Not determined.	----
<b>IMDG Classification</b>	UN2789	Acetic acid, glacial or Acetic acid solution, more than 80 per cent acid, by mass acid solution	8 (3)	II	 	<b>Emergency schedules (EmS)</b> 8-04
					 	
<b>IATA Classification</b>	UN2789	Acetic acid, glacial or Acetic acid solution, more than 80 per cent acid, by mass acid solution	8 (3)	II		<p><b>Quantity limitation - Passenger Aircraft - Limited quantity</b> 0.5 L</p> <p><b>Quantity limitation - Passenger Aircraft</b> 1 L</p> <p><b>Quantity limitation - Cargo Aircraft</b> 30 L</p>