

RegenOx® – PetroCleanze™
Material Safety Data Sheet (MSDS)

Last Revised: April 29, 2011

Section 1 – Supplier Information and Material Identification

Supplier:



REGENESIS

1011 Calle Sombra
San Clemente, CA 92673
Telephone: 949.366.8000
Fax: 949.366.8090
E-mail: info@regenesisis.com

Chemical Description: A mixture of sodium silicate solution, sodium hydroxide, sodium tripoly-phosphate and ferrous sulfate.

Chemical Family: Inorganic Chemicals

Trade Name: RegenOx® PetroCleanze™ (Activator Complex)

Product Use: Used for environmental remediation of contaminated soils and groundwater.

Section 2 – Chemical Information/Other Designations

| <u>CAS No.</u> | <u>Chemical</u> |
|----------------|--------------------------------------------|
| 1344-09-8 | Silicic Acid, Sodium Salt, Sodium Silicate |
| 7720-78-7 | Ferrous Sulfate |
| 1310-73-2 | Sodium Hydroxide |
| 7758-29-4 | Sodium Tripolyphosphate |

Section 3 – Physical Data

Form: Semi Viscous Liquid

Color: Dark Green to Black

Odor: Odorless

Melting Point: NA

Boiling Point: NA

Flammability/Flash Point: NA

Vapor Pressure: NA

Section 3 – Physical Data (cont)

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| Density | 1.1 – 1.3 g/cm ³ |
| Solubility: | Miscible |
| pH (3% solution): | 13 |

Section 4 – Hazards Identification

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| Corrosive: | May cause burns. Harmful by inhalation, in contact with skin and if swallowed. Causes skin and eye irritation. Causes irritation to mouth, esophagus and stomach if swallowed. In case of accident or if you feel unwell, seek medical advice. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. If swallowed, do not induce vomiting, give plenty of water. Never give anything by mouth to an unconscious person. Wear suitable protective clothing, gloves, eye/face protection. Spilled material is very slippery. |
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Section 5 – Reactivity Data

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| Stability: | Stable under normal conditions |
| Conditions to Avoid: | None. |
| Incompatibility: | Avoid hydrogen fluoride, fluorine, oxygen difluoride, chlorine trifluoride, strong acids, strong bases, oxidizers, aluminum, fiberglass, copper, brass, zinc, and galvanized containers. |

Section 6 – Protective Measures, Storage and Handling

Technical Protective Measures

Storage: Keep in a tightly closed container (steel or plastic) and store in a cool, well ventilated area away from all incompatible materials (acids, reactive metals, and ammonium salts). Store in a dry location away from heat above 60 degrees C and colder than 10 degrees C. Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers.

Handling: Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Use with adequate ventilation.
Do not use product if it is brownish-yellow in color.

Personal Protective Equipment (PPE)

Engineering Controls: General room ventilation is required if used indoors. Local exhaust ventilation, process enclosures or other engineering controls may be needed to maintain airborne levels below recommended exposure limits. Safety shower and eyewash station should be within direct access.

Respiratory Protection: Use NIOSH-approved dust and mist respirator where spray mist exists. Respirators should be used in accordance with 29 CFR 1910.134.

Hand Protection: Wear chemical resistant gloves.

Eye Protection: Wear chemical safety goggles. A full face shield may be worn in lieu of safety goggles.

Skin Protection: Try to avoid skin contact with this product. Gloves and protective clothing should be worn during use.

Other:

Protection Against Fire & Explosion: Product is non-explosive and non-combustible.

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| Spill or Leakage: | Keep unnecessary personnel away; isolate hazard area and do not allow entrance into the affected area. Do not touch or walk through spilled material. Stop leak if possible without risking injury. Prevent runoff from entering into storm sewers and ditches that lead to natural waterways. Isolate the material if at all possible. Sand or earth may be used to contain the spill. If containment is not possible, neutralize the contaminated area and flush with large quantities of water. |
| Extinguishing Media: | Material is compatible with all extinguishing media. The following protective equipment for fire fighters is recommended when this material is present in the area of a fire: chemical goggles, body-covering protective clothing, chemical resistant gloves and rubber boots. |
| <u>First Aid:</u> | |
| Eye Contact: | Flush eyes with running water for at least 15 minutes with eyelids held open. Seek a medical specialist. |
| Inhalation: | Remove affected person to fresh air. Give artificial respiration if individual is not breathing. If breathing is difficult, give oxygen. Seek medical attention. |
| Ingestion: | If the individual is conscious and not convulsing, give two-four cups of water to dilute the chemical and seek medical attention immediately. DO NOT induce vomiting. Seek medical attention. |
| Skin Contact: | Wash affected areas with soap and a large amount of water. Remove contaminated clothing and shoes. |

Section 8 – Accidental Release Measures

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| Personal Protection: | Wear chemical goggles, body-covering protective clothing, chemical resistant gloves and rubber boots. |
| Environmental Hazards: | Material sinks when mixed with water. High pH of this material is harmful to aquatic life. Only water will evaporate from a spill of this material. |
| Small Spill Cleanup: | Mop and neutralize liquid and discharge to sewer in accordance with federal, state and local regulations. |
| Large Spill Cleanup: | Keep unnecessary personnel away; isolate hazard area and do not allow entrance into the affected area. Do not touch or walk through spilled material. Stop leak if possible without risking injury. Prevent runoff from entering into storm drains and ditches that lead to natural waterways. Isolate the material if at all possible. Sand or earth may be used to contain the spill. If containment is not possible, neutralize the contaminated area and |

flush with large quantities of water.

Section 9 – Information on Toxicology

Toxicity Data

Sodium Silicate:

When tested for primary eye irritation potential according to OECD Guidelines, Section 405, a similar sodium silicate solution produced corneal, iridal and conjunctival irritation. Some eye irritation was still present 14 days after treatment, although the average primary irritation score has declined from 29.7 after 1 day to 4.0 after 14 days. When tested for primary skin irritation potential, a similar sodium silicate solution produced irritation with a primary irritation index of 3 to abraded skin and 0 to intact skin. Human experience confirms that irritation occurs when sodium silicates get on clothes at the collar, cuffs, or other areas where abrasion may exist.

The acute oral toxicity of this product has not been tested. In a study of rats fed sodium silicate in drinking water for three months, at 200, 600 and 1800 ppm, changes were reported in the blood chemistry of some animals, but no specific changes to the organs of the animals due to sodium silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed sodium silicate in their diet at 2.4g/kg/day for 4 weeks, whereas rats fed the same dosage did not develop any treatment-related effects. Decreased numbers of births and survival to weaning was reported for rats fed sodium silicate in their drinking water at 600 and 1200 ppm.

Ferrous Sulfate:

LD50 Oral (rat): 319 mg/kg; not a suspected carcinogen.

Sodium Hydroxide:

Irritation data: skin, rabbit: 500 mg/24H severe; eye rabbit: 50 ug/24H severe. Investigated as a mutagen. Not a known carcinogen. No environmental toxicity found or determined.

Sodium Tripolyphosphate:

Harmful if swallowed, inhaled or absorbed through skin. Causes severe irritation. Material is irritating to mucous membranes and upper respiratory tract. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. To the best of our knowledge the chemical, physical and toxicological properties have not

Waste Disposal Method

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| Waste Treatment: | Neutralize and landfill solids in an approved waste facility operated by An authorized contactor in compliance with local regulations. |
| Package Treatment: | The empty and clean containers are to be recycled or disposed of in conformity with local regulations. |

Section 13 – Shipping/Transport Information

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| USDOT: | Hazard Class 8 Corrosive Substance |
| Proper Shipping Name: | Corrosive liquid, basic, inorganic, n.o.s. |
| UN/NA: | UN3266 |
| Packing Group: | PGIII |

Section 14 – Other Information

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| HMIS Rating: | Health 3, Flammability 0, Reactivity 1, Contact 1. |
| Label Hazard Warning: | Danger! Corrosive. May be harmful if swallowed. Harmful in inhaled. Causes burns to any area of contact. Reacts with water, acids and other materials. |

Section 15 – Further Information

The information contained in this document is the best available to the supplier at the time of writing, but is provided without warranty of any kind. Some possible hazards have been determined by analogy to similar classes of material. The items in this document are subject to change and clarification as more information become available. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person. Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular purpose.