1 Identification

- **Product identifier**
- **Trade name**: Provect-OX® 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
Trade name: Provect-OX® Self Activating ISCO Enhanced Bioremediation Reagent

- **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)**

![NFPA Rating Diagram]

Health = 2
Fire = 3
Reactivity = 0

The substance possesses oxidizing properties.
Safety Data Sheet (SDS)

Printing date 06/02/2014 Revised on 07/15/2016

Trade name: Provect-OX® Self Activating ISCO Enhanced Bioremediation Reagent

· HMIS-ratings (scale 0 - 4)

  HEALTH  Health = *2
  FIRE  Fire = 3
  REACTIVITY  Reactivity = 0

3 Composition/information on ingredients

· Chemical characterization: Mixtures
  · Description: Mixture of the substances listed below with nonhazardous additions.
  · Dangerous components:

<table>
<thead>
<tr>
<th>Chemical Characterization</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>disodium peroxodisulphate; sodium persulfate</td>
<td>80-99%</td>
</tr>
<tr>
<td>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</td>
<td></td>
</tr>
<tr>
<td>Ferric oxide</td>
<td>1-20%</td>
</tr>
</tbody>
</table>

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.
Trade name: Provect-OX® Self Activating ISCO Enhanced Bioremediation Reagent

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:**
    
    | Component                      | TLV   | Fume   | REL    | Fume, as Fe |
    |--------------------------------|-------|--------|--------|-------------|
    | 7775-27-1 disodium peroxodisulphate |       |        |       |             |
    |                               | Long-term value: 0.1 mg/m³ as Persulfates |        |        |             |
    | 1309-37-1 Ferric oxide         |       |        |       |             |
    |                               | Long-term value: 10 mg/m³ Fume       |        |        |             |
    |                               | Long-term value: 5 mg/m³ Dust & fume, as Fe |        |        |             |
    |                               | Long-term value: 5* mg/m³ as respirable fraction |        |        |             |

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**
  - **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.

(Contd. on page 5)
**Trade name: Provect-OX® Self Activating ISCO Enhanced Bioremediation Reagent**

- **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**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance:</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>Powder</td>
</tr>
<tr>
<td>Color</td>
<td>Red</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not determined.</td>
</tr>
<tr>
<td>pH-value @ 20 °C (68 °F):</td>
<td>6</td>
</tr>
</tbody>
</table>

- **Change in condition**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/Melting range</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>Undetermined.</td>
</tr>
</tbody>
</table>

- **Flash point:**
  Not applicable.

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

- **Ignition temperature:**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decomposition temperature</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Auto igniting</td>
<td>Product is not self-igniting.</td>
</tr>
<tr>
<td>Danger of explosion</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>

- **Explosion limits:**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>

- **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:**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Kinematic</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

- **Solvent content:**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic solvents</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Solids content</td>
<td>99.5 %</td>
</tr>
</tbody>
</table>
Trade name: Provect-OX® Self Activating ISCO Enhanced Bioremediation Reagent

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:
      - 7775-27-1 disodium peroxodisulphate
        Oral: LD50: 925 mg/kg (rat)
    - 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
  - 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.
Trade name: Provect-OX® Self Activating ISCO Enhanced Bioremediation Reagent

- 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
- **UN proper shipping name**: Sodium 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**:
  - **UN "Model Regulation"**: UN1505, Sodium persulfate

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **Sara**
    - **Section 355 (extremely hazardous substances)**: None of the ingredients is listed.
    - **Section 313 (Specific toxic chemical listings)**: None of the ingredients is listed.
  - **TSCA (Toxic Substances Control Act)**: All ingredients are listed.
  - **Proposition 65**
    - **Chemicals known to cause cancer**: None of the ingredients is listed.
    - **Chemicals known to cause reproductive toxicity for females**: None of the ingredients is listed.
    - **Chemicals known to cause reproductive toxicity for males**: None of the ingredients is listed.
    - **Chemicals known to cause developmental toxicity**: None of the ingredients is listed.
- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    - None of the ingredients is listed.
Trade name: Provect- OX® Self Activating ISCO Enhanced Bioremediation Reagent

- TLV (Threshold Limit Value established by ACGIH)
  1309-37-1 Ferric oxide

- NIOSH (National Institute for Occupational Safety and Health)
  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](image1), ![GHS07](image2), ![GHS08](image3)

- Signal word Danger

- Hazard-determining components of labeling:
  disodium peroxodisulphate

- Hazard statements
  May intensify fire; oxidiser.
  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.

(Contd. on page 9)
Trade name: Provect- OX® Self Activating ISCO Enhanced Bioremediation Reagent

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.

- National regulations:
The product is subject to be labeled according to the prevailing version of the regulations on hazardous substances.

- State Right to Know

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Chemical Name</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7775-27-1</td>
<td>Oxidising Sol. 2, H272</td>
<td>80-99%</td>
</tr>
<tr>
<td>1309-37-1</td>
<td>Ferric oxide</td>
<td>1-20%</td>
</tr>
</tbody>
</table>

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
  - 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: Oxidising 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: Sensitisation - Respirat., Hazard Category 1
  - Skin Sens. 1: Sensitisation - 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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