Safety Data Sheet

SPH Solution 2

SECTION 1: Identification

1.1 GHS Product identifier

Product name	SPH Solution 2

1.2 Other means of identification

N/A

1.3 Recommended use of the chemical and restrictions on use

For laboratory and manufacturing use only.

1.4 Supplier's details

Name	High Purity Products
Address	14546 N. Lombard Street Portland OR 97203 United States of America
Telephone	503-227-1616
email	help.desk@highpp.com

1.5 Emergency phone number

CHEMTREC: 1-800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200)

- Eye damage/irritation, Cat. 1
- Skin corrosion/irritation, Cat. 1A
- Acute toxicity, inhalation, Cat. 3

2.2 GHS label elements, including precautionary statements

Pictogram

Signal word **Danger**

Hazard statement(s)

H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled

Precautionary statement(s)

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash 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): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.
P311	Call a POISON CENTER if you feel unwell.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

SECTION 3: Composition/information on ingredients

3.1 Mixture

Components	CAS #	Percent (weight)
Sulfuric Acid	7664-93-9	5 - 10%
Hydrogen Peroxide	7722-84-1	2 - 6%
Hydrofluoric Acid	7664-39-3	0.1 - 3%
Water	7732-18-5	88 – 93%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

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. Rinse thoroughly with plenty of water for at least 15 minutes. Apply calcium gluconate gel (2.5%) into the affected area. Immediately take the patient to the hospital.
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. Keep the eyelids apart and away from the eyeballs during irrigation. Do not use oily drops or ointment or HF skin burn treatments on the eyes.

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

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Foam, powder, carbon dioxide, or water spray. Do not use halogenated fire extinguishing agents.

5.2 Specific hazards arising from the chemical
Fire may become explosive in confined areas. Will not burn but may increase the intensity of fire due to the release of oxygen and hydrogen. Decomposes upon heating releasing acrid and toxic fumes. Heating causes expansion, which may lead to the violent rupture of containers.

5.3 Special protective actions for fire-fighters
Contact fire department and tell them the location and nature of the hazard. Consider evacuation. Prevent spillage from entering drains or waterways. Use water delivered as a fine spray to control fire and keep fire-exposed containers cool. Avoid spraying water onto liquid pools. If safe to do so, remove containers from path of fire. Do not approach containers suspected to be hot.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Neutralize with lime or soda ash. Neutralize spill area and washings with dilute acetic acid. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Dike far ahead of larger spill for later recovery and disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: Exposure controls/personal protection

8.1 Exposure Limits

Components	CAS #	NIOSH REL TWA
Sulfuric Acid	7664-93-9	0.25 ppm
Hydrogen Peroxide	7722-84-1	1 ppm
Hydrofluoric Acid	7664-39-3	3 ppm

8.2 Appropriate engineering controls

Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Pictograms

Eye/face protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH.

Skin protection
Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination 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.

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid
Appearance	Liquid Clear
Color	Colorless
Odor	Slight acrid odor
Odor threshold	No data available.
pH	<1
Melting point/freezing point	No data available.
Boiling point or initial boiling point and boiling range	No data available.
Flash point	No data available.
Evaporation rate	No data available.
Flammability	No data available.
Lower and upper explosion limit/flammability limit	
Vapor pressure	17.243 mmHg 21 °C (Est.)
Relative vapor density	No data available.
Density and/or relative density	1.052
Solubility	Completely
Partition coefficient n-octanol/water (log value)	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Kinematic viscosity	No data available.

Particle characteristics
No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability

Open containers with care – contents may have become pressurized.

10.3 Possibility of hazardous reactions
No data available.

10.4 Conditions to avoid
direct sunlight. Not temperature sensitive during transportation and storage.

10.5 Incompatible materials
Reacts with alkalis, ammonia and its carbonates, alcohols, iodides, hypophophites, limewater, sulfites, finely divided metals, brass copper and copper alloys, galvanized iron and iron salts, cyanides, permanganates, organic compounds and any other easily oxidizable materials. Contact with readily oxidizable organic material may cause ignition and fire.

10.6 Hazardous decomposition products
Thermal oxidative decomposition can produce oxygen, hydrogen, and sulfur oxides.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Sulfuric acid:
LD50 Oral - Rat - 2,140 mg/kg
LC50 Inhalation - Rat - 510 mg/m3/2H

Hydrogen Peroxide:
LD50 – oral – rat – 1193 mg/kg (35% solution)
LC50 – inhalation – mouse - 9400 mg/m³/5-15 mins

Hydrofluoric Acid:
LD50 Inhalation - guinea pig – 4327 ppm/15 M
LD50 Inhalation - mouse – 342 ppm/ 1 H

Skin corrosion/irritation
Causes severe skin burns.

Serious eye damage/irritation
Causes serious eye irritation.

Respiratory or skin sensitization
No data available.

Germ cell mutagenicity
DNA damage and inhibition, sister chromatid exchange, mutation in somatic cells.

Carcinogenicity
Sulfuric Acid is a group 2A carcinogen.

Reproductive toxicity
No data available.

STOT-single exposure
No data available.

STOT-repeated exposure
No data available.

Aspiration hazard
No data available.

SECTION 12: Ecological information

Toxicity

Sulfuric acid:
LC50 - Gambusia affinis (mosquito fish) - 42 mg/l - 96 h

Hydrogen Peroxide:
LD50; Species: Anas platyrhynchos (Mallard Duck) age 16 wk; oral via capsule 1049 mg/kg (95% confidence interval: 830-1332 mg/kg) /35% purity
LC50; Species: Anas platyrhynchos (Mallard Duck) age 5 days; dietary >5000 ppm for 8 days /35% purity
LC50; Species: Colinus virginianus (Northern Bobwhite Quail) age 11 days; dietary >5000 ppm for 8 days /35% purity

Hydrofluoric Acid:
Aquatic fish; EC50 (48 hours): 270 mg/l
Leuciscus idus; LC50 (48 hours): 660mg/L

Persistence and degradability
No data available.

Bioaccumulative potential
No data available.

Mobility in soil
No data available.

SECTION 13: Disposal considerations

Product disposal
Waste material must be disposed of in accordance with the national and local regulations.
Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.
EPA Waste Code: **D002**

SECTION 14: Transport information

DOT (US)
UN Number: UN3264
Class: 8
Packing Group: II
Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s., (Sulfuric Acid, Hydrogen Peroxide)
Reportable quantity (RQ): 10,000 lbs

IMDG
UN Number: UN3264
Class: 8
Packing Group: II
Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s., (Sulfuric Acid, Hydrogen Peroxide)

IATA

UN Number: UN3264
Class: 8
Packing Group: II
Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s., (Sulfuric Acid, Hydrogen Peroxide)

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Massachusetts Right To Know Components
Sulfuric acid
CAS number: 7664-93-9
Hydrogen peroxide
CAS number: 7722-84-1
Chemical name: Hydrofluoric acid
CAS number: 7664-39-3

New Jersey Right To Know Components
Sulfuric acid
CAS number: 7664-93-9
Hydrogen peroxide
CAS number: 7722-84-1
Common name: HYDROGEN FLUORIDE
CAS number: 7664-39-3

Pennsylvania Right To Know Components
Sulfuric acid
CAS number: 7664-93-9
Hydrogen peroxide
CAS number: 7722-84-1
Chemical name: Hydrofluoric acid
CAS number: 7664-39-3

California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer.
Sulfuric acid
CAS number: 7664-93-9

Canadian Domestic Substances List (DSL)
Chemical name: Sulfuric acid
CAS: 7664-93-9
Hydrogen peroxide
CAS number: 7722-84-1
Chemical name: Hydrofluoric acid
CAS: 7664-39-3

EPCRA Section 302 (EHS) TPQ Extremely Hazardous Substances
Sulfuric Acid: 1,000 lbs
Hydrofluoric Acid: 100 lbs

EPCRA Section 304 EHS RQ Reportable Quantities

Sulfuric Acid: 1,000 lbs
Hydrofluoric Acid: 100 lbs

CERCLA RQ Hazardous Substances
Sulfuric Acid: 1,000 lbs
Hydrofluoric Acid: 100 lbs

EPCRA Section 313 Toxic chemicals
Hydrofluoric Acid

HMIS Rating

SPH Solution 2	
HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

NFPA Rating

SECTION 16: Other information

Disclaimer:

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