

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Sulfuric Acid (70% - 100%) (All Grades)**

CHEMICAL NAME/CLASS: Sulfuric Acid Solution

PRODUCT USE: Chemical processing, Neutralization

SUPPLIER/MANUFACTURER'S NAME: **Northstar Chemical, Inc.**

ADDRESS: 14200 S.W. Tualatin-Sherwood Rd., Sherwood, OR 97140

BUSINESS PHONE: 888-793-9476

EMERGENCY PHONE: **CHEMTREC:** 800-424-9300

DATE OF PREPARATION: March 21, 2023

DATE OF REVISION: March 22, 2023

DATE REVIEWED: March 22, 2023

2. HAZARD IDENTIFICATION

Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Met. Corr. 1 H290

Skin Corr. 1A H314

Eye Dam. 1 H318

Carc. 1A H350

Aquatic Acute 3 H402

Full text of hazard classes and H-statements: see section 16

LABEL ELEMENTS:



Signal Word: DANGER

Hazard Statements:

H290 - May be corrosive to metals.

H314 - Causes severe skin burns and eye damage.

H318 - Causes serious eye damage.

H350 - May cause cancer (Inhalation).

H402 - Harmful to aquatic life.

Precautionary Statements

P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P234 - Keep only in original container.

P260 - Do not breathe vapors, mist, or spray.

P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

P273 - Avoid release to the environment.

P280 - Wear protective gloves, protective clothing, and eye protection.
 P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
 P304+P340 - IF INHALED: Remove person to fresh air and keep 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.
 P308+P313 - If exposed or concerned: Get medical advice/attention.
 P310 - Immediately call a POISON CENTER or doctor.
 P321 - Specific treatment (see section 4 on this SDS).
 P363 - Wash contaminated clothing before reuse.
 P390 - Absorb spillage to prevent material damage.
 P405 - Store locked up.
 P406 - Store in corrosive resistant container with a resistant inner liner.
 P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

Unknown acute toxicity

No data available

3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS Number	Concentration
Water	7732-18-5	0% - 30%
Sulfuric Acid	7664-93-9	70% - 100%

Full text of H-phrases: see section 16

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients.

****Strong inorganic acid aerosols/mists containing this substance are carcinogenic to humans via inhalation. Under normal conditions of use this route of exposure is not expected.**

4. FIRST-AID MEASURES

Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

Skin Contact: Remove contaminated clothing. Immediately flush skin with plenty of water for at least 30 minutes. Get immediate medical advice/attention. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

Most Important Symptoms and Effects Both Acute and Delayed

General: Corrosive to eyes, respiratory system and skin. May cause cancer.

Inhalation: May be corrosive to the respiratory tract.

Skin Contact: Causes severe irritation which will progress to chemical burns.

Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: Strong inorganic acid mists containing sulfuric acid are carcinogenic to humans. Prolonged inhalation of fumes or mists may cause erosion of the teeth.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Foam, carbon dioxide, dry chemical. Unsuitable Extinguishing Media: Do not use water. Do not get water inside containers. Do not apply water stream directly at source of leak.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas. May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction. This product may act as an oxidizer.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Toxic fumes are released.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections Refer to Section 9 for flammability properties.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray. Do not handle until all safety precautions have been read and understood.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE). Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection. Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Absorb spillage to prevent material damage. Cautiously neutralize spilled liquid. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

7. HANDLING and STORAGE

Precautions for Safe Handling

Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle empty containers with care because they may still present a hazard. Do not get in eyes, on skin, or on clothing. Do not breathe vapors, mist, spray. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Additional Hazards When Processed: May be corrosive to metals. May release corrosive vapors. NEVER pour water into this substance; when dissolving or diluting always add it slowly to the water.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

Conditions for Safe Storage, Including Any Incompatibilities Technical Measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from extremely high or low temperatures and incompatible materials. Store in original container or corrosive resistant and/or lined container. Incompatible Materials: Combustible materials. Reducing agents. Strong oxidizers. Strong bases. Metals. Water.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Sulfuric acid (7664-93-9)		
Mexico	OEL TWA (mg/m ³)	1 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	0.2 mg/m ³ (thoracic particulate matter)
USA ACGIH	ACGIH chemical category	Suspected Human Carcinogen contained in strong inorganic acid mists
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1 mg/m ³
USA IDLH	US IDLH (mg/m ³)	15 mg/m ³
Alberta	OEL STEL (mg/m ³)	3 mg/m ³
Alberta	OEL TWA (mg/m ³)	1 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.2 mg/m ³ (Thoracic, contained in strong inorganic acid mists)
Manitoba	OEL TWA (mg/m ³)	0.2 mg/m ³ (thoracic particulate matter)
New Brunswick	OEL STEL (mg/m ³)	3 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	1 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.2 mg/m ³ (thoracic particulate matter)
Nova Scotia	OEL TWA (mg/m ³)	0.2 mg/m ³ (thoracic particulate matter)
Nunavut	OEL STEL (mg/m ³)	0.6 mg/m ³ (thoracic fraction)
Nunavut	OEL TWA (mg/m ³)	0.2 mg/m ³ (thoracic fraction)
Northwest Territories	OEL STEL (mg/m ³)	0.6 mg/m ³ (thoracic fraction, strong acid mists only)
Northwest Territories	OEL TWA (mg/m ³)	0.2 mg/m ³ (thoracic fraction, strong acid mists only)
Ontario	OEL TWA (mg/m ³)	0.2 mg/m ³ (thoracic)
Prince Edward Island	OEL TWA (mg/m ³)	0.2 mg/m ³ (thoracic particulate matter)
Québec	VECD (mg/m ³)	3 mg/m ³
Québec	VEMP (mg/m ³)	1 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	0.6 mg/m ³ (thoracic fraction)
Saskatchewan	OEL TWA (mg/m ³)	0.2 mg/m ³ (thoracic fraction)
Yukon	OEL STEL (mg/m ³)	1 mg/m ³
Yukon	OEL TWA (mg/m ³)	1 mg/m ³

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Face shield. Insufficient ventilation: wear respiratory protection.

Materials for Protective Clothing: Acid-resistant clothing.

Hand Protection: Wear protective gloves.

Eye Protection: Chemical safety goggles and face shield.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

9. PHYSICAL and CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State : Liquid

Appearance : Clear, Colorless to Amber, Oily

Odor : Pungent

Odor Threshold : Not available

pH : 0.3

Evaporation Rate : Not available

Melting Point : 10.56 °C (51.01 °F)

Freezing Point : -29 °C (-21 °F) (93% Concentration)

Boiling Point : 279 °C (535 °F)

Flash Point : Not applicable

Auto-ignition Temperature : Not applicable

Decomposition Temperature : Not available

Flammability (solid, gas) : Not applicable

Lower Flammable Limit : Not applicable

Upper Flammable Limit : Not applicable

Vapor Pressure : 0.00027 - 0.16 kPa at 25 °C (77 °F)

Relative Vapor Density at 20°C : 3.4 (air = 1)

Relative Density : Not available

Specific Gravity : 1.84 (93% concentration)

Solubility : Water: Miscible

Partition Coefficient: N-Octanol/Water : Not available

Viscosity : Not available

10. STABILITY and REACTIVITY

Reactivity: May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas. May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction. This product may act as an oxidizer.

Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Extremely high or low temperatures and incompatible materials.

Incompatible Materials: Combustible materials. Reducing agents. Strong bases. Strong oxidizers. Metals. Water.

Hazardous Decomposition Products: Thermal decomposition generates: Corrosive vapors.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified.

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Causes severe skin burns and eye damage.

pH: 0.3

Eye Damage/Irritation: Causes serious eye damage

pH: 0.3

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Effects After Inhalation: May be corrosive to the respiratory tract.

Symptoms/Effects After Skin Contact: Causes severe irritation which will progress to chemical burns.

Symptoms/Effects After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Effects After Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: Strong inorganic acid mists containing sulfuric acid are carcinogenic to humans. Prolonged inhalation of fumes or mists may cause erosion of the teeth.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Water (7732-18-5)	
LD50 Oral Rat	> 90000 mg/kg
Sulfuric acid (7664-93-9)	
LD50 Oral Rat	2140 mg/kg
LC50 Inhalation Rat	510 mg/m ³ (Exposure time: 2 h)
Sulfuric acid (7664-93-9)	
IARC Group	1
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.
Strong inorganic acid mists containing sulfuric acid	National Toxicology Program (NTP) Status Known Human Carcinogens

12. ECOLOGICAL INFORMATION

Toxicity Ecology - General: Harmful to aquatic life.

Sulfuric acid (7664-93-9)	
LC50 Fish 1	500 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
LC50 Fish 2	42 mg/l (Exposure time: 96 h - Species: Gambusia affinis [static])

Persistence and Degradability

Sulfuric Acid, 70-100%	
Persistence and Degradability	Not established.

Bioaccumulative Potential

Sulfuric Acid, 70-100%	
Bioaccumulative Potential	Not established.
Sulfuric acid (7664-93-9)	
BCF Fish 1	(no bioaccumulation)

Mobility in Soil: Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology - Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

14. TRANSPORTATION INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

TRANSPORTATION CLASSIFICATION	DOT	TDG
Identification Number	UN1830	UN1830
Proper Shipping Name	Sulfuric acid with more than 51 percent acid	SULFURIC ACID with more than 51% acid
Transport Hazard Class(es)	8	8
Packing Group	II	II
Environmental Hazards	Marine Pollutant : No	Marine Pollutant : No
Emergency Response	ERG Number : 137	ERAP Index: 3 000

15. REGULATORY INFORMATION

US Federal Regulations

Chemical Name (CAS No.)	CERCLA RQ	EPCRA 304 RQ	SARA 302 TPQ	SARA 313
Sulfuric acid (7664-93-9)	1000 lb	1000 lb	1000 lb	Yes

SARA 311/312

Sulfuric Acid, 70-100%
Immediate (acute) health hazard. Delayed (chronic) health hazard. Reactive hazard
US TSCA Flags Not present.

US State Regulations

California Proposition 65

Chemical Name (CAS No.)	Carcinogenicity	Developmental Toxicity	Female Reproductive Toxicity	Male Reproductive Toxicity
Sulfuric acid (7664-93-9)	Yes	No	No	No
Strong inorganic acid mists containing sulfuric acid	Yes	No	No	No

State Right-To-Know Lists

Sulfuric acid (7664-93-9)
U.S. - Massachusetts - Right To Know List - Yes
U.S. - New Jersey - Right to Know Hazardous Substance List - Yes
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List - Yes
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances - No
U.S. - Pennsylvania - RTK (Right to Know) List - Yes

Canadian Regulations

Sulfuric acid (7664-93-9)
Listed on the Canadian DSL (Domestic Substances List)
Not listed on the Canadian NDSL (Non-Domestic Substances List)

International Inventories/Lists

Chemical Name	Australia AICS	Turkey CICR	Korea ECL	EU EINECS	EU ELINCS	EU SVHC	EU NLP	Mexico INSQ
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(CAS No.)								
Sulfuric acid (7664-93-9)	Yes	No	Yes	Yes	No	No	No	No
Chemical Name (CAS No.)	China IECSC	Japan ENCS	Japan ISHL	Japan PDSCL	Japan PRTR	Philippines PICCS	New Zealand NZIOC	US TSCA
Sulfuric acid (7664-93-9)	Yes	Yes	No	Yes	No	Yes	Yes	Yes

16. OTHER INFORMATION

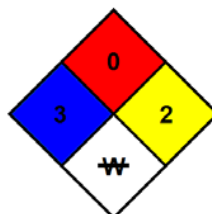
Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

GHS Full Text Phrases:

- Aquatic Acute 3 Hazardous to the aquatic environment - Acute Hazard Category 3
- Carc. 1A Carcinogenicity Category 1A
- Eye Dam. 1 Serious eye damage/eye irritation Category 1
- Met. Corr. 1 Corrosive to metals Category 1
- Skin Corr. 1A Skin corrosion/irritation Category 1A
- H290 May be corrosive to metals
- H314 Causes severe skin burns and eye damage
- H318 Causes serious eye damage
- H350 May cause cancer
- H402 Harmful to aquatic life

NFPA 704

NFPA Health Hazard : 3
 NFPA Fire Hazard : 0
 NFPA Reactivity Hazard : 2
 NFPA Specific Hazards : W



HMIS Rating

Health : 3
 Flammability : 0
 Physical PPE : 2 See Section 8

Abbreviations and Acronyms AICS – Australian Inventory of Chemical Substances ACGIH – American Conference of Governmental Industrial Hygienists AIHA – American Industrial Hygiene Association ATE - Acute Toxicity Estimate BCF - Bioconcentration factor BEI - Biological Exposure Indices (BEI) CAS No. - Chemical Abstracts Service number CERCLA RQ - Comprehensive Environmental Response, Compensation, and Liability Act - Reportable Quantity CICR - Turkish Inventory and Control of Chemicals DOT – 49 CFR – US Department of Transportation – Code of Federal Regulations Title 49 – Transportation. EC50 - Median effective concentration ECL - Korea Existing Chemicals List EINECS - European Inventory of Existing Commercial Chemical Substances ELINCS - European List of Notified Chemical Substances EmS - IMDG Emergency Schedule Fire & Spillage ENCS - Japanese Existing and New Chemical Substances Inventory LC50 - Median Lethal Concentration LD50 - Median Lethal Dose LOAEL - Lowest Observed Adverse Effect Level LOEC - Lowest-observed-effect Concentration Log Pow - Octanol/water Partition Coefficient NFPA 704 – National Fire Protection Association - Standard System for the Identification of the Hazards of Materials for Emergency Response NIOSH - National Institute for Occupational Safety and Health NLP - Europe No Longer Polymers List NOAEL - No-Observed Adverse Effect Level NOEC - No-Observed Effect Concentration NZIOC - New Zealand Inventory of Chemicals OEL - Occupational Exposure Limits OSHA – Occupational Safety and Health Administration PEL - Permissible Exposure Limits PICCS - Philippine Inventory of Chemicals and Chemical Substances PDSCL - Japan Poisonous and Deleterious Substances Control Law PPE – Personal Protective Equipment EPA – Environmental Protection Agency EPCRA 304 RQ – EPCRA 304 Extremely Hazardous Substance Emergency Planning and Community Right-to-Know-Act – Reportable Quantity ERAP Index – Emergency Response Assistance Plan Quantity Limit ErC50 - EC50 in Terms of Reduction Growth Rate ERG code (IATA) - Emergency Response Drill Code as found in the International Civil Aviation Organization (ICAO) ERG No. - Emergency Response Guide Number HCCL - Hazard Communication Carcinogen List HMIS – Hazardous Materials Information System IARC - International Agency for Research on Cancer IATA - International Air Transport Association – Dangerous Goods Regulations IDLH - Immediately Dangerous to Life or Health IECSC - Inventory of Existing Chemical

Substances Produced or Imported in China IMDG - International Maritime Dangerous Goods Code INSQ - Mexican National Inventory of Chemical Substances ISHL - Japan Industrial Safety and Health Law PRTR - Japan Pollutant Release and Transfer Register REL - Recommended Exposure Limit SADT - Self Accelerating Decomposition Temperature SARA - Superfund Amendments and Reauthorization Act SARA 302 - Section 302, 40 CFR Part 355 SARA 311/312 - Sections 311 and 312, 40 CFR Part 370 Hazard Categories SARA 313 - Section 313, 40 CFR Part 372 SRCL - Specifically Regulated Carcinogen List STEL - Short Term Exposure Limit SVHC – European Candidate List of Substance of Very High Concern TDG – Transport Canada Transport of Dangerous Goods Regulations TLM - Median Tolerance Limit TLV - Threshold Limit Value TPQ - Threshold Planning Quantity TSCA – United States Toxic Substances Control Act TWA - Time Weighted Average WEEL - Workplace Environmental Exposure Levels

Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA'S "Right to Know" (29 CFR 1910.1200) and Canada's WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Northstar assumes no responsibility.