

# Seattle's Hub for Industry-driven Nanotechnology Education

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North Seattle College  
9600 College Way North  
Seattle, WA 98103  
[www.seattlenano.org](http://www.seattlenano.org)

## Soft Lithography: pH Sensor Safety Data Sheets (SDS)

Updated December 6, 2016

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**NORTH SEATTLE  
COLLEGE**

*One of the Seattle Colleges*



NSF DUE# 1204279

**Australian statement of hazardous nature :** Classified as hazardous according to criteria of Safe Work Australia

## Section 1 - Identification

**Product Name** Hydrochloric acid 20-37%

**Product Code** ACR38779, ACR38780, ACR38930, ACR38931, ACR44439, ACR12462, ACR12463, ACR42379, ACR45055, ACR45056, AJA1607, AJA2224, AJA5410, AJA715, AJA1367, APPA2427, FSBH/1100, FSBA466, FSBH/1196, FSBH/1205, FSBH/1111, FSBH/1150, FSBH/1185, FSBH/1190, FSBH/1196, FSBH/1200, FSBH/1202, FSBA508, FSBH/1180, , ALFL13091, ALF035607, ALF044921, ALF087617, ALF010990

**Address** ThermoFisher Scientific Australia Pty Ltd  
5 Caribbean Drive, Scoresby  
VICTORIA 3179, Australia

**Emergency Tel.** **CHEMTREC®**  
**03 9757 4559 or +613 9757 4559**

**Telephone / Fax Numbers** Tel: 1300 735 292

Fax: 1800 067 639

**E-mail address** [auinfo@thermofisher.com](mailto:auinfo@thermofisher.com)

**Recommended Use** Laboratory chemicals.

## Section 2 - Hazard(s) Identification

### Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

**Physical hazards**  
No hazards identified

### **Health hazards**

Acute Inhalation Toxicity - Vapors  
Skin Corrosion/irritation  
Serious Eye Damage/Eye Irritation

Category 3  
Category 1 A  
Category 1

**Environmental hazards**  
No hazards identified

### **Label Elements**



Skull and Crossbones



Corrosion

**Signal Word**

**Danger**

**Hazard Statements**

H314 - Causes severe skin burns and eye damage  
H331 - Toxic if inhaled

**Precautionary Statements**

P264 - Wash face, hands and any exposed skin thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection  
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower  
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor/ physician  
P363 - Wash contaminated clothing before reuse  
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
P501 - Dispose of contents/ container to an approved waste disposal plant

**Other information**

No information available

## Section 3 - Composition and Information on Ingredients

Component	CAS-No	Weight %
Hydrogen chloride	7647-01-0	20-37

## Section 4 - First Aid Measures

<b>Inhalation</b>	If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Move to fresh air. Immediate medical attention is required.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Protection of First-aiders</b>	No special precautions required.
<b>First Aid Facilities</b>	Eyewash, safety shower and washroom.
<b>Most important symptoms/effects</b>	None reasonably foreseeable. Causes burns by all exposure routes. . Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
<b>Notes to Physician</b>	Treat symptomatically.

## Section 5 - Fire Fighting Measures

**Suitable Extinguishing Media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### Extinguishing media which must not be used for safety reasons

No information available.

#### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

#### Special protective equipment and precautions for fire fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## Section 6 - Accidental Release Measures

#### Emergency procedures

Ensure adequate ventilation. Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

#### Environmental Precautions

Should not be released into the environment.

#### Methods for Containment and Clean Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

#### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## Section 7 - Handling and Storage

#### Precautions for Safe Handling

Wear personal protective equipment. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Do not ingest.

#### Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

## Section 8 - Exposure Controls and Personal Protection

#### Exposure limits

**ACGIH** - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace. **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **DE** - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Hydrogen chloride		Ceiling: 5 ppm Ceiling: 7.5 mg/m <sup>3</sup>	Ceiling: 2 ppm	STEL: 5 ppm 15 min STEL: 8 mg/m <sup>3</sup> 15 min TWA: 1 ppm 8 hr TWA: 2 mg/m <sup>3</sup> 8 hr	TWA: 2 ppm (8 Stunden). AGW - exposure factor 2 TWA: 3 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 TWA: 2 ppm (8 Stunden). MAK TWA: 3.0 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 4 ppm Höhepunkt: 6 mg/m <sup>3</sup>

#### Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### Exposure Controls

#### Engineering Measures

None under normal use conditions. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal protective equipment****Eye Protection**

Goggles (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

**Hand Protection**

Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Butyl rubber	See manufacturers recommendations	-	AS/NZS 2161.1	(minimum requirement)

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection**

Long sleeved clothing

**Respiratory Protection**

Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of respiratory protective devices

**Recommended Filter type:**

Particle filter Particulates filter conforming to EN 143 Acid gases filter Type E Yellow (or AUS/NZ equivalent)

**Recommended half mask:-**

Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 (or AUS/NZ equivalent)

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**

No information available.

## Section 9 - Physical and Chemical Properties

**Information on basic physical and chemical properties**

Appearance	Clear	
Physical State	Liquid	
Odor	No information available	
Odor Threshold	No data available	
pH	No data available	<1.0
Melting Point/Range	-35 °C / -31 °F	
Softening Point	No data available	
Boiling Point/Range	57 °C / 134.6 °F	
Flash Point	Not applicable	Method - No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	No data available	
Bulk Density	Not applicable	Liquid
Water Solubility	Soluble in water	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	

<b>Viscosity</b>	No data available
<b>Explosive Properties</b>	No information available
<b>Oxidizing Properties</b>	No information available

**Other information**

<b>Molecular Formula</b>	HCl
<b>Molecular Weight</b>	36.5

## Section 10 - Stability and Reactivity

<b>Reactivity</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Incompatible products, Excess heat.

**Hazardous Decomposition Products** None under normal use conditions.

**Hazardous Polymerization** Hazardous polymerization does not occur.

## Section 11 - Toxicological Information

### Information on Toxicological Effects

#### Product Information

##### (a) acute toxicity;

<b>Oral</b>	Based on available data, the classification criteria are not met
<b>Dermal</b>	Based on available data, the classification criteria are not met
<b>Inhalation</b>	Category 3

#### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrogen chloride	LD50 238 - 277 mg/kg ( Rat )	LD50 > 5010 mg/kg ( Rabbit )	LC50 = 1.68 mg/L ( Rat ) 1 h

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

##### (d) respiratory or skin sensitization;

<b>Respiratory</b>	No data available
<b>Skin</b>	No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

(g) reproductive toxicity; There are no known carcinogenic chemicals in this product

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

**Target Organs** No information available.

(j) aspiration hazard; No data available

**Symptoms / effects, both acute and delayed** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes

severe swelling, severe damage to the delicate tissue and danger of perforation

## Section 12 - Ecological Information

### Ecotoxicity effects

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Hydrogen chloride	LC50: = 282 mg/L, 96h static (Gambusia affinis)			

### Persistence and Degradability

#### Persistence

Persistence is unlikely, based on information available.

#### Bioaccumulative Potential

Bioaccumulation is unlikely

### Mobility

The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air.

### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

### Persistent Organic Pollutant

This product does not contain any known or suspected substance

### Ozone Depletion Potential

This product does not contain any known or suspected substance

## Section 13 - Disposal Considerations

### Waste from Residues / Unused Products

Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.

### Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

### Other Information

Chemical wastes should be disposed through a licensed commercial waste collection service. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not dispose of waste into sewer. Large amounts will affect pH and harm aquatic organisms.

## Section 14 - Transport Information

### IMDG/IMO

UN-No UN1789  
Proper Shipping Name HYDROCHLORIC ACID  
Hazard Class 8  
Packing Group III

### ADG

UN-No UN1789  
Proper Shipping Name HYDROCHLORIC ACID  
Hazard Class 8  
Packing Group III

Component	Hazchem Code
Hydrogen chloride	2RE
7647-01-0 ( 20-37 )	2R

### IATA

UN-No UN1789  
Proper Shipping Name HYDROCHLORIC ACID  
Hazard Class 8  
Packing Group III

### Environmental hazards

No hazards identified

### Special Precautions

No special precautions required

Additional information

None known

## Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

### International Inventories

X = listed

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	KECL
Hydrogen chloride	X	X	231-595-7	-	X	X	-	X	X	X	X

### Standard for the Uniform Scheduling of Medicines and Poisons

Component	Standard for the Uniform Scheduling of Medicines and Poisons	Health Surveillance
Hydrogen chloride	Schedule 5 listed - except its salts and derivatives; in preparations except in preparations containing ≤0.5% of Hydrochloric acid; or for therapeutic use Schedule 6 listed - except its salts and derivatives; except when included in Schedule 5; in preparations for therapeutic use; or in preparations containing ≤0.5% of Hydrochloric acid	
Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Hydrogen chloride	25 tonne	250 tonne
Component	Australian - Illicit Drug Precursors/Reagents Substance List	
Hydrogen chloride	Category 3	

**Prohibition or notification/licensing requirements** Shown below are details of specific prohibition/notifications or licensing requirements when they apply.

## Section 16 - Other Information

### Legend

**AICS** - Australian Inventory of Chemical Substances  
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**IECSC** - Chinese Inventory of Existing Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**NZS 5433:2012** - Transport of Dangerous Goods on Land

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**WEL** - Workplace Exposure Limit

**DNEL** - Derived No Effect Level

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**VOC** - Volatile Organic Compounds

**NZIoC** - New Zealand Inventory of Chemicals

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**ENCS** - Japanese Existing and New Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**CAS** - Chemical Abstracts Service

**ACGIH** - American Conference of Governmental Industrial Hygienists

**PNEC** - Predicted No Effect Concentration

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**ADG** Australian Code for the Transport of Dangerous Goods by Road and Rail

**OECD** - Organisation for Economic Co-operation and Development

**LC50** - Lethal Concentration 50%

**ATE** - Acute Toxicity Estimate

**RPE** - Respiratory Protective Equipment

**NOEC** - No Observed Effect Concentration

**BCF** - Bioconcentration factor

**PBT** - Persistent, Bioaccumulative, Toxic

### Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:**

**Physical hazards** On basis of test data

**Health Hazards** Calculation method

**Environmental hazards** Calculation method



**Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

**Revision Date** 09-Sep-2016

**Revision Summary** Update to Format.

**This safety data sheet complies with the requirements of Safe Work Australia WHS Regulation**

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**

## SAFETY DATA SHEET

Version 4.11  
Revision Date 06/02/2016  
Print Date 07/05/2017

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1. PRODUCT AND COMPANY IDENTIFICATION

## 1.1 Product identifiers

Product name : Sodium hydroxide

Product Number : 221465  
Brand : Sigma-Aldrich  
Index-No. : 011-002-00-6

CAS-No. : 1310-73-2

## 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

## 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052

## 1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

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2. HAZARDS IDENTIFICATION

## 2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Corrosive to metals (Category 1), H290  
Skin corrosion (Category 1A), H314  
Serious eye damage (Category 1), H318  
Acute aquatic toxicity (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)

H290 : May be corrosive to metals.  
H314 : Causes severe skin burns and eye damage.  
H402 : Harmful to aquatic life.

Precautionary statement(s)

P234 : Keep only in original container.  
P260 : Do not breathe dust or mist.  
P264 : Wash skin thoroughly after handling.  
P273 : Avoid release to the environment.  
P280 : Wear protective gloves/ protective clothing/ eye protection/ face

P301 + P330 + P331	protection.
P303 + P361 + P353	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	IF ON SKIN (or hair): Take off immediately all contaminated clothing.
	Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant stainless steel container with a resistant inner liner.
P501	Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Synonyms	: 'Caustic soda'
Formula	: HNaO
Molecular weight	: 40.00 g/mol
CAS-No.	: 1310-73-2
EC-No.	: 215-185-5
Index-No.	: 011-002-00-6
Registration number	: 01-2119457892-27-XXXX

#### Hazardous components

Component	Classification	Concentration
<b>Sodium hydroxide</b>		
	Met. Corr. 1; Skin Corr. 1A; Eye Dam. 1; Aquatic Acute 3; H290, H314, H318, H402	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

No data available

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

No data available

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## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

For disposal see section 13.

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## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Storage class (TRGS 510): Non-combustible, corrosive hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Sodium hydroxide	1310-73-2	TWA	2.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		C	2.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Skin irritation		

		C	2 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Skin irritation		
		C	2.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	2 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

#### Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Long-term local effects	1 mg/m3
Consumers	Inhalation	Long-term local effects	1 mg/m3

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

#### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form: pellets Colour: white
b) Odour	odourless
c) Odour Threshold	No data available
d) pH	14 at 50 g/l at 20 °C (68 °F)
e) Melting point/freezing point	Melting point/range: 318 °C (604 °F) - lit.
f) Initial boiling point and boiling range	1,390 °C (2,534 °F)
g) Flash point	Not applicable
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	< 24.00 hPa (< 18.00 mmHg) at 20 °C (68 °F) 4.00 hPa (3.00 mmHg) at 37 °C (99 °F)
l) Vapour density	1.38 - (Air = 1.0)
m) Relative density	2.1300 g/cm <sup>3</sup>
n) Water solubility	ca. 1,260 g/l at 20 °C (68 °F)
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

### 9.2 Other safety information

Bulk density	ca. 1,150 kg/m <sup>3</sup>
Relative vapour density	1.38 - (Air = 1.0)

---

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

Strong oxidizing agents, Strong acids, Organic materials

## 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Sodium oxides

Other decomposition products - No data available

Hazardous decomposition products formed under fire conditions. - Sodium oxides

In the event of fire: see section 5

---

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

#### Skin corrosion/irritation

Skin - Rabbit

Result: Causes severe burns. - 24 h

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Corrosive - 24 h

#### Respiratory or skin sensitisation

Will not occur

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

#### Reproductive toxicity

No data available

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

#### Additional Information

RTECS: WB4900000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

---

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Toxicity to fish LC50 - *Gambusia affinis* (Mosquito fish) - 125 mg/l - 96 h

LC50 - *Oncorhynchus mykiss* (rainbow trout) - 45.4 mg/l - 96 h

Toxicity to daphnia and Immobilization EC50 - *Daphnia* (water flea) - 40.38 mg/l - 48 h

other aquatic  
invertebrates

#### 12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

#### 12.3 Bioaccumulative potential

No data available

#### 12.4 Mobility in soil

No data available

#### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

#### 12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Harmful to aquatic life.

---

### 13. DISPOSAL CONSIDERATIONS

#### 13.1 Waste treatment methods

##### Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

##### Contaminated packaging

Dispose of as unused product.

---

### 14. TRANSPORT INFORMATION

#### DOT (US)

UN number: 1823      Class: 8      Packing group: II  
Proper shipping name: Sodium hydroxide, solid  
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

#### IMDG

UN number: 1823      Class: 8      Packing group: II      EMS-No: F-A, S-B  
Proper shipping name: SODIUM HYDROXIDE, SOLID

#### IATA

UN number: 1823      Class: 8      Packing group: II  
Proper shipping name: Sodium hydroxide, solid

---

### 15. REGULATORY INFORMATION

#### SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### SARA 311/312 Hazards

No SARA Hazards

#### Massachusetts Right To Know Components

Sodium hydroxide

CAS-No.	Revision Date
1310-73-2	2007-03-01

#### Pennsylvania Right To Know Components

Sodium hydroxide

CAS-No.	Revision Date
1310-73-2	2007-03-01

#### New Jersey Right To Know Components

CAS-No.	Revision Date
---------	---------------



**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION****Full text of H-Statements referred to under sections 2 and 3.**

Aquatic Acute	Acute aquatic toxicity
Eye Dam.	Serious eye damage
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H402	Harmful to aquatic life.
Met. Corr.	Corrosive to metals

**HMIS Rating**

Health hazard:	3
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

**NFPA Rating**

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0
Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

**Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

**Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

Version: 4.11

Revision Date: 06/02/2016

Print Date: 07/05/2017

**Australian statement of hazardous nature :** Classified as hazardous according to criteria of Safe Work Australia

## Section 1 - Identification

**Product Name**

Acetic Acid Glacial

**Product Code**

ACR12404, ACR14893, ACR22214, ACR29531, ACR42322, AJA1, AJA2, AJA2335, AJA714, AJA796, ALF010994, ALF033252, ALF036289, ALF039745, BAK9503-05, BAK9508-33, BSPAL723, FNNJJ001, FNNJJ0011, FNNJJ0021, FSBA/0360, FSBA/0400, FSBA/0406, FSBA/0407, FSBA/0411, FSBA/0418/xx, FSBA/0420, FSBA/0430, FSBA113, FSBA38500, FSBA491, FSBA507, FSBBP1185500, LCNA8401, MER10001, MER27013

**Address**

ThermoFisher Scientific Australia Pty Ltd  
 5 Caribbean Drive, Scoresby  
 VICTORIA 3179, Australia

**Emergency Tel.**

**CHEMTREC®**  
 03 9757 4559 or +613 9757 4559

**Telephone / Fax Numbers**

Tel: 1300 735 292

Fax: 1800 067 639

**E-mail address**

[auinfo@thermofisher.com](mailto:auinfo@thermofisher.com)

**Recommended Use**

Laboratory chemicals.

## Section 2 - Hazard(s) Identification

**Classification under Safe Work Australia**

Classified as hazardous according to criteria of Safe Work Australia

**Physical hazards**

Flammable liquids

Category 3

**Health hazards**

Skin Corrosion/irritation  
 Serious Eye Damage/Eye Irritation

Category 1 A  
 Category 1

**Environmental hazards**

No hazards identified

**Label Elements**



Flame



Corrosion

**Signal Word**

**Danger**

**Hazard Statements**

H226 - Flammable liquid and vapor  
H314 - Causes severe skin burns and eye damage

**Precautionary Statements**

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
P233 - Keep container tightly closed  
P240 - Ground/bond container and receiving equipment  
P242 - Use only non-sparking tools  
P243 - Take precautionary measures against static discharge  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection  
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower  
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor/ physician  
P363 - Wash contaminated clothing before reuse  
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction  
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
P501 - Dispose of contents/ container to an approved waste disposal plant

**Other information**

No information available

## Section 3 - Composition and Information on Ingredients

Component	CAS-No	Weight %
Acetic Acid Glacial	64-19-7	>95

## Section 4 - First Aid Measures

<b>Inhalation</b>	If breathing is difficult, give oxygen. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.
<b>Ingestion</b>	Do not induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Call a physician immediately.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.
<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Protection of First-aiders</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
<b>First Aid Facilities</b>	Eyewash, safety shower and washroom.
<b>Most important symptoms/effects</b>	None reasonably foreseeable. Breathing difficulties. Causes burns by all exposure routes. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes

severe swelling, severe damage to the delicate tissue and danger of perforation

**Notes to Physician**

Treat symptomatically.

## Section 5 - Fire Fighting Measures

**Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

**Special protective equipment and precautions for fire fighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## Section 6 - Accidental Release Measures

**Emergency procedures**

Ensure adequate ventilation. Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

**Environmental Precautions**

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.

**Methods for Containment and Clean Up**

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

**Reference to Other Sections**

Refer to protective measures listed in Sections 8 and 13.

## Section 7 - Handling and Storage

**Precautions for Safe Handling**

Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

**Conditions for Safe Storage, Including any Incompatibilities**

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat and sources of ignition.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

AS 1940-2004 - The storage and handling of flammable and combustible liquids

## Section 8 - Exposure Controls and Personal Protection

**Exposure limits**

**AUS** - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)]

Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]

updated in August, 2005. Safe Work Australia **ACGIH** - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace. **DE** - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Acetic Acid Glacial	STEL: 15 ppm STEL: 37 mg/m <sup>3</sup>	TWA: 10 ppm TWA: 25 mg/m <sup>3</sup>	TWA: 10 ppm STEL: 15 ppm		TWA: 10 ppm (8 Stunden). AGW -

	TWA: 10 ppm TWA: 25 mg/m <sup>3</sup>	STEL: 15 ppm STEL: 37 mg/m <sup>3</sup>			exposure factor 2 TWA: 25 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 TWA: 10 ppm (8 Stunden). MAK TWA: 25 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 20 ppm Höhepunkt: 50 mg/m <sup>3</sup>
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**Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

**Exposure Controls****Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Personal protective equipment****Eye Protection**

Goggles (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

**Hand Protection**

Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Butyl rubber	See manufacturers recommendations	-	AS/NZS 2161.1	(minimum requirement)

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection**

Long sleeved clothing

**Respiratory Protection**

Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of respiratory protective devices

**Recommended Filter type:**

Particulates filter conforming to EN 143 Acid gases filter Type E Yellow conforming to EN14387 (or AUS/NZ equivalent)

**Recommended half mask:-**

Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 (or AUS/NZ equivalent)  
When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**

Prevent product from entering drains.

## Section 9 - Physical and Chemical Properties

**Information on basic physical and chemical properties****Appearance**

Clear

**Physical State**

Liquid

**Odor**

No information available

**Odor Threshold**

No data available

pH	2.9	
Melting Point/Range	16.6 °C / 61.9 °F	
Softening Point	No data available	
Boiling Point/Range	118.1 °C / 244.6 °F	
Flash Point	39 °C / 102.2 °F	Method - No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	No data available	
Bulk Density	Not applicable	Liquid
Water Solubility	Soluble in water	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Acetic Acid Glacial	-0.31	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties	No information available	explosive air/vapour mixtures possible
Oxidizing Properties	No information available	
<b>Other information</b>		
Molecular Formula	C2H4O2	
Molecular Weight	60.05	

## Section 10 - Stability and Reactivity

Reactivity	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products, Excess heat, Keep away from open flames, hot surfaces and sources of ignition.

**Hazardous Decomposition Products** None under normal use conditions.

**Hazardous Polymerization** Hazardous polymerization does not occur.

## Section 11 - Toxicological Information

### Information on Toxicological Effects

#### Product Information

##### (a) acute toxicity;

Oral	Based on available data, the classification criteria are not met
Dermal	Based on available data, the classification criteria are not met
Inhalation	Based on available data, the classification criteria are not met

#### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetic Acid Glacial	LD50 = 3310 mg/kg ( Rat )	LD50 = 1060 mg/kg ( Rabbit )	LC50 = 11.4 mg/L ( Rat ) 4 h

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

**(d) respiratory or skin sensitization;**

**Respiratory** No data available  
**Skin** No data available

**(e) germ cell mutagenicity;** No data available

**(f) carcinogenicity;** No data available

There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;** No data available

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** No data available

**Target Organs** No information available.

**(j) aspiration hazard;** No data available

**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

## Section 12 - Ecological Information

**Ecotoxicity effects**

Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Acetic Acid Glacial	LC50: = 75 mg/L, 96h static (Lepomis macrochirus) LC50: = 79 mg/L, 96h static (Pimephales promelas)	EC50: = 47 mg/L, 24h (Daphnia magna) EC50: = 65 mg/L, 48h Static (Daphnia magna)		= 8.8 mg/L EC50 Photobacterium phosphoreum 15 min = 8.8 mg/L EC50 Photobacterium phosphoreum 25 min = 8.8 mg/L EC50 Photobacterium phosphoreum 5 min

**Persistence and Degradability****Persistence**

Soluble in water, Persistence is unlikely, based on information available.

**Degradation in sewage treatment plant**

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Bioaccumulative Potential**

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Acetic Acid Glacial	-0.31	No data available

**Mobility**

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

**Persistent Organic Pollutant**

This product does not contain any known or suspected substance

**Ozone Depletion Potential**

This product does not contain any known or suspected substance

## Section 13 - Disposal Considerations

**Waste from Residues / Unused Products**

Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.

**Contaminated Packaging**

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

**Other Information**

Chemical wastes should be disposed through a licensed commercial waste collection

service. Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

## Section 14 - Transport Information

### IMDG/IMO

UN-No UN2789  
 Proper Shipping Name ACETIC ACID, GLACIAL  
 Hazard Class 8  
 Subsidiary Hazard Class 3  
 Packing Group II

### ADG

UN-No UN2789  
 Proper Shipping Name ACETIC ACID, GLACIAL  
 Hazard Class 8  
 Subsidiary Hazard Class 8 3  
 Packing Group II

Component	Hazchem Code
Acetic Acid Glacial	2P
64-19-7 ( >95 )	2R

### IATA

UN-No UN2789  
 Proper Shipping Name Acetic acid solution  
 Hazard Class 8  
 Subsidiary Hazard Class 3  
 Packing Group II

Environmental hazards No hazards identified  
 Special Precautions No special precautions required  
 Additional information None known

## Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

### International Inventories X = listed

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	KECL
Acetic Acid Glacial	X	X	200-580-7	-	X	X	-	X	X	X	X

### Standard for the Uniform Scheduling of Medicines and Poisons

Component	Standard for the Uniform Scheduling of Medicines and Poisons	Health Surveillance
Acetic Acid Glacial	Schedule 2 listed Schedule 5 listed - except its salts and derivatives; in preparations except when included in Schedule 2 or 6; or for therapeutic use Schedule 6 listed - except its salts and derivatives; except when included in Schedule 2	
Component	Australian - Illicit Drug Precursors/Reagents Substance List	
Acetic Acid Glacial	Category 3	

**Prohibition or notification/licensing requirements** Shown below are details of specific prohibition/notifications or licensing requirements when they apply.



## Section 16 - Other Information

### Legend

<b>AICS</b> - Australian Inventory of Chemical Substances	<b>NZIoC</b> - New Zealand Inventory of Chemicals
<b>TSCA</b> - United States Toxic Substances Control Act Section 8(b) Inventory	<b>EINECS/ELINCS</b> - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
<b>DSL/NDL</b> - Canadian Domestic Substances List/Non-Domestic Substances List	<b>ENCS</b> - Japanese Existing and New Chemical Substances
<b>IECSC</b> - Chinese Inventory of Existing Chemical Substances	<b>KECL</b> - Korean Existing and Evaluated Chemical Substances
<b>PICCS</b> - Philippines Inventory of Chemicals and Chemical Substances	<b>CAS</b> - Chemical Abstracts Service
<b>TWA</b> - Time Weighted Average	<b>ACGIH</b> - American Conference of Governmental Industrial Hygienists
<b>IARC</b> - International Agency for Research on Cancer	<b>PNEC</b> - Predicted No Effect Concentration
<b>ICAO/IATA</b> - International Civil Aviation Organization/International Air Transport Association	<b>IMO/IMDG</b> - International Maritime Organization/International Maritime Dangerous Goods Code
<b>MARPOL</b> - International Convention for the Prevention of Pollution from Ships	<b>ADG</b> Australian Code for the Transport of Dangerous Goods by Road and Rail
<b>NZS 5433:2012</b> - Transport of Dangerous Goods on Land	<b>OECD</b> - Organisation for Economic Co-operation and Development
<b>LD50</b> - Lethal Dose 50%	<b>LC50</b> - Lethal Concentration 50%
<b>EC50</b> - Effective Concentration 50%	<b>ATE</b> - Acute Toxicity Estimate
<b>WEL</b> - Workplace Exposure Limit	<b>RPE</b> - Respiratory Protective Equipment
<b>DNEL</b> - Derived No Effect Level	<b>NOEC</b> - No Observed Effect Concentration
<b>POW</b> - Partition coefficient Octanol:Water	<b>BCF</b> - Bioconcentration factor
<b>vPvB</b> - very Persistent, very Bioaccumulative	<b>PBT</b> - Persistent, Bioaccumulative, Toxic
<b>VOC</b> - Volatile Organic Compounds	

### Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

### Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

<b>Physical hazards</b>	On basis of test data
<b>Health Hazards</b>	Calculation method
<b>Environmental hazards</b>	Calculation method

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

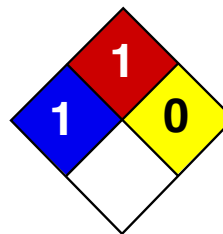
<b>Revision Date</b>	13-Sep-2016
<b>Revision Summary</b>	Update to Format.

**This safety data sheet complies with the requirements of Safe Work Australia WHS Regulation**

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

## End of Safety Data Sheet



Health	1
Fire	1
Reactivity	0
Personal Protection	E

## Material Safety Data Sheet

### Gelatin Powder MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Gelatin Powder

**Catalog Codes:** SLG1798

**CAS#:** 9000-70-8

**RTECS:** LX8580000

**TSCA:** TSCA 8(b) inventory: Gelatin Powder, N.F

**CI#:** Not available.

**Synonym:** Gelatine; Gelfoam; Puragel

**Chemical Name:** Gelatin

**Chemical Formula:** Not available.

#### Contact Information:

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

##### Composition:

Name	CAS #	% by Weight
Gelatin Powder, N.F	9000-70-8	100

**Toxicological Data on Ingredients:** Not applicable.

#### Section 3: Hazards Identification

**Potential Acute Health Effects:** Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

##### Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

#### Section 4: First Aid Measures

##### Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

**Serious Skin Contact:** Not available.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:** Not available.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:**

Slightly flammable to flammable in presence of heat. Non-flammable in presence of shocks.

**Explosion Hazards in Presence of Various Substances:**

Slightly explosive in presence of open flames and sparks. Non-explosive in presence of shocks.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** As with most organic solids, fire is possible at elevated temperatures

**Special Remarks on Explosion Hazards:**

Fine dust dispersed in air in sufficient concentrations, and in the presences of an ignition source is a potential dust explosion hazard.

## Section 6: Accidental Release Measures

**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

## Section 7: Handling and Storage

**Precautions:** Keep away from heat. Keep away from sources of ignition. Do not breathe dust.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:** Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Dust 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.

**Exposure Limits:** Not available.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid. (Powdered solid.)

**Odor:** Odorless.

**Taste:** Not available.

**Molecular Weight:** Not available.

**Color:** White to Amber.

**pH (1% soln/water):** Not applicable.

**Boiling Point:** Decomposition temperature: >100°C (212°F)

**Melting Point:** Not available.

**Critical Temperature:** Not available.

**Specific Gravity:** Density: 1.2 (Water = 1)

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:**

Easily soluble in hot water. Insoluble in cold water.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Excess heat

**Incompatibility with various substances:** Not available.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** May react with Tannin, Formaldehyde

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:**

LD50: Not available. LC50: Not available.

**Chronic Effects on Humans:** Not available.

**Other Toxic Effects on Humans:** Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:**

May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data. No human data found.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: No adverse effects expected. Eyes: No adverse effects expected, but dust may cause mechanical eye irritation. Inhalation: May cause respiratory tract irritation. Low hazard. No adverse health effects expected from inhalation. Ingestion: Low hazard. No adverse effects expected. Large doses may cause gastrointestinal upset.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** Not available.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

## Section 15: Other Regulatory Information

**Federal and State Regulations:** TSCA 8(b) inventory: Gelatin Powder, N.F

**Other Regulations:** EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):** Not controlled under WHMIS (Canada).

**DSCL (EEC):**

This product is not classified according to the EU regulations. S24/25- Avoid contact with skin and eyes.

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

**Health Hazard:** 1

**Fire Hazard:** 1

**Reactivity:** 0

**Personal Protection:** E

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

**Health:** 1

**Flammability:** 1

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

**Section 16: Other Information**

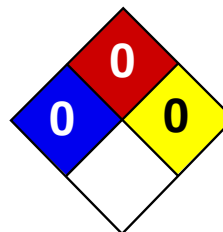
**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/09/2005 05:36 PM

**Last Updated:** 05/21/2013 12:00 PM

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Health	0
Fire	0
Reactivity	0
Personal Protection	A

## Material Safety Data Sheet

### Water MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Water

**Catalog Codes:** SLW1063

**CAS#:** 7732-18-5

**RTECS:** ZC0110000

**TSCA:** TSCA 8(b) inventory: Water

**CI#:** Not available.

**Synonym:** Dihydrogen oxide

**Chemical Name:** Water

**Chemical Formula:** H<sub>2</sub>O

#### Contact Information:

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

##### Composition:

Name	CAS #	% by Weight
Water	7732-18-5	100

**Toxicological Data on Ingredients:** Not applicable.

#### Section 3: Hazards Identification

##### Potential Acute Health Effects:

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. Non-sensitizer for lungs. Non-corrosive to the eyes. Non-corrosive for lungs.

##### Potential Chronic Health Effects:

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. Non-sensitizer for lungs. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available.

#### Section 4: First Aid Measures

**Eye Contact:** Not applicable.

**Skin Contact:** Not applicable.

**Serious Skin Contact:** Not available.

**Inhalation:** Not applicable.

**Serious Inhalation:** Not available.

**Ingestion:** Not Applicable

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not applicable.

**Explosion Hazards in Presence of Various Substances:** Not Applicable

**Fire Fighting Media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

## Section 7: Handling and Storage

**Precautions:** No specific safety phrase has been found applicable for this product.

**Storage:** Not applicable.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:** Not Applicable

**Personal Protection:** Safety glasses. Lab coat.

**Personal Protection in Case of a Large Spill:** Not Applicable

**Exposure Limits:** Not available.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.



**Odor:** Odorless.

**Taste:** Not available.

**Molecular Weight:** 18.02 g/mole

**Color:** Colorless.

**pH (1% soln/water):** 7 [Neutral.]

**Boiling Point:** 100°C (212°F)

**Melting Point:** Not available.

**Critical Temperature:** Not available.

**Specific Gravity:** 1 (Water = 1)

**Vapor Pressure:** 2.3 kPa (@ 20°C)

**Vapor Density:** 0.62 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not applicable

**Solubility:** Not Applicable

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Not available.

**Corrosivity:** Not available.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Eye contact.

**Toxicity to Animals:**

LD50: [Rat] - Route: oral; Dose: > 90 ml/kg LC50: Not available.

**Chronic Effects on Humans:** Not available.

**Other Toxic Effects on Humans:**

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. Non-sensitizer for lungs. Non-corrosive to the eyes. Non-corrosive for lungs.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Not available.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

## Section 15: Other Regulatory Information

**Federal and State Regulations:** TSCA 8(b) inventory: Water

**Other Regulations:** EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):** Not controlled under WHMIS (Canada).

**DSCL (EEC):**

This product is not classified according to the EU regulations. Not applicable.

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

**Health Hazard:** 0

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:** a

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

**Health:** 0

**Flammability:** 0

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Not applicable. Lab coat. Not applicable. Safety glasses.

**Section 16: Other Information**

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 08:33 PM

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