

## Filter Cake Breaker Enzyme

### Description

LyoZan™ xanthan breaker enzyme is a component of the ORCA™ for WBM system used for removal of WBM damage and filter cakes in the reservoir. LyoZan slowly degrades xanthan polymer chains allowing for uniform filter cake removal across the open hole reservoir section.

### Benefits

- Non-hazardous for transportation purposes and low hazard for handling and use.
- Restores production and injection within reservoirs blocked with WBM filter cakes containing xanthan polymers.
- Highly soluble in and compatible with a wide range of completion brine types and brine densities.
- Low environmental impact and high biodegradability.

### Application

LyoZan is a liquid product that is readily dissolved in fresh water, sea water or completion brine. Typically used for well treatments to remove drilling mud damage in a wide range of wells including oil and gas production wells as well as injection wells. The characteristics of the ORCA for WBM system makes it particularly suited for open hole horizontal/directional wells including slotted liner, standalone screen or gravel pack completions.

Typically used in wells with a bottom hole static temperature below 90°C (194°F).

### Treatment Recommendation

Prior to utilizing LyoZan or other components of the ORCA for WBM system, lab testing is required to test for compatibility and effectiveness against the specific type of damage anticipated downhole. Concentration of LyoZan is up to 1% v/v depending on the concentration of xanthan within the filter cake.

LyoZan is compatible with other Cleansorb™ breaker enzymes designed to remove starch and cellulose based polymers. Acid precursors can also be incorporated into ORCA for WBM formulations to deliver simultaneous downhole acidizing and polymer breaker treatments.

### Typical Physical Properties

Appearance..... Pale to dark brown, solids free liquid  
 pH..... 4.0 - 4.5  
 Specific Gravity..... 1.13 (9.4 lb/gal)  
 Water Solubility..... Completely miscible

### Handling and Storage

LyoZan is stable for at least 18 months if stored in the sealed containers as supplied, out of direct sunlight, at temperatures below 25°C in ambient temperatures or in temperature-controlled storage in hotter climates. Avoid contact with skin and eyes. Use appropriate hygiene, clothing, and personal protective equipment suitable for work being done. Review the SDS thoroughly before using this product.

### Packaging

LyoZan is available in: 20-kilogram (20-liter) plastic pails and 1,000-kilogram (1000-liter) IBCs as required.

