



# Material Safety Data Sheet

<b>NFPA</b>  	<b>HMIS</b>  <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #00FFFF;">Health Hazard</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="background-color: #FFC0CB;">Fire Hazard</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="background-color: #FFFF00;">Reactivity</td> <td style="text-align: center;">0</td> </tr> </table>	Health Hazard	3	Fire Hazard	2	Reactivity	0	<b>Personal Protective Equipment</b>    See Section 15.
Health Hazard	3							
Fire Hazard	2							
Reactivity	0							

<b>Section 1. Chemical Product and Company Identification</b>		<b>Page Number: 1</b>
<b>Common Name/Trade Name</b>	Acetic acid, glacial	<b>Catalog Number(s).</b> NC-6077
<b>Distributor</b>	THE SCIENCE COMPANY 95 LINCOLN ST DENVER, CO 80203	<b>CAS#</b> 64-19-7
<b>Commercial Name(s)</b>	Not available.	<b>RTECS</b> AF1225000
<b>Synonym</b>	Acetic acid; glacial acetic acid	<b>TSCA</b> TSCA 8(b) inventory: Acetic acid
<b>Chemical Name</b>	Acetic Acid, Glacial	<b>CI#</b> Not applicable.
<b>Chemical Family</b>	Acid.	<b>IN CASE OF EMERGENCY</b> <b>CHEMTREC (24hr) 800-424-9300</b>  CUSTOMER SERVICE: (303) 777-3777
<b>Chemical Formula</b>	C2-H4-O2	
<b>Supplier</b>	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

<b>Section 2. Composition and Information on Ingredients</b>					
			<i>Exposure Limits</i>		
<b>Name</b>	<b>CAS #</b>	<b>TWA (mg/m<sup>3</sup>)</b>	<b>STEL (mg/m<sup>3</sup>)</b>	<b>CEIL (mg/m<sup>3</sup>)</b>	<b>% by Weight</b>
1) Acetic acid	64-19-7	10	15		100
<b>Toxicological Data on Ingredients</b>					
<b>Acetic acid, glacial:</b> ORAL (LD50): Acute: 3310 mg/kg [Rat (Registry of Toxic Effects of Chemical Substances)]. 4960 mg/kg [Mouse]. 3530 mg/kg [Rat (The Merck Index, 13th ed.)]. DERMAL (LD50): Acute: 1060 mg/kg [Rabbit]. VAPOR (LC50): Acute: 5620 ppm 1 hours [Mouse].					

<b>Section 3. Hazards Identification</b>	
<b>Potential Acute Health Effects</b>	Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive), of eye contact (corrosive). Slightly hazardous in case of skin contact (permeator). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
<i>Continued on Next Page</i>	

<b>Potential Chronic Health Effects</b>	<p>Hazardous in case of skin contact (irritant), of ingestion, of inhalation.</p> <p><b>CARCINOGENIC EFFECTS:</b> Not available.</p> <p><b>MUTAGENIC EFFECTS:</b> Mutagenic for bacteria and/or yeast.</p> <p><b>TERATOGENIC EFFECTS:</b> Not available.</p> <p><b>DEVELOPMENTAL TOXICITY:</b> Not available.</p> <p>The substance may be toxic to lungs, mucous membranes, upper respiratory tract, skin, eyes, teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.</p>
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#### Section 4. First Aid Measures

<b>Eye Contact</b>	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. 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. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
<b>Serious Skin Contact</b>	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
<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>Serious Inhalation</b>	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. <b>WARNING:</b> It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
<b>Ingestion</b>	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
<b>Serious Ingestion</b>	Not available.

#### Section 5. Fire and Explosion Data

<b>Flammability of the Product</b>	Flammable.
<b>Auto-Ignition Temperature</b>	463°C (865.4°F)
<b>Flash Points</b>	CLOSED CUP: 39°C (102.2°F). OPEN CUP: 43°C (109.4° F).
<b>Flammable Limits</b>	LOWER: 4% UPPER: 19.9%
<b>Products of Combustion</b>	These products are carbon oxides (CO, CO <sub>2</sub> ).
<b>Fire Hazards in Presence of Various Substances</b>	Flammable in presence of open flames and sparks, of heat. Slightly flammable to flammable in presence of oxidizing materials, of metals.
<b>Explosion Hazards in Presence of Various Substances</b>	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of oxidizing materials.
<b>Fire Fighting Media and Instructions</b>	Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
<b>Special Remarks on Fire Hazards</b>	It reacts with metals to produce flammable hydrogen gas. It will ignite on contact with potassium-tert-butoxide. A mixture of ammonium nitrate and acetic acid ignites when warmed.
<b>Special Remarks on Explosion Hazards</b>	Acetic acid vapors may form explosive mixtures with air. Reactions between acetic acid and the following materials are potentially explosive: 5-azidotetrazole, bromine pentafluoride, chromium trioxide, hydrogen peroxide, potassium permanganate, sodium peroxide, and phosphorus trichloride. Dilute acetic acid and dilute hydrogen can undergo an exothermic reaction if heated, forming peracetic acid which is explosive at 110 degrees C. Reaction between chlorine trifluoride and acetic acid is very violent, sometimes explosive.

**Section 6. Accidental Release Measures**

<b>Small Spill</b>	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: <b>Neutralize the residue with a dilute solution of sodium carbonate.</b>
<b>Large Spill</b>	Flammable liquid. Corrosive liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. If the product is in its solid form: Use a shovel to put the material into a convenient waste disposal container. If the product is in its liquid form: Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Absorb with an inert material and put the spilled material in an appropriate waste disposal. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. <b>Neutralize the residue with a dilute solution of sodium carbonate.</b> Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

**Section 7. Handling and Storage**

<b>Precautions</b>	Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, acids, alkalis.
<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).

**Section 8. Exposure Controls/Personal Protection**

<b>Engineering Controls</b>	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
<b>Personal Protection</b>	Splash goggles. Synthetic apron. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious).
<b>Personal Protection in Case of a Large Spill</b>	Splash goggles. Full suit. Vapor respirator. 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.
<b>Exposure Limits</b>	TWA: 10 STEL: 15 (ppm) [Australia] TWA: 25 STEL: 37 (mg/m <sup>3</sup> ) [Australia] TWA: 10 STEL: 15 (ppm) from NIOSH [United States] TWA: 25 STEL: 37 (mg/m <sup>3</sup> ) from NIOSH [United States] TWA: 10 STEL: 15 (ppm) [Canada] TWA: 26 STEL: 39 (mg/m <sup>3</sup> ) [Canada] TWA: 25 STEL: 37 (mg/m <sup>3</sup> ) [Canada] TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [United States] TWA: 10 (ppm) from OSHA (PEL) [United States] TWA: 25 (mg/m <sup>3</sup> ) from OSHA (PEL) [United States]  Consult local authorities for acceptable exposure limits.

**Section 9. Physical and Chemical Properties**

<b>Physical state and appearance</b>	Liquid.	<b>Odor</b>	Pungent, vinegar-like, sour (Strong.)
<b>Molecular Weight</b>	60.05 g/mole	<b>Taste</b>	Vinegar, sour (Strong.)
<b>pH (1% soln/water)</b>	2 [Acidic.]	<b>Color</b>	Colorless. Clear (Light.)
<b>Boiling Point</b>	118.1°C (244.6°F)		
<b>Melting Point</b>	16.6°C (61.9°F)		
<b>Critical Temperature</b>	321.67°C (611°F)		
<b>Specific Gravity</b>	1.049 (Water = 1)		
<b>Vapor Pressure</b>	1.5 kPa (@ 20°C)		
<b>Vapor Density</b>	2.07 (Air = 1)		
<b>Volatility</b>	Not available.		

Odor Threshold	0.48 ppm
Water/Oil Dist. Coeff.	The product is more soluble in water; log(oil/water) = -0.2
Ionicity (in Water)	Not available.
Dispersion Properties	See solubility in water, diethyl ether, acetone.
Solubility	Easily soluble in cold water, hot water. Soluble in diethyl ether, acetone. Miscible with Glycerol, alcohol, Benzene, Carbon Tetrachloride. Practically insoluble in Carbon Disulfide.

### Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Heat, ignition sources, incompatible materials
Incompatibility with various substances	Reactive with oxidizing agents, reducing agents, metals, acids, alkalis.
Corrosivity	Highly corrosive in presence of stainless steel(304). Slightly corrosive in presence of aluminum, of copper. Non-corrosive in presence of stainless steel(316).
Special Remarks on Reactivity	Reacts violently with strong oxidizing agents, acetaldehyde, and acetic anhydride. It can react with metals, strong bases, amines, carbonates, hydroxides, phosphates, many oxides, cyanides, sulfides, chromic acid, nitric acid, hydrogen peroxide, carbonates, ammonium nitrate, ammonium thiosulfate, chlorine trifluoride, chlorosulfonic acid, perchloric acid, permanganates, xylene, oleum, potassium hydroxide, sodium hydroxide, phosphorus isocyanate, ethylenediamine, ethylene imine.
Special Remarks on Corrosivity	Moderate corrosive effect on bronze. No corrosion data on brass
Polymerization	Will not occur.

### Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.
Toxicity to Animals	Acute oral toxicity (LD50): 3310 mg/kg [Rat (Registry of Toxic Effects of Chemical Substances)]. Acute dermal toxicity (LD50): 1060 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5620 1 hours [Mouse].
Chronic Effects on Humans	<b>MUTAGENIC EFFECTS:</b> Mutagenic for bacteria and/or yeast. May cause damage to the following organs: lungs, mucous membranes, upper respiratory tract, skin, eyes, teeth.
Other Toxic Effects on Humans	Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive), of eye contact (corrosive). Slightly hazardous in case of skin contact (permeator).
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	May affect genetic material (mutagenic). May cause adverse reproductive effects based on animal test data
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: Extremely irritating and corrosive. Causes skin irritation (reddening and itching, inflammation). May cause blistering, tissue damage and burns. Eyes: Extremely irritating and corrosive. Causes eye irritation, lacrimation, redness, and pain. May cause burns, blurred vision, conjunctivitis, conjunctival and corneal destruction and permanent injury. Inhalation: Causes severe respiratory tract irritation. Affects the sense organs (nose, ear, eye, taste), and blood. May cause chemical pneumonitis, bronchitis, and pulmonary edema. Severe exposure may result in lung tissue damage and corrosion (ulceration) of the mucous membranes. Inhalation may also cause rhinitis, sneezing, coughing, oppressive feeling in the chest or chest pain, dyspnea, wheezing, tachypnea, cyanosis, salivation, nausea, giddiness, muscular weakness. Ingestion: Moderately toxic. Corrosive. Causes gastrointestinal tract irritation (burning and pain of the mouth, throat, and abdomen, coughing, ulceration, bleeding, nausea, abdominal spasms, vomiting, hematemesis, diarrhea. May Also affect the liver (impaired liver function), behavior (convulsions, giddiness,

muscular weakness), and the urinary system - kidneys (Hematuria, Albuminuria, Nephrosis, acute renal failure, acute tubular necrosis). May also cause dyspnea or asphyxia. May also lead to shock, coma and death.

Chronic Potential Health Effects:

Chronic exposure via ingestion may cause blackening or erosion of the teeth and jaw necrosis, pharyngitis, and gastritis. It may also behavior (similar to acute ingestion), and metabolism (weight loss).

Chronic exposure via inhalation may cause asthma and/or bronchitis with cough, phlegm, and/or shortness of breath. It may also affect the blood (decreased leukocyte count), and urinary system (kidneys).

Repeated or prolonged skin contact may cause thickening, blackening, and cracking of the skin.


### Section 12. Ecological Information

<b>Ecotoxicity</b>	Ecotoxicity in water (LC50): 423 mg/l 24 hours [Fish (Goldfish)]. 88 ppm 96 hours [Fish (fathead minnow)]. 75 ppm 96 hours [Fish (bluegill sunfish)]. >100 ppm 96 hours [Daphnia].
<b>BOD5 and COD</b>	BOD-5: 0.34-0.88 g oxygen/g
<b>Products of Biodegradation</b>	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
<b>Toxicity of the Products of Biodegradation</b>	The products of degradation are less toxic than the product itself.
<b>Special Remarks on the Products of Biodegradation</b>	Not available.

### Section 13. Disposal Considerations

<b>Waste Disposal</b>	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
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### Section 14. Transport Information

<b>DOT Classification</b>	Class 8: Corrosive material CLASS 3: Flammable liquid.
<b>Identification</b>	UNNA: 2789 : Acetic Acid, Glacial PG: II
<b>Special Provisions for Transport</b>	Not available.
<b>DOT (Pictograms)</b>	

### Section 15. Other Regulatory Information and Pictograms

<b>Federal and State Regulations</b>	<p>New York release reporting list: Acetic acid, glacial          Pennsylvania RTK: Acetic acid, glacial          Minnesota: Acetic acid, glacial          Massachusetts RTK: Acetic acid, glacial          Massachusetts spill list: Acetic acid, glacial          New Jersey: Acetic acid, glacial          New Jersey spill list: Acetic acid, glacial          Louisiana spill reporting: Acetic acid, glacial          California Director's List of Hazardous Substances (8 CCR 339): Acetic acid, glacial          TSCA 8(b) inventory: Acetic acid, glacial          CERCLA: Hazardous substances.: Acetic acid, glacial: 5000 lbs. (2268 kg)</p>
<b>California Proposition 65 Warnings</b>	<p>California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.          California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.</p>
<b>Other Regulations</b>	

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).  
 EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 200-580-7).  
 Canada: Listed on Canadian Domestic Substance List (DSL).  
 China: Listed on National Inventory.  
 Japan: Listed on National Inventory (ENCS).  
 Korea: Listed on National Inventory (KECI).  
 Philippines: Listed on National Inventory (PICCS).  
 Australia: Listed on AICS.

**Other Classifications**

**WHMIS (Canada)** CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).  
 CLASS E: Corrosive liquid.

**DSCL (EEC)** R10- Flammable.  
 R35- Causes severe burns.

S23- Do not breathe gas/fumes/vapour/spray  
 S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**HMIS (U.S.A.)**

Health Hazard	3
Fire Hazard	2
Reactivity	0
Personal Protection	H

**National Fire Protection Association (U.S.A.)**



**WHMIS (Canada) (Pictograms)**



**DSCL (Europe) (Pictograms)**







**TDG (Canada) (Pictograms)**



**ADR (Europe) (Pictograms)**



**Protective Equipment**

-  Gloves (impervious).
-  Synthetic apron.
-  Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
-  Splash goggles.

**Section 16. Other Information****MSDS Code** A3040**References** Not available.**Other Special Considerations** Not available.

Validated by Sonia Owen on 11/14/2012.

Verified by Sonia Owen.

Printed 11/14/2012.

CALL (310) 516-8000

**Notice to Reader**

*All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.*