


1. Identification

Product identifier	Sulphuric Acid 93%	
Other means of identification		
Synonyms	Sulfuric acid, Battery acid, Dihydrogen sulfate, Electrolyte acid, Hydrogen sulfate, Mattling acid, Oil of vitrio, Spirit of sulfur	
Recommended use	Industrial applications	
Recommended restrictions	None known.	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	PVS Benson	
Address	1012 Gore Road Freelton, ON L0R1K0 Canada	
Telephone	1-800-265-0014	
e-mail	bensoncs@pvschemicals.com	
Emergency phone number	24 hours/7 days:	1-313-921-1200
Supplier	See above.	

2. Hazard identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, inhalation	Category 1
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Carcinogenicity	Category 1A
	Specific target organ toxicity following single exposure	Category 3 respiratory tract irritation
Environmental hazards	Not classified.	
Label elements		
Signal word	Danger	
Hazard statement	May be corrosive to metals. Causes severe skin burns and eye damage. Fatal if inhaled. May cause respiratory irritation. May cause cancer.	
Precautionary statement		
Prevention	Keep only in original packaging. Do not breathe vapour. Wash thoroughly after handling. Wear protective gloves, protective clothing, eye protection and face protection. Wear respiratory protection. Use only outdoors or in a well-ventilated area. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.	
Response	Absorb spillage to prevent material-damage. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor. Specific treatment is urgent (see this label). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical attention.	
Storage	Store in a corrosion resistant container with a resistant inner liner. Store in a well-ventilated place. Keep container tightly closed. Store locked up.	
Disposal	Dispose of container in accordance with local, regional, national and international regulations.	
Other hazards	None known.	
Supplemental information	None.	

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Sulphuric acid		7664-93-9	93

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

4. First-aid measures

Inhalation	IF INHALED: remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTRE or doctor. Specific treatment is urgent (see this label).
Skin contact	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTRE or doctor. Specific treatment (see information on this label).
Eye contact	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 or doctor.
Ingestion	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTRE or doctor.
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. May cause respiratory irritation.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Symptoms may be delayed.
General information	Immediate medical attention is required. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wear impervious gloves and chemical splash goggles. Avoid contact with eyes and skin. Keep out of reach of children.

5. Fire-fighting measures

Suitable extinguishing media	Dry chemical. Alcohol foam. Carbon dioxide.
Unsuitable extinguishing media	Use water with care - water applied directly will cause evolution of heat and splattering.
Specific hazards arising from the chemical	Firefighters should wear a self-contained breathing apparatus. Not flammable, but reacts with most metals to form flammable hydrogen gas.
Hazardous combustion products	May include and are not limited to: Oxides of sulphur. Irritating and toxic gases or fumes may be released during a fire.
Special protective equipment and precautions for firefighters	Firefighters should wear full protective clothing including self-contained breathing apparatus.
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.

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 vapours or spray mist. 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	Stop leak if you can do so without risk. Should not be released into the environment. Prevent entry into waterways, sewer, basements or confined areas. Large Spills: Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. 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.
Environmental precautions	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Prevent entry into waterways, sewers, basements or confined areas. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Do not discharge into lakes, streams, ponds or public waters.

7. Handling and storage

Precautions for safe handling	DANGER -- CORROSIVE Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapours or spray mist. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area. Avoid prolonged exposure. Wear appropriate personal protective equipment. Should be handled in closed systems, if possible. Wash thoroughly after handling. Use good industrial hygiene practices in handling this material. Keep container tightly closed. When using do not eat or drink.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in a cool, dry place out of direct sunlight. Store in a corrosion resistant container with a resistant inner liner. Store in a closed container away from incompatible materials. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep away from heat, open flames or other sources of ignition. Keep out of reach of children.

8. Exposure controls/Personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Sulphuric acid (CAS 7664-93-9)	TWA	0.2 mg/m ³	Thoracic fraction.

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Sulphuric acid (CAS 7664-93-9)	STEL	3 mg/m ³
	TWA	1 mg/m ³

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Sulphuric acid (CAS 7664-93-9)	TWA	0.2 mg/m ³	Mist.

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value	Form
Sulphuric acid (CAS 7664-93-9)	TWA	0.2 mg/m ³	Thoracic fraction.

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Sulphuric acid (CAS 7664-93-9)	TWA	0.2 mg/m ³	Thoracic fraction.

Canada. Quebec OELs. (Ministry of Labour - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Sulphuric acid (CAS 7664-93-9)	STEL	3 mg/m ³
	TWA	1 mg/m ³

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

Exposure guidelines See above

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. Attempts should be made to eliminate all contact with skin and eyes, and to limit inhalation exposure.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles) and a face shield. Eye wash fountain is recommended.

Skin protection

Hand protection Impervious gloves. Confirm with reputable supplier first.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. As required by employer code.

Respiratory protection	Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).
Thermal hazards	Not applicable.
General hygiene considerations	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. When using do not eat or drink.

9. Physical and chemical properties

Appearance	Liquid
Physical state	Liquid.
Form	Liquid
Colour	Colourless
Odour	Odourless
Odour threshold	> 1 mg/m ³
pH	< 1
Melting point/freezing point	Not available.
Initial boiling point and boiling range	287 °C (548.6 °F)
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable
Flammability limit - upper (%)	Not applicable
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapour pressure	0.0018 mmHg
Vapour density	3.4 (Air=1)
Relative density	1.834 - 1.836 g/cm ³
Solubility(ies)	
Solubility (Water)	Miscible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not applicable
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

10. Stability and reactivity

Reactivity	This product may react with reducing agents. May be corrosive to metals. Reacts violently with alkaline material. This product may react with strong oxidising agents.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.
Conditions to avoid	Heat, flames and sparks. Do not mix with other chemicals.
Incompatible materials	Moisture. Strong oxidising agents. Reducing Agents. Metals. Caustics. Contact with metals may evolve flammable hydrogen gas. Dilute product by slowly adding to water.
Hazardous decomposition products	May include and are not limited to: Oxides of sulphur.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Fatal if inhaled.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. May cause stomach distress, nausea or vomiting.

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. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity Fatal if inhaled. May cause respiratory irritation.

Components	Species	Test results
Sulphuric acid (CAS 7664-93-9)		
Acute		
<i>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC100	Guinea pig, Mouse, Rabbit, Rat	0.1 mg/L, 2.75 Hours, ECHA
LC50	Guinea pig	> 0.1 mg/L, 8 Hours, ECHA
		0.1 mg/L, 8 Hours, ECHA
		0 mg/L, 8 Hours, ECHA/HSDB
		0 mg/L, 8 Hours, ECHA/HSDB
	Guinea pig, Mouse, Rabbit, Rat	1.6 mg/L, 2.75 Hours, ECHA
	Mouse	0.9 mg/L, 1 Hours, ECHA
		0.6 mg/L, 1 Hours, ECHA
	Mouse, Rat	0.5 mg/L, 2 Hours, ECHA
		0.3 mg/L, 2 Hours, ECHA
	Rat	375 mg/m3, 1 Hours, ECHA
		347 mg/L, 1 Hours
	Various	1610 mg/m3, ECHA
		1470 mg/m3, ECHA
		420 ppm, ECHA
		347 ppm, ECHA
		109 mg/m3, ECHA
		50 mg/m3, ECHA
		30.3 mg/m3, ECHA
		18 mg/m3, ECHA
<i>Oral</i>		
LD50	Rat	2140 mg/kg, CCOHS

Skin corrosion/irritation Causes severe skin burns and eye damage.

Exposure minutes	Not available.
Erythema value	Not available.
Oedema value	Not available.

Serious eye damage/eye irritation Causes serious eye damage.

Corneal opacity value	Not available.
Iris lesion value	Not available.
Conjunctival reddening value	Not available.
Conjunctival oedema value	Not available.
Recover days	Not available.

Respiratory or skin sensitisation

Respiratory sensitisation Not a respiratory sensitizer.

Skin sensitisation Prolonged or repeated exposure can cause drying, defatting and dermatitis.

Germ cell mutagenicity Non-hazardous by WHMIS criteria.

Carcinogenicity May cause cancer.
There is sufficient evidence that occupational exposure to strong inorganic acid mists containing sulphuric acid is carcinogenic. See below.

ACGIH Carcinogens

Sulphuric acid (CAS 7664-93-9) A2 Suspected human carcinogen.

Canada - Alberta OELs: Carcinogen category

Sulphuric acid (CAS 7664-93-9) Suspected human carcinogen.

Canada - Manitoba OELs: carcinogenicity

SULFURIC ACID, WHEN CONTAINED IN STRONG INORGANIC ACID MISTS (CAS 7664-93-9) Suspected human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Sulphuric acid (CAS 7664-93-9) Volume 54, Volume 100F 1 Carcinogenic to humans.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects. Extensive lung damage has been seen in guinea pigs exposed to 4 mg/m³ of sulphuric acid. There is also lung damage caused in monkeys exposed to 4.79 mg/m³ for 78 weeks.

Repeated exposure may cause chronic bronchitis, pulmonary edema, and erosion or discolouration of teeth.

Further information Not available.

12. Ecological information

Ecotoxicity Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems. See below

Ecotoxicological data

Components	Species	Test results
Sulphuric acid (CAS 7664-93-9)		
Aquatic		
Fish	LC50 Western mosquitofish (<i>Gambusia affinis</i>)	42 mg/L, 96 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Mobility in general Not 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. Do not allow this material to drain into sewers/water supplies. 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

General Canada: TDG Proof of Classification: Classification Method: Classified as per Part 2, Sections 2.1 – 2.8 of the Transportation of Dangerous Goods Regulations. If applicable, the technical name and the classification of the product will appear below.

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number UN1830
Proper shipping name SULPHURIC ACID with more than 51% acid
Hazard class 8
Packing group II

TDG



15. Regulatory information

Canadian federal 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.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Sulphuric acid (CAS 7664-93-9) Class B

WHMIS status Controlled

International regulations

Inventory status

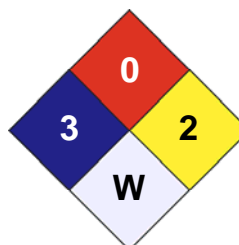
Country(s) or region	Inventory Name	On Inventory (Yes/No)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	* 3
FLAMMABILITY	0
PHYSICAL HAZARD	2
PERSONAL PROTECTION	X



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Other information For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

Disclaimer

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document. The information in the sheet was written based on the best knowledge and experience currently available.

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