BRENNTAG

SAFETY DATA SHEET

1. Identification

Product identifier HYDROFLUOROSILICIC ACID 23-25%

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name BRENNTAG CANADA INC

Address 43 Jutland Rd.
Toronto, ON M8Z 2G6
Canada

Telephone 416-259-8231

Website http://www.brenntag.com/canada/en/

E-mail RegulatoryAffairs@Brenntag.ca

Emergency phone number 1-855-273-6824

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Health hazards	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1

Environmental hazards Not classified.

Label elements

Signal word Danger

Hazard statements Causes severe skin burns and eye damage. Causes serious eye damage.

Precautionary statement

Prevention Do not breathe mist or vapour. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Response IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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 CENTRE/doctor. Wash contaminated clothing before reuse.

Storage Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards None known.

Supplemental information 24 % of the mixture consists of component(s) of unknown acute dermal toxicity. 24 % of the mixture consists of component(s) of unknown acute inhalation toxicity. 24 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 24 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Fluorosilicic acid		16961-83-4	24
Other components below reportable levels			76

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Take off immediately all contaminated clothing. Immediately flush skin with plenty of water. Call a physician or poison control centre immediately. Chemical burns must be treated by a physician. For minor skin contact, avoid spreading material on unaffected skin. Wash contaminated clothing before reuse. Wash clothing separately before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control centre immediately.
Ingestion	Call a physician or poison control centre immediately. Rinse mouth thoroughly. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO_2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapour. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Do not breathe mist or vapour. Do not get in eyes, on skin, or on clothing. Do not get this material on clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

Occupational exposure limits No exposure limits noted for ingredient(s).

Consult provincial or territorial exposure values, as may apply.

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

The following are recommendations only for the use of PPE. These recommendations cannot anticipate the variety of workplaces where the product will be used, nor how the product will be used in a variety of applications and processes. In determining appropriate PPE and engineering controls, it is the duty of the employer / user to evaluate their use of this product in accordance with the requirements of the local jurisdiction, and, if necessary, in conjunction with a professional industrial hygienist.

Eye/face protection Wear safety glasses with side shields (or goggles) and a face shield. Do not get in eyes.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other Do not get this material in contact with skin. Wear chemical protective equipment that is specifically recommended by the manufacturer. It may provide little or no thermal protection.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Liquid.
Colour	CLEAR TO HAZY YELLOW
Odour	PUNGENT
Odour threshold	Not available.
pH	1.2
Melting point/freezing point	-18.89 °C (-2 °F)
Initial boiling point and boiling range	100 °C (212 °F) estimated
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapour pressure	Not available.

Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	10.00 lbs/gal
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
Percent volatile	76 % estimated
Specific gravity	1.2

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidising agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure	
Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Information on toxicological effects	
Acute toxicity	Causes burns. Not known.
Skin corrosion/irritation	Causes severe skin burns and eye damage.
Serious eye damage/eye irritation	Causes serious eye damage.
Respiratory or skin sensitisation	
Respiratory sensitisation	Not a respiratory sensitizer.
Skin sensitisation	This product is not expected to cause skin sensitisation.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not available.
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.

Aspiration hazard	Not an aspiration hazard.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

Transport information on packaging may be different from that listed. Transportation information on packaging may be different from that listed.

DOT

UN number	UN1778
UN proper shipping name	FLUOROSILICIC ACID
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
ERG number	154

IATA

UN number	UN1778
UN proper shipping name	FLUOROSILICIC ACID
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	154
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1778
UN proper shipping name	FLUOROSILICIC ACID SOLUTION (FLUOROSILICIC ACID)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

DOT; IATA; IMDG; TDG

TDG

UN number	UN1778
UN proper shipping name	Fluorosilicic acid (Fluorosilicic acid)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

15. Regulatory information

Canadian regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Canada DSL Inventory: Registration Status

Silicate(2-), hexafluoro-, dihydrogen (CAS 16961-83-4) Listed

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number
Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))
Not regulated.

DEA Exempt Chemical Mixtures Code Number
Not regulated.

US state regulations

US. California Proposition 65
Not listed.

International regulations

Stockholm Convention
Not applicable.

Rotterdam Convention
Not applicable.

Kyoto protocol
Not applicable.

Montreal Protocol
Not applicable.

Basel Convention
Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Toxic Chemical Substances (TCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 28-May-2018

Version No. 01

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Canada Colors and Chemicals Limited

CANADA COLORS & CHEMICALS LTD
80 SCARSDALE ROAD
DON MILLS, ONTARIO, CANADA M3B 2R7
(416)-449-7750

PRODUCT: CAUSTIC SODA LIQ 50% (MEM) **CODE: 297622**

Section 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER/SUPPLIER	SULCO CHEMICALS LTD. 60 FIRST STREET EAST ELMIRA, ONTARIO N3B 2Z5
PREPARED BY	Regulatory Affairs
PREPARATION DATE	Apr03/08
PRODUCT NAME	CAUSTIC SODA LIQ 50% (MEM)
PRODUCT CODE	297622
CHEMICAL FORMULA	NAOH.
CHEMICAL FAMILY	ALKALI.
MATERIAL USE	REFER TO TECHNICAL LITERATURE.
EMERGENCY PHONE NO	(416)-444-2112.

Section 02: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	%	Exposure Limit	C.A.S.#	LD/50, Route,Species	LC/50 Route,Species
*** AS PER % ***					
SODIUM HYDROXIDE	10-50	SEE SECTION 11	1310-73-2	SEE SECTION 11	SEE SECTION 11

Section 03: HAZARDS IDENTIFICATION

ROUTE OF ENTRY:	
SKIN CONTACT	DERMAL EXPOSURE CAN CAUSE SEVERE IRRITATION AND/OR BURNS CHARACTERIZED BY REDNESS, SWELLING AND SCAB FORMATION. PROLONGED SKIN EXPOSURE MAY CAUSE PERMANENT DAMAGE. DUST OR MIST FROM SOLUTIONS CAN CAUSE IRRITANT DERMATITIS.
SKIN ABSORPTION	N.AV.
EYE CONTACT	CAUSES EYE BURNS. DIRECT CONTACT MAY CAUSE IMPAIRMENT OF VISION AND CORNEAL DAMAGE.
INHALATION	INHALATION OF DUST OR MISTS CAN CAUSE DAMAGE TO THE UPPER RESPIRATORY TRACT AND TO THE LUNG TISSUE DEPENDING ON SEVERITY OF EXPOSURE. EFFECTS CAN RANGE FROM MILD IRRITATION OF MUCOUS MEMBRANES, SEVERE PNEUMONITIS AND DESTRUCTION OF LUNG TISSUES. INHALATION OF HIGH CONCENTRATIONS CAN RESULT IN PERMANENT LUNG DAMAGE.
INGESTION	IRRITATION AND/OR BURNS CAN OCCUR TO THE ENTIRE GASTROINTESTINAL TRACT, INCLUDING THE STOMACH AND INTESTINES, CHARACTERIZED BY NAUSEA, VOMITING, DIARRHEA, ABDOMINAL PAIN, AND BLEEDING AND/OR TISSUE ULCERATION. MAY BE FATAL.
EFFECTS OF ACUTE EXPOSURE	REFER TO ROUTE OF ENTRY.
EFFECTS OF CHRONIC EXPOSURE	CHRONIC INHALATION EXPOSURE MAY CAUSE IMPAIRMENT OF LUNG FUNCTION AND PERMANENT LUNG DAMAGE. EFFECTS FROM CHRONIC SKIN EXPOSURE WOULD BE SIMILAR TO THOSE FROM SINGLE EXPOSURE EXCEPT FOR EFFECTS SECONDARY TO TISSUE DESTRUCTION.
MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE	ASTHMA. RESPIRATORY AND CARDIOVASCULAR DISEASE.

Section 04: FIRST AID MEASURES

INSTRUCTIONS:	EYE CONTACT:.. IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. CHECK FOR AND REMOVE CONTACT LENSES. SEEK MEDICAL ATTENTION AT ONCE. SKIN CONTACT:.. IMMEDIATELY FLUSH WITH WATER FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION AT ONCE. IF CLOTHING, SHOES AND/OR JEWELRY COME IN CONTACT WIYH THE PRODUCT, THEY SHOULD BE REMOVED IMMEDIATELY AND LAUNDERED BEFORE RE-USE. INGESTION:. RINSE MOUTH THOROUGHLY WITH WATER. IMMEDIATELY DRINK LARGE QUANTITIES OF WATER. DO NOT INDUCE VOMITING. SEEK MEDICAL ATTENTION AT ONCE. DO NOT GIVE ANYTHING BY MOUTH IF VICTIM IS UNCONSCIOUS OR IF HAVING CONVULSIONS. INHALATION:.. REMOVE TO FRESH AIR. IF PERSON EXPERIENCES NAUSEA, HEADACHE OR DIZZINESS, PERSON SHOULD STOP WORK IMMEDIATELY AND MOVE TO FRESH AIR UNTIL THESE SYMPTOMS DISAPPEAR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN, KEEP THE PERSON WARM AND AT REST. SEEK MEDICAL ATTENTION. IN THE EVENT THAT AN INDIVIDUAL INHALES ENOUGH

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Section 04: FIRST AID MEASURES

INSTRUCTIONS:	VAPORS TO LOSE CONSCIOUSNESS, PERSON SHOULD BE REMOVED TO FRESH AIR AT ONCE AND A PHYSICIAN SHOULD BE CALLED IMMEDIATELY. IN ALL CASES,. ENSURE ADEQUATE VENTILATION AND PROVIDE RESPIRATORY PROTECTION BEFORE THE PERSON RETURNS TO WORK.

Section 05: FIRE FIGHTING MEASURES

FLAMMABILITY IF YES, UNDER WHICH CONDITIONS?	SEE FLASH POINT.
EXTINGUISHING MEDIA	NOT APPLICABLE- CHOOSE EXTINGUISHING MEDIA SUITABLE FOR SURROUNDING MATERIALS.
SPECIAL PROCEDURES	ISOLATE DANGER AREA. WEAR PROTECTIVE EQUIPMENT. USE WATER TO COOL FIRE EXPOSED CONTAINERS. CONTACT WITH REACTIVE METALS, E.G., ALUMINUM MAY RESULT IN THE GENERTION OF FLAMMABLE HYDROGEN GAS, WHICH IS EXPLOSIVE.. SODIUM HYDROXIDE MAY REACT WITH WATER. .
FLASH POINT (C), METHOD	N.AP.
AUTO IGNITION TEMPERATURE	N.AP.
UPPER FLAMMABLE LIMIT (% BY VOL.)	N.AP.
LOWER FLAMMABLE LIMIT (% BY VOL.)	N.AP.
SENSITIVITY TO STATIC DISCHARGE	N.AV.
SENSITIVITY TO IMPACT	N.AV.
UNUSUAL FIRE AND EXPLOSION HAZARDS	CONTACT WITH REACTIVE METALS, E.G., ALUMINUM MAY RESULT IN THE GENERATION OF FLAMMABLE HYDROGEN GAS, SODIUM HYDROXIDE MAY REACT WITH WATER.
HAZARDOUS COMBUSTION PRODUCTS..	SEE HAZARDOUS DECOMPOSITION PRODUCTS.

Section 06: ACCIDENTAL RELEASE MEASURES

LEAK/SPILL	EVACUATE AREA. CLEAR NON-EMERGENCY PERSONNEL FROM AREA. ALWAYS WEAR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT. VENTILATE AREA OF LEAK OR SPILL. CONTAIN MATERIAL TO PREVENT CONTAMINATION OF SOIL, SURFACE WATER OR GROUND WATER. DIKE SPILLS IMMEDIATELY. CAREFULLY FLUSH SMALL SPILLS OF CAUSTIC SODA SOLUTION WITH WATER. CONTAIN LIQUID TO PREVENT CONTAMINATION OF SOIL, SURFACE OF WATER OR GROUND WATER. ATTEMPT TO NEUTRALIZE FINAL TRACES OF CAUSTIC SODA WITH DILUTE ACID, PREFERABLY ACETIC ACID.

Section 07: HANDLING AND STORAGE

HANDLING PROCEDURES AND EQUIPMENT	CORROSIVE. AVOID BREATHING MIST OR VAPOUR. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. DO NOT TAKE INTERNALLY. USE WITH ADEQUATE VENTILATION. WEAR PROTECTIVE EQUIPMENT DURING HANDLING. WHEN MAKING SOLUTIONS OR DILUTING, ADD CAUSTIC SODA SLOWLY TO SURFACE OF COLD WATER WHILE STIRRING. NEVER ADD WATER TO CAUSTIC SODA. AVOID CONTACT WITH ORGANIC MATERIALS AND CONCENTRATED ACIDS-MAY CAUSE VIOLENT REACTIONS. EMPTY CONTAINERS MAY CONTAIN HAZARDOUS PRODUCT RESIDUES. FOLLOW LABEL WARNINGS EVEN AFTER CONTAINER IS EMPTIED.
STORAGE NEEDS	DO NOT STORE AT TEMPERATURES ABOVE: 130 C (266 F).
PRECAUTIONARY MEASURES:	SHELF LIFE LIMITATIONS:. INDEFINITE IF IN CLOSED CONTAINER. INCOMPATIBLE MATERIALS FOR PACKAGING:. ALUMINUM, ZINC, TIN, WOOD, PAPER. INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT:. ACIDS, NITROGEN CONTAINING ORGANICS, PHOSPHOROUS, EXPLOSIVES, ORGANIC PEROXIDES, ALUMINUM, ZINC, TIN, HALOGENATED HYDROCARBONS.

Section 08: EXPOSURE CONTROLS/PERSONAL PROTECTION

GLOVES/ TYPE	WEAR NEOPRENE GLOVES. NITRILE. NATURAL RUBBER.
RESPIRATORY/TYPE	IF MISTS, OR AEROSOLS ARE GENERATED AND ARE NOT CONTROLLED BELOW THE TLV WITH VENTILATION WEAR A NIOSH APPROVED DUST/MIST RESPIRATOR. THE RESPIRATORY USE LIMITATIONS MADE BY NIOSH OR THE MANUFACTURER MUST BE OBSERVED.
EYE/TYPE	CLOSE FITTING CHEMICAL SAFETY GOGGLES WITH FACESHIELD.
FOOTWEAR/TYPE	CHEMICAL RESISTANT BOOTS.
CLOTHING/TYPE	IMPERVIOUS CLOTHING. RUBBER APRONS, PVC CLOTHING, AND PLASTIC HARD HATS SHOULD BE USED WHEN NECESSARY TO PREVENT SKIN CONTACT.
OTHER/TYPE	EMERGENCY EYE WASH AND SAFETY SHOWERS MUST BE MADE AVAILABLE IN THE IMMEDIATE WORK AREA.
ENGINEERING CONTROLS	USE LOCAL EXHAUST VENTILATION TO MAINTAIN LEVELS TO BELOW THE TLV.

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Section 09: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	LIQUID.
ODOUR	NONE.
ODOUR THRESHOLD	N.AP.
VAPOUR PRESSURE (MMHG)	1.
VAPOUR DENSITY (AIR=1)	N.AV.
EVAPORATION RATE	N.AV.
BOILING POINT	130-140 (C) (266-284 F).
FREEZING POINT	5-12 C (41-54 F).
PH	13 (0.5% SOLUTION). @ 25(C).
MOLECULAR WEIGHT	40.1 (ACTIVE AGENT).
SPECIFIC GRAVITY (WATER=1)	1.482-1.53.
SOLUBILITY IN WATER (% W/W)	MISCIBLE.
COEFFICIENT OF WATER/OIL DIST	N.AV.

Section 10: STABILITY AND REACTIVITY

CHEMICAL STABILITY:	
YES	STABLE.
NO, WHICH CONDITIONS?	
COMPATABILITY WITH OTHER SUBSTANCES:	
YES	
NO, WHICH ONES?	ACIDS. NITROGEN CONTAINING ORGANICS. EXPLOSIVES. PHOSPHORUS. CARBOHYDRATES. ORGANIC PEROXIDES. HALOGENATED HYDROCARBONS.
ADDITIONAL INFORMATION	CONTAXCT WITH ORGANIC MATERIALS AND CONCENTRATED ACIDS MAY CAUSE VIOLENT REACTIONS.
HAZARDOUS PRODUCTS OF DECOMPOSITION	CONTACT WITH CARBOHYDRATES CAN PRODUCE CARBON MONOXIDE. CONTACT WITH ALUMINUM, ZINC, OR TIN CAN PRODUCE HYDROGEN GAS.
HAZARDOUS POLYMERIZATION	WILL NOT OCCUR.

Section 11: TOXICOLOGICAL INFORMATION

EXPOSURE LIMIT OF MATERIAL	EXPOSURE GUIDELINES: SODIUM HYDROXIDE.. ACGIH CEILING EXPOSURE LIMIT (TLV-C) 2 MG/M3; OSHA PEL 2 MG/M3; NIOSH IDLH 10 MG/M3.
LC 50 OF MATERIAL, SPECIES & ROUTE	N.AV.
LD 50 OF MATERIAL, SPECIES & ROUTE	300-500 MG/KG. (ORAL-RAT). HARMFUL IF SWALLOWED. >2 G/KG. (DERMAL-RABBIT).
CARCINOGENICITY OF MATERIAL	THIS PRODUCT IS NOT KNOWN OR REPORTED TO BE CARCINOGENIC BY ANY REFERENCE SOURCE INCLUDING IARC, OSHA, NTP OR EPA. INGESTION OF MASSIVE DOSES OF SODIUM HYDROXIDE HAS LED TO THE DEVELOPMENT OF TUMORS OF THE ESOPHAGUS. THE RELEVANCE OF THESE FINDINGS TO CANCER IS UNKNOWN DUE TO REPEATED TISSUE DESTRACTION AND SCAR FORMATION AS A RESULT OF THE CORROSIVE NATURE OF SODIUM HYDROXIDE.
MUTAGENICITY	SODIUM HYDROXIDE HAS BEEN TESTED AND WAS FOUND TO BE NON-MUTAGENIC IN THE AMES ASSYS, A BACTERIAL DNA-REPAIR TEST AND IN THE SYRIAN HAMSTER EMBRYO (SA7/SHE) CELL TRANSFORMATION ASSAY.
REPRODUCTIVE EFFECTS	THERE ARE NO KNOWN OR REPORTED EFFECTS ON REPRODUCTIVE FUNCTION OR FETAL DEVELOPMENT FROM EXPOSURE TO THIS PRODUCT.
IRRITANCY OF MATERIAL	CORROSIVE. CAUSES BURNS TO EYES AND SKIN.
SENSITIZING CAPABILITY OF MATERIAL	N.AV.
SYNERGISTIC MATERIALS	N.AV.

Section 12: ECOLOGICAL CONSIDERATIONS

ENVIRONMENTAL STATEMENT	HIGHLY TOXIC TO AQUATIC LIFE. 240UG/L (BLUEGILL) 96-HOUR TLM LC50.

Section 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL	DISPOSE OF IN ACCORDANCE WITH FEDERAL, PROVINCIAL AND LOCAL REGULATIONS. EMPTY CONTAINERS SHOULD BE RECYCLED OR DISPOSED OF THROUGH AN APPROVED WASTE MANAGEMENT FACILITY.

Section 14: TRANSPORT INFORMATION

UN NUMBER	1824.
TDG CLASSIFICATION	8.
PACKING GROUP	II.
SPECIAL SHIPPING INSTRUCTIONS	N.AP.

PRODUCT: CAUSTIC SODA LIQ 50% (MEM) **CODE: 297622**

Section 15: REGULATORY INFORMATION

WHMIS CLASSIFICATION............................	E.
CPR COMPLIANCE..	THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

Section 16: OTHER INFORMATION

N.AV.=NOT AVAILABLE
N.AP.=NOT APPLICABLE

SECTION 1 : Identification of the substance/mixture and of the supplier

Product name : Citric Acid,Anhydrous,

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: S25255

Recommended uses of the product and uses restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific
9 Barnhart Drive, Hanover, PA 17331

Supplier Details:

Fisher Science Education
15 Jet View Drive, Rochester, NY 14624

Emergency telephone number:

Fisher Science Education Emergency Telephone No.: 800-535-5053

SECTION 2 : Hazards identification

Classification of the substance or mixture:

Irritant
Eye irritation, category 2A

Eye Irritation 2

Signal word :Warning

Hazard statements:
Causes serious eye irritation

Precautionary statements:
If medical advice is needed, have product container or label at hand
Keep out of reach of children
Read label before use
Wash ... thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Do not eat, drink or smoke when using this product
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do.
Continue rinsing
If eye irritation persists get medical advice/attention

Combustible Dust Hazard: :
May form combustible dust concentrations in air (during processing).

Other Non-GHS Classification:

WHMIS

E 

NFPA/HMIS

NFPA SCALE (0-4)

Health	1
Flammability	0
Physical Hazard	0
Personal Protection	X

HMIS RATINGS (0-4)

SECTION 3 : Composition/information on ingredients

Ingredients:		
CAS 77-92-9	Citric Acid, Anhydrous, ACS	100 %
		Percentages are by weight

SECTION 4 : First aid measures

Description of first aid measures

After inhalation: Move exposed individual to fresh air. Loosen clothing as necessary and position individual in a comfortable position.Seek medical advice if discomfort or irritation persists.If breathing difficult, give oxygen.

After skin contact: Wash affected area with soap and water. Rinse thoroughly. Seek medical attention if irritation, discomfort or vomiting persists.

After eye contact: Protect unexposed eye. Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if concerned.

After swallowing: Rinse mouth thoroughly. Do not induce vomiting. Have exposed individual drink sips of water. Seek medical attention if irritation, discomfort or vomiting persists.

Most important symptoms and effects, both acute and delayed:

Irritation, Nausea,Headache, Shortness of breath.;

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention, provide SDS document to physician.

SECTION 5 : Firefighting measures

Extinguishing media

Suitable extinguishing agents: If in laboratory setting, follow laboratory fire suppression procedures. Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition

For safety reasons unsuitable extinguishing agents:

Special hazards arising from the substance or mixture:

Combustion products may include carbon oxides or other toxic vapors.Thermal decomposition can lead to release of irritating gases and vapors.Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Advice for firefighters:

Protective equipment: Use NIOSH-approved respiratory protection/breathing apparatus.

Additional information (precautions): Move product containers away from fire or keep cool with water spray as a protective measure, where feasible.Use spark-proof tools and explosion-proof equipment.

SECTION 6 : Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Wear protective equipment. Transfer to a disposal or recovery container.Use spark-proof tools and explosion-proof equipment.Use respiratory protective device against the effects of fumes/dust/aerosol. Keep unprotected persons away. Ensure adequate ventilation.Keep away from ignition sources. Protect from heat.Stop the spill, if possible. Contain spilled material by diking or using inert absorbent.

Environmental precautions:

Prevent from reaching drains, sewer or waterway. Collect contaminated soil for characterization per Section 13

Methods and material for containment and cleaning up:

If in a laboratory setting, follow Chemical Hygiene Plan procedures.Collect liquids using vacuum or by use of absorbents. Place into properly labeled containers for recovery or disposal. If necessary, use trained response staff/contractor.Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

Reference to other sections:

SECTION 7 : Handling and storage

Precautions for safe handling:

Minimize dust generation and accumulation. Wash hands after handling. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Follow good hygiene procedures when handling chemical materials. Do not eat, drink, smoke, or use personal products when handling chemical substances. If in a laboratory setting, follow Chemical Hygiene Plan.Use only in well ventilated areas.Avoid generation of dust or fine particulate.Avoid contact with eyes, skin, and clothing.

Conditions for safe storage, including any incompatibilities:

Store in a cool location. Provide ventilation for containers. Avoid storage near extreme heat, ignition sources or open flame. Store away from foodstuffs. Store away from oxidizing agents.Store in cool, dry conditions in well sealed containers. Keep container tightly sealed.

SECTION 8 : Exposure controls/personal protection

Control Parameters: No applicable occupational exposure limits

Appropriate Engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use/handling.Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or dusts (total/respirable) below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.Use under a fume hood. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment.Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

Respiratory protection: Not required under normal conditions of use. Use suitable respiratory protective device when high concentrations are present. Use suitable respiratory protective device when aerosol or mist is formed. For spills, respiratory protection may be advisable.

Protection of skin: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation being used/handled.Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Eye protection: Safety glasses with side shields or goggles.

General hygienic measures: The usual precautionary measures are to be adhered to when handling chemicals. Keep away from food, beverages and feed sources. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Do not inhale gases/fumes/dust/mist/vapor/aerosols. Avoid contact with the eyes and skin.

SECTION 9 : Physical and chemical properties

Appearance (physical state,color):	White solid	**Explosion limit lower**: **Explosion limit upper**:	Not determined Not determined
Odor:	Odorless	**Vapor pressure**:	Not determined
Odor threshold:	Not determined	**Vapor density**:	Not determined
pH-value:	Not determined	**Relative density**:	Not determined
Melting/Freezing point:	Not determined	**Solubilities**:	Soluble in water
Boiling point/Boiling range:	Not determined	**Partition coefficient (n-octanol/water)**:	Not determined
Flash point (closed cup):	Not determined	**Auto/Self-ignition temperature**:	Not determined
Evaporation rate:	Not determined	**Decomposition temperature**:	Not determined
Flammability (solid,gaseous):	Not determined	**Viscosity**:	a. Kinematic:Not determined b. Dynamic: Not determined
Density: Not determined			

SECTION 10 : Stability and reactivity

Reactivity:
Chemical stability: No decomposition if used and stored according to specifications.
Possible hazardous reactions:
Conditions to avoid: Store away from oxidizing agents, strong acids or bases.
Incompatible materials: Oxidizers, sulfuric and nitric acid. Strong acids.Strong bases.
Hazardous decomposition products: Oxides of carbon and irritating and toxic gases/fumes. Carbon oxides (CO, CO2).

SECTION 11 : Toxicological information

Acute Toxicity:		
Oral:	6730 mg/kg	LD50 orl-rat:
Chronic Toxicity: No additional information.		
Corrosion Irritation:		
Ocular:	Section 2	Classified as an eye irritant
Sensitization:		No additional information.
Single Target Organ (STOT):		No additional information.
Numerical Measures:		No additional information.
Carcinogenicity:		No additional information.
Mutagenicity:		No additional information.
Reproductive Toxicity:		No additional information.

SECTION 12 : Ecological information

Ecotoxicity

Fish: LC50 (96h) L. macrochius: 1516 mg/L

Persistence and degradability: Readily degradable in the environment.
Bioaccumulative potential:
Mobility in soil:
Other adverse effects:

SECTION 13 : Disposal considerations

Waste disposal recommendations:

Product/containers must not be disposed together with household garbage. Do not allow product to reach sewage system or open water.It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Consult federal state/ provincial and local regulations regarding the proper disposal of waste material that may incorporate some amount of this product.

SECTION 14 : Transport information

UN-Number

Not Regulated.

UN proper shipping name

Not Regulated.

Transport hazard class(es)
Packing group:Not Regulated
Environmental hazard:
Transport in bulk:
Special precautions for user:

SECTION 15 : Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

Acute

SARA Section 313 (Specific toxic chemical listings):

None of the ingredients is listed

RCRA (hazardous waste code):

None of the ingredients is listed

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

None of the ingredients is listed

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed

Chemicals known to cause developmental toxicity:

None of the ingredients is listed

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients is listed

Canadian NPRI Ingredient Disclosure list (limit 1%):

77-92-9 Citric acid, anhydrous

SECTION 16 : Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.Note:. The responsibility to provide a safe workplace remains with the user.The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.The information contained herein is, to the best of our knowledge and belief, accurate.However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material.It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases:

Abbreviations and acronyms:
IMDG: International Maritime Code for Dangerous Goods
PNEC: Predicted No-Effect Concentration (REACH)
CFR: Code of Federal Regulations (USA)
SARA: Superfund Amendments and Reauthorization Act (USA)
RCRA: Resource Conservation and Recovery Act (USA)
TSCA: Toxic Substances Control Act (USA)
NPRI: National Pollutant Release Inventory (Canada)
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
DNEL: Derived No-Effect Level (REACH)

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