



SAFETY DATA SHEET

1. Identification**Product identifier** PersulfOx® SP**Other means of identification** None.**Recommended use of the chemical and restrictions on use****Recommended use** Soil and Groundwater Remediation.**Restrictions on use** Not available.**Details of manufacturer or importer****Manufacturer****Company name** Regenesis**Address** 1011 Calle Sombra
San Clemente, CA 92673**Telephone** 949-366-8000**Website** Not available.**E-mail** CustomerService@regenesis.com**Emergency phone number** CHEMTREC® at 1-800-424-9300 (International)**2. Hazard(s) identification****Classification of the hazardous chemical****Physical hazards** Oxidizing solids Category 3**Health hazards** Acute toxicity, oral Category 4

Skin corrosion/irritation Category 2

Serious eye damage/eye irritation Category 2

Sensitization, respiratory Category 1

Sensitization, skin Category 1

Specific target organ toxicity following single exposure Category 3 respiratory tract irritation

Environmental hazards Not classified.**Label elements, including precautionary statements****Hazard symbol(s)**

Flame over circle

Health hazard

Exclamation mark

Signal word**Hazard Statement(s)** Danger
May intensify fire; oxidiser. Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.**Precautionary Statement(s)****Prevention**

Keep away from heat. Take any precaution to avoid mixing with combustibles. Avoid breathing dust. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Response	IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTRE or doctor/physician if you feel unwell. Rinse mouth. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. If experiencing respiratory symptoms: Call a POISON CENTRE or doctor / physician. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media for extinction.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards which do not result in classification	None known.

3. Composition/information on ingredients

Mixture

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients
Silicic Acid, sodium salt, sodium silicate	1344-09-8	≤2
Sodium Persulfate	7775-27-1	≥98

Composition comments All concentrations are in percent by weight unless otherwise indicated.

4. First-aid measures

Description of necessary first aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.
Eye contact	Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to a victim who is unconscious or is having convulsions. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.
Personal protection for first-aid responders	Take off all contaminated clothing immediately. Contact with combustible material may cause fire. 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. Wash contaminated clothing before reuse.
Symptoms caused by exposure	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.
Medical attention and special treatment	Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Water spray, fog (flooding amounts).
Unsuitable extinguishing media	Do not use water unless flooding amounts are available. Material reacts with water. Do not use carbon dioxide or other gas filled fire extinguishers; they will have no effect on decomposing persulfates.
Specific hazards arising from the chemical	Greatly increases the burning rate of combustible materials. Containers may explode when heated. During fire, gases hazardous to health may be formed. Combustion products may include: sulfur oxides.
Special protective equipment and precautions for fire fighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.
Hazchem Code	Not available.
General fire hazards	May intensify fire; oxidiser. Contact with combustible material may cause fire.
Specific methods	Cool containers exposed to flames with water until well after the fire is out. Avoid dust formation.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep away from clothing and other combustible materials. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of dust. 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.
For emergency responders	Keep unnecessary personnel away. Use personal protection recommended in section 8 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect dust using a vacuum cleaner equipped with HEPA filter. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Keep combustibles (wood, paper, oil etc) away from spilled material. Ventilate the contaminated area. Stop the flow of material, if this is without risk. Spillage collected should be monitored for signs of reaction or decomposition (fuming/smoking). If spilled material is wet, dissolve with large quantity of water.
	Large Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Minimise dust generation and accumulation. 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. Place all material into loosely covered plastic containers for later disposal. For waste disposal, see section 13 of the SDS. Wear appropriate protective equipment and clothing during clean-up.

7. Handling and storage

Precautions for safe handling

Minimise dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Keep away from heat. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Avoid contamination. Wear appropriate personal protective equipment (See Section 8). Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Do not store near combustible materials. Store away from incompatible materials (see section 10 of the SDS). Recommended storage temperature: less than 40°C.

8. Exposure controls and personal protection

Control parameters

Follow standard monitoring procedures.

Occupational exposure limits

Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)

Components	Type	Value
Sodium Persulfate (CAS 7775-27-1)	Ceiling	0.01 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium Persulfate (CAS 7775-27-1)	TWA	0.1 mg/m3

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. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn. Eye wash facilities and emergency shower must be available when handling this product.
Individual protection measures, for example personal protective equipment (PPE)	
Eye/face protection	Use dust-tight, unvented chemical safety goggles when there is potential for eye contact.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier. Frequent change is advisable. Rubber, neoprene or PVC gloves are recommended.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn. Respirator type: approved respirator with P100 filters.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly. Keep away from food and drink. 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. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Free-flowing powder
Colour	White.
Odour	Odourless.
Odour threshold	Not available.
pH	11 (10% solution/water)
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not applicable.
Evaporation rate	Not available.
Flammability (solid, gas)	Oxidizer.

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	1.5 - 1.8
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Decomposition will occur upon heating.
Viscosity	Not available.

Other physical and chemical parameters

Flammability Non-combustible.

10. Stability and reactivity

Reactivity Greatly increases the burning rate of combustible materials.

Chemical stability Decomposes on heating.

Possibility of hazardous reactions Oxidising, avoid contact with reducing agents.

Conditions to avoid Heat. Contact with incompatible materials. Avoid dust formation.

Incompatible materials Acids. Bases. Combustible material. Reducing Agents. Metals. Organic compounds.

Hazardous decomposition products Oxygen. Sulphur oxides.

11. Toxicological information

Information on possible routes of exposure

Inhalation May cause allergy or asthma symptoms or breathing difficulties if inhaled. Dust may irritate respiratory system.

Skin contact Causes skin irritation. May cause an allergic skin reaction.

Eye contact Causes serious eye irritation.

Ingestion Harmful if swallowed.

Symptoms related to exposure Severe eye irritation. Dusts may irritate the respiratory tract, skin and eyes. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Acute toxicity Harmful if swallowed. May cause allergic respiratory and skin reactions. May cause respiratory irritation.

Components	Species	Test results
Silicic Acid, sodium salt, sodium silicate (CAS 1344-09-8)		
Acute		
<i>Oral</i>		
LD50	Mouse	1100 mg/kg
	Rat	1.1 g/kg
Sodium Persulfate (CAS 7775-27-1)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 10000 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 5.1 mg/l, 4 Hours
<i>Oral</i>		
LD50	Rat	895 mg/kg
Skin corrosion/irritation	Causes skin irritation.	
Serious eye damage/irritation	Causes serious eye irritation.	
Respiratory or skin sensitisation		
Respiratory sensitisation	May cause allergy or asthma symptoms or breathing difficulties if inhaled.	
Skin sensitisation	May cause an allergic skin reaction.	
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	May cause respiratory irritation.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not an aspiration hazard.	

Chronic effects Prolonged exposure may cause chronic effects.

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.

Components	Species	Test results
Silicic Acid, sodium salt, sodium silicate (CAS 1344-09-8)		
Aquatic		
Crustacea	EC50	Water flea (Ceriodaphnia dubia) 0.28 - 0.57 mg/l, 48 hours
Fish	LC50	Western mosquitofish (Gambusia affinis) 1800 mg/l, 96 hours
Sodium Persulfate (CAS 7775-27-1)		
Aquatic		
Crustacea	EC50	Daphnia 133 mg/l, 48 hours
Fish		Bluegill (Lepomis macrochirus) 771 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 for this product.	
Other adverse effects	None known.	

13. Disposal considerations

Disposal methods	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.
Residual waste	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	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

ADG	
UN number	1505
UN proper shipping name	SODIUM PERSULPHATE MIXTURE
Transport hazard class(es)	
Class	5.1
Subsidiary risk	-
Packing group	III
Environmental hazards	Not available.
Hazchem Code	1Z
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
RID	
UN number	1505
UN proper shipping name	SODIUM PERSULPHATE MIXTURE
Transport hazard class(es)	
Class	5.1
Subsidiary risk	-
Label(s)	5.1
Packing group	III
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
IATA	
UN number	1505
UN proper shipping name	Sodium Persulphate Mixture
Transport hazard class(es)	
Class	5.1
Subsidiary risk	-
Packing group	III

Environmental hazards	No.
ERG Code	5L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
IMDG	
UN number	1505
UN proper shipping name	SODIUM PERSULPHATE MIXTURE
Transport hazard class(es)	
Class	5.1
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-Q
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 applicable.

15. Regulatory information

Safety, health and environmental regulations

National regulations	This Material Safety Data Sheet was prepared in accordance with the Australia National Code of Practice for the Preparation of Material Safety Data Sheets (NOHSC: 2011.) Additional information is given in the Material Safety Data Sheet.
-----------------------------	--

Australia Medicines & Poisons Appendix A

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix B

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix C

Silicic Acid, sodium salt, sodium silicate (CAS 1344-09-8) For domestic use.

Australia Medicines & Poisons Appendix D

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix E

Silicic Acid, sodium salt, sodium silicate (CAS 1344-09-8) For advice, contact a Poisons information Centre (Phone eg Australia 131 - 126; New Zealand 03 - 4747 - 000) or a doctor (at once)., If swallowed, do NOT induce vomiting., If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes., If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

Sodium Persulfate (CAS 7775-27-1)

For advice, contact a Poisons information Centre (Phone eg Australia 131 - 126; New Zealand 03 - 4747 - 000) or a doctor (at once)., If swallowed, do NOT induce vomiting., If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.

Australia Medicines & Poisons Appendix F

Silicic Acid, sodium salt, sodium silicate (CAS 1344-09-8)

applies to all preparations in any concentration Strongly alkaline. Avoid contact with eyes., Avoid contact with skin.

Sodium Persulfate (CAS 7775-27-1)

applies to all preparations in any concentration Irritant., WARNING - This product contains ingredients which may cause skin irritation to certain individuals. A preliminary test according to accompanying directions should be made before use. This product must not be used for dyeing eyelashes or eyebrows; to do so may be injurious to the eye., Do not use on broken skin. Wash hands thoroughly after use. Avoid contact with eyes., Wear protective gloves when mixing or using., Keep away from heat, sparks and naked flames., Mix strictly according to instructions., May cause fire if it comes into contact with other chemicals, paper or other flammable materials.

Australia Medicines & Poisons Appendix G

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix H

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix I

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix J

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix K

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 2

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 3

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 4

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 5

Silicic Acid, sodium salt, sodium silicate (CAS 1344-09-8) applies to all preparations in any concentration Exception may apply, see the regulation for relevance.

Australia Medicines & Poisons Schedule 6

Silicic Acid, sodium salt, sodium silicate (CAS 1344-09-8) for non-domestic use. Exception may apply, see the regulation for relevance.

Sodium Persulfate (CAS 7775-27-1)

> 10

Australia Medicines & Poisons Schedule 7

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 8

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 9

Poisons schedule number not allocated.

High Volume Industrial Chemicals (HVIC)

Silicic Acid, sodium salt, sodium silicate (CAS 1344-09-8) 10000 - 99999 TONNES See the regulation for additional information.

Importation of Ozone Deleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10)

Not listed.

National Pollutant Inventory (NPI) substance reporting list

Not listed.

Prohibited Carcinogenic Substances

Not regulated.

Prohibited Substances (National Model Regulation for the control of Workplace Hazardous Substances, Schedule 2 NOHSC:1005 (1994) as amended)

Not listed.

Restricted Importation of Organochlorine Chemicals (Customs(Prohibited Imports) Regulations 1956, Schedule 9)

Not listed.

Restricted Carcinogenic Substances

Not regulated.

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
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies 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 26-February-2015

Revision date -

Disclaimer

Regenesis cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.