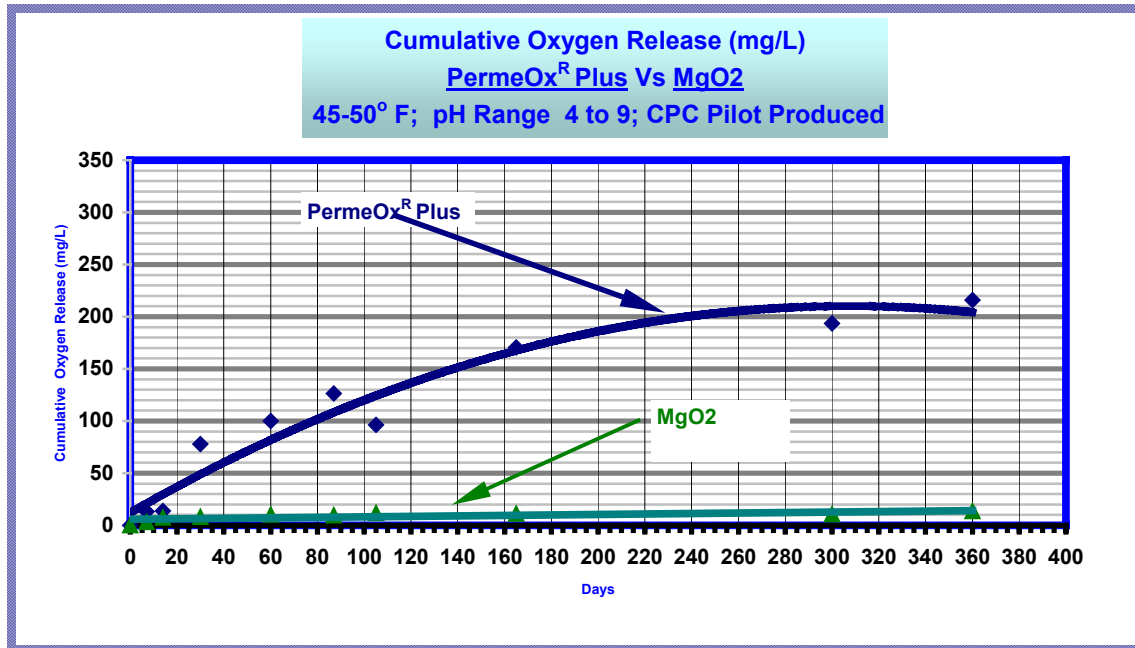


Comparison of PermeOx[®] Plus to Magnesium Peroxide

PermeOx[®] Plus is an economical, viable and effective alternative oxygen-generating compound for use in, odor control, metals removal and bio-remediation. PermeOx[®] Plus is a passive, in-situ approach to providing an oxygen source for bio-remediation. Successful bio-remediation depends on the proper mix of nutrient, oxygen and microbes. Most often the limiting factor of aerobic degradation of contaminants is oxygen availability. It is well known that in water systems a minimum of 3 ppm dissolved oxygen is needed for vigorous aerobic respiration. PermeOx[®] Plus releases oxygen so that indigenous aerobic microbes may naturally attenuate such contaminants as BTEX, MtBE, gasoline and chlorinated compounds at an enhanced rate.

PermeOx[®] Plus contains a minimum of 17% active oxygen about twice the active oxygen content of magnesium peroxide based competitor's product. Furthermore the oxygen from PermeOx[®] Plus is readily available and does not suffer from "lock up" unlike the more insoluble magnesium peroxide oxygen release compound. With the generous release of oxygen from PermeOx[®] Plus, biological activity can be stimulated more rapidly than with magnesium peroxide. Because inorganic metal compounds, such as those based on iron and manganese first utilize oxygen in the soil, their oxygen demand must be satisfied before oxygen is available for microbial use. Since PermeOx[®] Plus releases a larger amount of oxygen more rapidly than magnesium peroxide the total soil oxygen demand is satisfied and oxygen is available to accelerate the natural attenuation process. Because the available oxygen released from PermeOx[®] Plus satisfies the soil oxygen demand faster than magnesium peroxide, and because PermeOx[®] Plus makes more oxygen available, the aerobic microbe population growth process is accelerated.



The above figures illustrate the important difference between PermeOx[®] Plus and ORC[®], which is their relative rates of release of oxygen. Lab studies indicate that PermeOx[®] Plus delivers substantially more oxygen than ORC[®] at typical soil temperatures and over the pH range of 4-9. PermeOx[®] Plus delivers over 17 times the oxygen at 60 days, and after 90 days PermeOx[®] Plus delivers over 400 ppm of oxygen and continues to deliver oxygen, while ORC[®] appears to lock up.

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