Introduction
Magnesium peroxide products are typically very fine powders. This allows their use as a slurry for injection in the soil for groundwater remediation or as a breaker in oil and gas exploration.

In other applications, however, the dust created by these fine powders causes some handling challenges. In these cases, a granular magnesium peroxide product is highly desirable.

Properties
IXPER® 30M Magnesium Peroxide Granules is a unique material offered by Solvay Chemicals, Inc. It is specifically designed to avoid the dust generated from handling other magnesium peroxide products.

Its chemistry is similar to IXPER 35M Magnesium Peroxide powder (see IXPER 35M Magnesium Peroxide Properties technical datasheet for details), but the formulation provides even lower solubility in water. This leads to a further reduction in the release rate of actives, and an extension of effectiveness over time.

IXPER 30M Magnesium Peroxide Granules is a unique product that offers the slow release properties of inorganic peroxides while being rated non hazardous by DOT (Department of Transportation) standards. This enhances its appeal in applications where hazardous chemicals are of particular concern.
Environmental Applications

Soil and Groundwater Remediation
IXPER products can be used to cost-effectively accelerate the natural attenuation of contaminated soils and sediments. The capability of aerobic microbes to biologically degrade contaminants, such as petroleum hydrocarbons, can be limited by inadequate levels of oxygen. IXPER products offer a passive approach to aerobic bioremediation of target contaminants, ensuring that adequate oxygen is present over an extended period of time. Without this supplemental oxygen source, the degradation of contaminants may either stop or proceed by much slower anaerobic processes.

IXPER 30M Magnesium Peroxide Granules can be used for lining pits after excavation of contaminated soils, or in socks and canisters used as active barriers. Combinations of IXPER 30M Magnesium Peroxide and 70C Calcium Peroxide Granules can create products of unique properties depending upon the ratio of each ingredient.

Oilfield Applications
In this field, a polysaccharide polymer is often incorporated downhole to help in either fracturing the rock or to form a filter cake. After the polymer achieves its purpose, it must be degraded by a “breaker” to lower its viscosity and enhance its removal.

IXPER 30M Magnesium Peroxide Granules can be either applied as a slurry or in the dry form mixed with other components. Being less dusty, IXPER 30M Magnesium Peroxide offers better safety and handling regardless of the mode of application.

The product has unique advantages in this field as the granules are more stable than the powder, allowing a greater retention of the active ingredient during the injection process. At the desired time, these products can be activated by the addition of an acid, or by other means, resulting in the generation of hydrogen peroxide, the actual oxidizing agent.

Agriculture
Low oxygen in soil is often generated by heavy rainfall or bad irrigation techniques. Soils that are low in organic matter are more difficult to aerate naturally, and crops growing at high temperatures have very high oxygen demand at the roots.

Under these conditions, the lack of enough oxygen reduces root growth and makes them more susceptible to attack by soil-borne pathogens. Lack of oxygen also enhances the growth of anaerobic bacteria which further exacerbates the situation. The result is stunted growth, poor yields, diseases, lack of seed germination, etc.
IXPER® 30M Magnesium Peroxide Granules can be used in agricultural, horticultural and forestry applications. The product slowly decomposes in the moist soil, generating oxygen and the corresponding hydroxide. This can have the following advantages.

- **Modification of the soil’s biological activity:**
  - Avoid anaerobic conditions.
  - Speed the aerobic biological activity at high moisture content.
  - Enhance enzyme diversity.
  - Increase total soil microbial population.

- **Improvement of the hydraulic conductivity of the soil,** allowing more efficient movement of oxygen and nutrients. This effect is especially useful in heavy soils.

- **Easier water and nutrients absorption,** allowing plants to use them more efficiently.

The product would be particularly suitable in soils poor in magnesium.