

## Safety Data Sheet (SDS)

OSHA HazCom 2012 Standard 29 CFR 1910.1200. Prepared to GHS Rev03.

Printing date 07/02/2018

Revised on 6/15/2018

### \* 1 Identification

- **Product identifier**
- **Trade name: Buffered Provect-OX2™ Self Activating ISCO Enhanced Bioremediation Reagent**
- **Application of the substance / the mixture**  
*In situ* and *ex situ* chemical oxidation of contaminants and compounds of concern for environmental remediation applications.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Provectus Environmental Products  
2871 W. Forest Road  
Suite 2  
Freeport, IL 61032  
Phone: 815-650-2230  
Fax: 815-650-2232  
www.provectusenvironmental.com
- **Emergency telephone number:** (815) 650-2230

### 2 Hazard(s) identification

- **Classification of the substance or mixture**



Flame over circle

May intensify fire; oxidizer.



Health hazard

May cause allergy or asthma symptoms or breathing difficulties if inhaled.



Harmful if swallowed.

Harmful if inhaled.

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

May cause respiratory irritation.

- **Label elements**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS03



GHS07



GHS08

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**Trade name: Buffered Provect-OX2™ Self Activating ISCO Enhanced Bioremediation Reagent**

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- **Signal word** Danger
- **Hazard-determining components of labeling:**  
disodium peroxodisulphate; sodium persulfate
- **Hazard statements**  
May intensify fire; oxidizer.  
Harmful if swallowed or if inhaled.  
Causes skin irritation.  
Causes serious eye irritation.  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
May cause an allergic skin reaction.  
May cause respiratory irritation.
- **Precautionary statements**  
Take any precaution to avoid mixing with combustibles.  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
In case of inadequate ventilation wear respiratory protection.  
Keep/Store away from clothing/combustible materials.  
Avoid breathing dust/fume/gas/mist/vapors/spray.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves/protective clothing/eye protection/face protection.  
Wash thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Contaminated work clothing should not be allowed out of the workplace.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Specific treatment (see on this label).  
Take off contaminated clothing and wash before reuse.  
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
Wash contaminated clothing before reuse.  
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
If skin irritation occurs: Get medical advice/attention.  
If skin irritation or rash occurs: Get medical advice/attention.  
If eye irritation persists: Get medical advice/attention.  
Rinse mouth.  
In case of fire: Use for extinction: CO2, powder or water spray.  
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
IF ON SKIN: Wash with plenty of water.  
Call a POISON CENTER/doctor if you feel unwell.  
If experiencing respiratory symptoms: Call a POISON CENTER/doctor.  
Store locked up.  
Store in a well-ventilated place. Keep container tightly closed.  
Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 2  
Fire = 3  
Reactivity = 2

The substance possesses oxidizing properties.

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• **HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = *2
FIRE	3	Fire = 3
REACTIVITY	2	Reactivity = 2

### 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

• **Dangerous components:**

7727-21-1	Potassium peroxodisulfate; potassium persulfate	50-70%
	⚠ Ox. Sol. 2, H272; ⚠ Resp. Sens. 1, H334; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2B, H319; Skin Sens. 1, H317; STOT SE 3, H335	
7775-27-1	Disodium peroxodisulphate; sodium persulfate	0-30%
	⚠ Ox. Sol. 2, H272; ⚠ Resp. Sens. 1, H334; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2B, H319; Skin Sens. 1, H317; STOT SE 3, H335	
1309-37-1	Ferric oxide	1-20%
n.a.	Terr-OR™ buffer and ferrate stabilizer (see associated SDS)	0-5%

### 4 First-aid measures

- **Description of first aid measures**
- **General information:**  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**  
Supply fresh air and to be sure call for a doctor.  
In case of unconsciousness, place patient securely on side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to section 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

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### 7 Handling and storage

- **Precautions for safe handling**  
Thorough dedusting.  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of dust.
- **Information about protection against explosions and fires:** Protect from heat.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters**

• **Components with occupational exposure limits:**

**7727-21-1 Potassium peroxodisulfate**

TLV Long-term value: 0.1 mg/m<sup>3</sup>  
as Persulfates

**7775-27-1 Disodium peroxodisulphate**

TLV Long-term value: 0.1 mg/m<sup>3</sup>  
as Persulfates

**1309-37-1 Ferric oxide**

PEL Long-term value: 10 mg/m<sup>3</sup>  
Fume

REL Long-term value: 5 mg/m<sup>3</sup>  
Dust & fume, as Fe

TLV Long-term value: 5\* mg/m<sup>3</sup>  
\*as respirable fraction

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:** Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work.
- **Breathing equipment:** Not required.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Select glove material based on penetration times, rates of diffusion and degradation.

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· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

### \* 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Powder

Color: Red

· **Odor:** Odorless

· **Odor threshold:** Not determined.

· **pH-value @ 20 °C (68 °F):** 6

· **Change in condition**

Melting point/Melting range: Not determined.

Boiling point/Boiling range: Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Contact with combustible material may cause fire.

· **Ignition temperature:**

Decomposition temperature: Not determined.

· **Auto igniting:** Product is not self-igniting.

· **Danger of explosion:** Not determined.

· **Explosion limits:**

Lower: Not determined.

Upper: Not determined.

· **Vapor pressure:** Not applicable.

· **Density:** Not determined.

· **Relative density** Not determined.

· **Vapour density** Not applicable.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**

Water: Soluble.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

Dynamic: Not applicable.

Kinematic: Not applicable.

· **Solvent content:**

Organic solvents: 0.0 %

Solids content: 99.5 %

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- **Other information** No further relevant information available.

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

Oral LD50	1130 mg/kg (rate)
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**7775-27-1 disodium peroxodisulphate**

Oral LD50	925 mg/kg (rat)
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- **Primary irritant effect:**

- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.

- **Sensitization:**

Sensitization possible through inhalation.  
Sensitization possible through skin contact.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful  
Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

1309-37-1	Ferric oxide	3
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- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Water hazard class 1 (Self-assessment): slightly hazardous for water
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### \* 14 Transport information

- **UN-Number** 1505 and 1492
- **UN proper shipping name** Sodium Persulfate and Potassium Persulfate
- **Transport hazard class(es)** 5.1 (Oxidizer)
- **Packing group** III
- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user** Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **UN "Model Regulation":** UN1505, Sodium persulfate and UN1492, Potassium persulfate

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

•	<b>Section 355 (extremely hazardous substances):</b>
	None of the ingredients is listed.
•	<b>Section 313 (Specific toxic chemical listings):</b>
	None of the ingredients is listed.
•	<b>TSCA (Toxic Substances Control Act):</b>
	All ingredients are listed.
•	<b>Proposition 65</b>
•	<b>Chemicals known to cause cancer:</b>
	None of the ingredients is listed.
•	<b>Chemicals known to cause reproductive toxicity for females:</b>
	None of the ingredients is listed.
•	<b>Chemicals known to cause reproductive toxicity for males:</b>
	None of the ingredients is listed.
•	<b>Chemicals known to cause developmental toxicity:</b>
	None of the ingredients is listed.
•	<b>Carcinogenic categories</b>
•	<b>EPA (Environmental Protection Agency)</b>
	None of the ingredients is listed.

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<ul style="list-style-type: none"> <li>• <b>TLV (Threshold Limit Value established by ACGIH)</b></li> </ul>		
1309-37-1	Ferric oxide	A4
<ul style="list-style-type: none"> <li>• <b>NIOSH-Ca (National Institute for Occupational Safety and Health)</b></li> </ul>		
None of the ingredients is listed.		

• **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

• **Hazard pictograms**



GHS03   GHS07   GHS08

• **Signal word** Danger

• **Hazard-determining components of labeling:**

Potassium peroxodisulfate, disodium peroxodisulphate

• **Hazard statements**

- May intensify fire; oxidizer.
- Harmful if swallowed or if inhaled.
- Causes skin irritation.
- Causes serious eye irritation.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.
- May cause respiratory irritation.

• **Precautionary statements**

- Take any precaution to avoid mixing with combustibles.
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- In case of inadequate ventilation wear respiratory protection.
- Keep/Store away from clothing/combustible materials.
- Avoid breathing dust/fume/gas/mist/vapors/spray.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Wash thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Contaminated work clothing should not be allowed out of the workplace.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Specific treatment (see on this label).
- Take off contaminated clothing and wash before reuse.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Wash contaminated clothing before reuse.
- IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
- If skin irritation occurs: Get medical advice/attention.
- If skin irritation or rash occurs: Get medical advice/attention.
- If eye irritation persists: Get medical advice/attention.
- Rinse mouth.
- In case of fire: Use for extinction: CO2, powder or water spray.
- IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
- IF ON SKIN: Wash with plenty of water.
- Call a POISON CENTER/doctor if you feel unwell.

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If experiencing respiratory symptoms: Call a POISON CENTER/doctor.  
Store locked up.  
Store in a well-ventilated place. Keep container tightly closed.  
Dispose of contents/container in accordance with local/regional/national/international regulations.

<p>• <b>National regulations:</b></p> <p>The product is subject to be labeled according with the prevailing version of the regulations on hazardous substances.</p>		
<p>• <b>State Right to Know</b></p>		
7727-21-1	Potassium peroxodisulfate	50-70%
	<p>⚠ Ox. Sol. 2, H272; ⚠ Resp. Sens. 1, H334; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2B, H319; Skin Sens. 1, H317; STOT SE 3, H335</p>	
7775-27-1	Disodium peroxodisulphate	20-30%
	<p>⚠ Ox. Sol. 2, H272; ⚠ Resp. Sens. 1, H334; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335</p>	
1309-37-1	Ferric oxide	1-20%
-na-	Terr-OR buffer and ferrate stabilizer (see associated SDS)	0 – 5%
All ingredients are listed.		

• **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

• **Date of preparation / last revision** 06/02/2014 / 3

• **Abbreviations and acronyms:**

- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- Ox. Sol. 2: Oxidizing Solids, Hazard Category 2
- Acute Tox. 4: Acute toxicity, Hazard Category 4
- Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
- Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
- Resp. Sens. 1: Sensitization - Respirat., Hazard Category 1
- Skin Sens. 1: Sensitization - Skin, Hazard Category 1
- STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

• **\* Data compared to the previous version altered.**

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