

## Groundwater Bioremediation Technology

### Oxy-D-Fuse™

The all-new **Oxy-D-Fuse™** is a special formulation of calcium peroxide in a porous tube. It can be installed in either 2" (**Oxy-D-Fuse™ 2**) or 4" wells (**Oxy-D-Fuse™ 4**) or larger. The tubes are easily replaceable and are used to enhance aerobic bioremediation barriers to prevent contaminant migration. This is achieved through extended release of oxygen required by aerobic microorganisms to break down hydrocarbons, including BTEX, MTBE, TPH, PAH and others.

The calcium peroxide provides a slow and extended oxygen release profile, and a high active oxygen concentration of 17.3% or higher. Field studies have found that on site conditions, oxygen can be released for up to a year.

### Descriptions

#### **Oxy-D-Fuse™**

Oxygen Diffusion Cell

18% slow release Peroxygen through a diffusion tube.

The product generates almost 18% oxygen by weight. It reacts to promote both chemical oxidation and enhanced bioremediation. It will persist up to 12 months. Upon hydration it will release hydrogen peroxide which will be catalyzed by iron in the groundwater to form a very strong oxidant (hydroxyl free radical) with twice the oxidatitive activity as compared to chlorine. Otherwise the hydrogen peroxide will directly oxidize a number of organic compounds. It will degrade over time to oxygen which will benefit aerobic biological activity.

### Specifications

#### **Oxy-D-Fuse™ 4,**

OxyTubes Oxygen Diffusion Tubes

Well application: 4" (102 mm)

Min. weight: 6.61 lbs (3kg)

Approx. Height: 20 inches (50.8 cm)

Approx. Diameter: 3.5" (8.89 cm)

#### **Oxy-D-Fuse™ 2**

OxyTubes Oxygen Diffusion Tubes

Well application: 2" (5.08 cm)

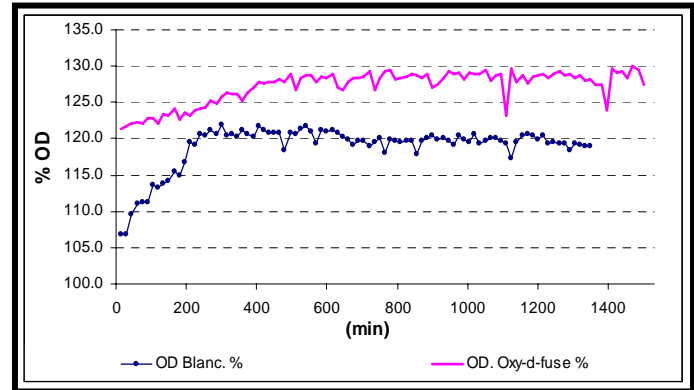
Min. weight: 1 lb (.5kg)

Approx. Height: 17.5 in (44.45 cm)

Approx. Diameter: 1.63" (4.14 cm)



Various laboratory tests were carried out in our ERE inc facility, in order to determine the conditions under which the calcium peroxide ( $\text{CaO}_2$ ) would support the aerobic bioremediation. After 48h of testing, the data obtained bring back an increment of OD of 25% in the first minutes. Field studies have found that the average increment will be of 17.3%.



## Applications

Calcium peroxide is an ecologically pure substance, which can be used in different fields of industry and agriculture, such as:

- **In-Situ Groundwater & Soil Remediation**
- **Golf Terrain Ponds**
- **Septic Tanks**
- **Odor Control**

In environmental protection, it is used for in- situ bioremediation of groundwater and decontaminating soil.



## Soil & Groundwater Bioremediation Applications

The **Oxy-D-Fuse™** addition of oxygen releasing compounds to soils or groundwater can be an effective treatment technology capable of reducing the levels of contaminants in groundwater. Calcium peroxide as an oxygen releasing compound increases the oxygen content of contaminated areas, enhancing biological activity and thus promoting natural attenuation.

Following the initial chemical oxidation phase **Oxy-D-Fuse™** will continue to release oxygen up to one year as a result of the slow hydration of the engineered calcium peroxide. The resulting oxygen will provide electron acceptors for the bioremediation of BTEX, PAHs and petroleum hydrocarbons. Subsequent diffusion and transport of oxygen down gradient will support contaminant reductions in plume zones, and will support biological polishing of low concentration contamination in the groundwater.

## The most common pollutants that can be treated include:

- BTEX
- MTBE
- TPH
- Non-halogenated volatile solvents
- Phenols
- Cresols
- PAH's
- Some halogenated compounds, etc

