TETRAZyme S1

POLYMER BREAKER

Overview

TETRAZyme S1 is an amylase enzyme used to break starch fluid loss polymers in water-based drilling fluid filter cakes.

Features and Benefits

- Highly effective
- Poses minimal corrosion risk unlike conventional acid and oxidizer-type polymer breakers
- More tolerant to higher temperatures and pH extremes than commonly used amylase enzymes
- Does not require specialized equipment
- Poses minimal health and safety risks to rig crews, compared with the use of acid/acid precursors
- Environmentally acceptable in the Gulf of Mexico and North Sea

Applicable Information

TETRAZyme S1 randomly hydrolyzes internal α 1,4 glucosidic bonds in starch and its degradation products, liberating lower molecular-weight, soluble dextrins and oligosaccharides.

Extensive testing has shown that enzymes can help remove filter cake effectively from open-hole reservoir sections. This performance contrasts with conventional solutions, such as HCl acid, which reacts aggressively with CaCO3 in filter cake and the reservoir. Aggressive reaction with filter cakes typically results in formation of localized loss zones through which the remaining acid is diverted. Loss of acid at the first point of contact with the filter cake means that filter cake remains intact within the majority of the reservoir section. TETRAZyme S1 reacts relatively slowly and uniformly with filter cake throughout the entire reservoir section. A soak time of at least 24 hours is recommended in most cases.

TETRAZyme S1 performs at higher temperatures and across a wider range of operating conditions than competitive products. The table below shows the higher temperature stability of TETRAZyme S1 versus other amylase products used within the oilfield.

Safety and Handling

Avoid skin and eye contact, inhalation, or ingestion. For skin contact, wash with soap and large quantities of water. For eye contact, flush with large quantities of water. Use properly designed respirator if adequate ventilation is not available. Refer to the Safety Data Sheet for specific details.

TETRAZyme S1 has a relatively short shelf life and, therefore, should only be ordered when required. Storage conditions should protect TETRAZyme S1 from extreme temperatures.

Physical Properties	
Appearance	Light to dark brown liquid
Specific gravity	1.10 g/ml
pH	10-10.7
Water Solubility	Soluble

Packaging

55-gallon drums

Recommended Treatment

Consult a TETRA representative to discuss specific applications.

	Operating Temperature					
	80°C	85°C	90°C	95°C	100°C	105°C
TETRAZyme S1	■	■	■	■	■	■
Typical Analyse Products	■	■	■			