

# RegenOx® Technical Description

RegenOx is an advanced chemical oxidation technology that destroys contaminants through powerful, yet controlled chemical reactions. This product maximizes *in situ* chemical oxidation (ISCO) performance through use of a two-part product system; a sodium percarbonate oxidizer complex activated by a patented surface catalyst system. The technology degrades pollutants through direct oxidation, as well as through the generation of a suite of free radical compounds which in turn oxidize recalcitrant contaminants. RegenOX rapidly and effectively destroys a range of target contaminants including petroleum hydrocarbons and chlorinated compounds.



Close up of RegenOx

RegenOx is especially effective in destroying target contaminants present in high concentration source areas within the saturated and vadose zones. For petroleum hydrocarbon treatment, RegenOx produces oxygen as a result of its reactions, providing seamless transition from ISCO to enhanced aerobic bioremediation. RegenOx produces minimal heat when applied, and continues to destroy contaminants for up to 30 days on a single application. RegenOx is safe for use in direct contact with underground utilities, since it is non-corrosive to concrete and most metals.



- Free Radical Oxidation via production of:
  - Peroxyhydroxyl Radical (HO<sub>2</sub>•)
  - Hydroxyl Radical (OH•)
  - Superoxide Radical (O<sub>2</sub><sup>-</sup>•)

For a list of treatable contaminants with the use of RegenOx, view the [Range of Treatable Contaminants Guide](#)

## Chemical Composition – Part A Oxidant

- Sodium Percarbonate – CAS #15630-89-4
- Sodium Carbonate Monohydrate - CAS #5968-11-6
- Silicic Acid – CAS #7699-11-6
- Silica Gel – CAS #63231

## Chemical Composition – Part B Activator Complex

- Silicic Acid, Sodium Salt, Sodium Silicate - CAS#1344-09-08
- Silica Gel – CAS #63231
- Ferrous Sulfate – CAS #7720-78-7
- Water – CAS#7732-18-5

## Properties

- Bulk Density – Part A 0.9-1.2 g/cm<sup>3</sup>; Part B – 1.39 g/cm<sup>3</sup>
- pH - 10-11 per recommended mixing ratios (3-5% oxidant in solution)
- Solubility – Oxidant - 14.5 g/100 g water; Activator – miscible in water
- Appearance – Brown to orange-brown when mixed with water
- Odor – Not detectable
- Vapor Pressure – None
- Non-hazardous

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## Storage and Handling Guidelines

### Storage

- Store in a cool, dry place out of heat/direct sunlight
- Store at temperatures not to exceed 40°C/104°F
- Store in original tightly closed container
- Store in a well-ventilated place
- Do not store near combustible materials
- Store away from incompatible materials
- Protect from contamination
- Provide appropriate exhaust ventilation in places where dust is formed

### Handling

- Minimize dust generation and accumulation
- Observe good industrial hygiene practices
- Keep away from clothing and combustible materials
- Take any precaution to avoid mixing with combustibles
- Avoid contact with eyes
- Do not taste or swallow
- Do not eat, drink or smoke nearby
- Wear appropriate personal protective equipment
- Wash hands thoroughly after handling
- Avoid release to the environment

## Applications

RegenOx is applied using direct-injection techniques or wells. The application process enables the two- part product to be combined, then pressure-injected into the zone of contamination and moved out into the aquifer media. Application instructions for this product are contained in the [RegenOx Application Instructions Guide](#).

## Health and Safety

Material is relatively safe to handle; however, we recommend avoiding contact with eyes, skin and clothing. OSHA Level D personal protection equipment including vinyl or rubber gloves, eye protection and dust mask are recommended when handling this product. Please review the Material Safety Data Sheet for additional storage, packaging, usage, and handling requirements here: [RegenOx Part A SDS](#) and [RegenOx Part B SDS](#).