

# Oxygen Release Compound, ORC®

## Laboratory Studies

In the early development of bioremediation applications for ORC, several independent laboratories and universities participated in proof-of-concept studies. Some of the major conclusions of these studies are as follows:

Bench Scale proof-of-concept confirms the oxygen-releasing capacity of ORC, which enhances microbial growth and in turn remediates hydrocarbons.

### **Corning's Enseco Laboratory Division (Orange, CA)**

Laboratory characterization of the oxygen-releasing properties of ORC, show:

- 1) The patented technology is capable of a dramatically decreased rate of oxygen release.
- 2) All of the oxygen will eventually be released from the molecule; the use of smaller particle sizes whose stability is facilitated by the patented process.
- 3) The release kinetics of ORC consist of a short first order phase followed by a dominant zero order phase. (See Figure 1).

### **University of Southern California (Los Angeles, CA)**

### **Applied Power Concepts, Inc. (Orange, CA)**

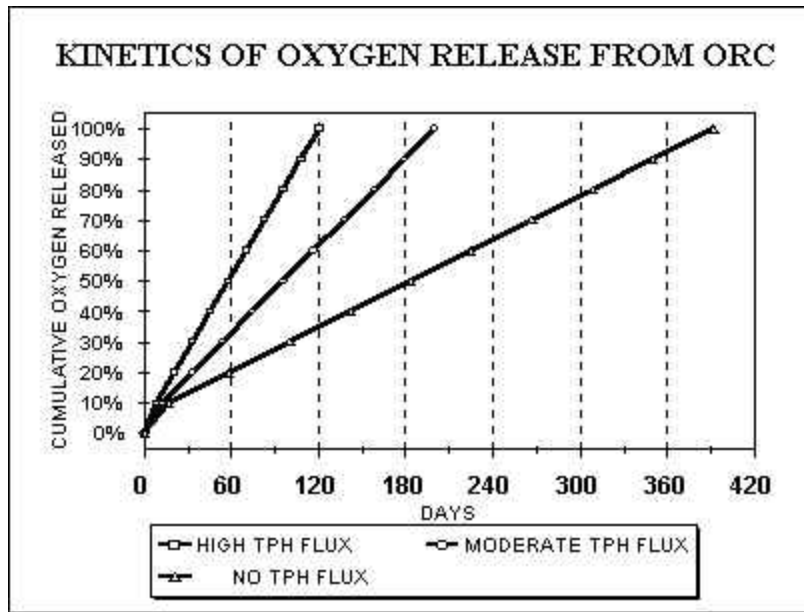
When ORC was applied to microbial populations engaged in phenol metabolism, a degradation that will *not* occur in the absence of oxygen or oxidized compounds, ORC successfully degraded the organic compound. Since phenol metabolism is strictly aerobic, this proves that ORC facilitates oxygen-mediated bioremediation processes.

### **Vanderbilt University (Nashville, TN)**

ORC treatment resulted in a decrease in PCE and TCE contamination by an undetermined aerobic mechanism – possibly via direct elimination reactions or co-metabolic processes.

### **Retec Corporation (Seattle, WA)**

**Figure 1**



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