Agro application

IXPER® products offered by Solvay include IXPER® 60C and 75C Calcium Peroxide, and IXPER® 35M Magnesium Peroxide. These inorganic peroxides, with very slight solubility, in the presence of water at their natural pHs, decompose to release oxygen and heat as follows:

\[
2\text{CaO}_2 + 2\text{H}_2\text{O} \rightarrow 2\text{Ca(OH)}_2 + \text{O}_2 (g)
\]

\[
2\text{MgO}_2 + 2\text{H}_2\text{O} \rightarrow 2\text{Mg(OH)}_2 + \text{O}_2 (g)
\]

The applications of IXPER® products are based on their ability to generate a combination of oxygen and hydrogen peroxide under various conditions. The release of calcium and magnesium hydroxide can also be advantageous in their applications.
IXPER® products can be used for soil amendment in agricultural, horticultural and forestry applications. Low oxygen can be generated in waterlogged soils due to heavy rainfall or bad irrigation techniques. Furthermore soils that are low in organic matter are more difficult to aerate naturally and crops growing at high temperatures or in bright sunshine have very high oxygen demand at the roots. Under these conditions, the lack of enough oxygen reduces root growth resulting in stunted growth, poor yields and lack of seed germination.

IXPER® products slowly decompose in moist soil, generating oxygen and the corresponding hydroxide with the following advantages:

- Increasing the total soil microbial population and enhancing enzyme diversity.
- Accelerating aerobic and biological activities at high moisture conditions.
- Supporting healthy roots by enhancing symbiotic fungi growth.
- Maintaining and protecting healthy plant roots.
- Improving the hydraulic conductivity of the soil allowing more efficient movement of oxygen and nutrients. This effect is especially useful in heavy soils.
- Giving plants the ability to absorb more water and nutrients and use them more efficiently.

The use of IXPER® products as a source of slow release oxygen to the soil can also provide calcium or magnesium to the soil. Some soils are deficient in one of these two components; the selection of the appropriate IXPER® product can also compensate for any deficiency.

1. **Seed germination**

Coating seeds with IXPER® C or adding it to the soil during planting can improve percent of seeds germinating and can also lead to earlier germination, stronger growth and increased yields. Rice seeds are typically coated with calcium peroxide, as well as sugar beet seeds.

2. **Tree transplanting**

By ensuring that the roots get a steady and long lasting supply of oxygen, the stress of transplanting is alleviated. Indeed IXPER® C can help the trees acclimatize more quickly by ensuring strong root development and avoiding respiration disorders. This leads to enhanced growth and may enable the tree to reach mature status earlier. It can also lead to a better survival rate after the transplanting process. This is particularly beneficial in areas of forestation.

3. **Ornamental and vegetable plants**

In nurseries, addition of IXPER® C to the soil can reduce the problems associated with over-watering of plants such as azaleas and carnations. Combining spores of symbiotic fungi that support healthy roots and IXPER® Calcium Peroxide further enhances plant growth. Benefits of IXPER® C have also been observed in the cases of vegetable crops such as tomatoes, lettuce, radish and others when the soil was waterlogged.