



PRODUCT DATA SHEET

DEEPA Enzyme Acid System

General Description

DEEPA is a patented technology used for the in-situ production of organic acid with a proven track record for stimulation of oil and gas wells all over the world. Through unique enzyme reactions, organic acid is produced down hole after the fluid has been displaced into the formation and heated. **DEEPA** is a fluid that is non-reactive on surface and eliminates many of the compatibility, corrosion, safety, and environmental concerns normally associated with typical fast acting mineral acids.

Features and Benefits

- Provides highly effective, uniform deep matrix acidizing of the formation
- In-situ generation of organic acid permits treatments with excellent zonal coverage, overcoming problems associated with highly reactive acidizing treatments (worm holing)
- Over 95% of the total acid produced is generated down hole after the treatment fluid has been pumped to fill the rock matrix
- Removes acid soluble near wellbore damage (i.e. carbonate scale)
- Improve HSE on the well site, protecting the asset, company and personnel, extremely low environmental impact, 100% biodegradable
- Simple to mix and pump - mix with standard equipment at the wellsite using completion brines, town water or produced water

Application

DEEPA has a number of valuable oilfield applications including:

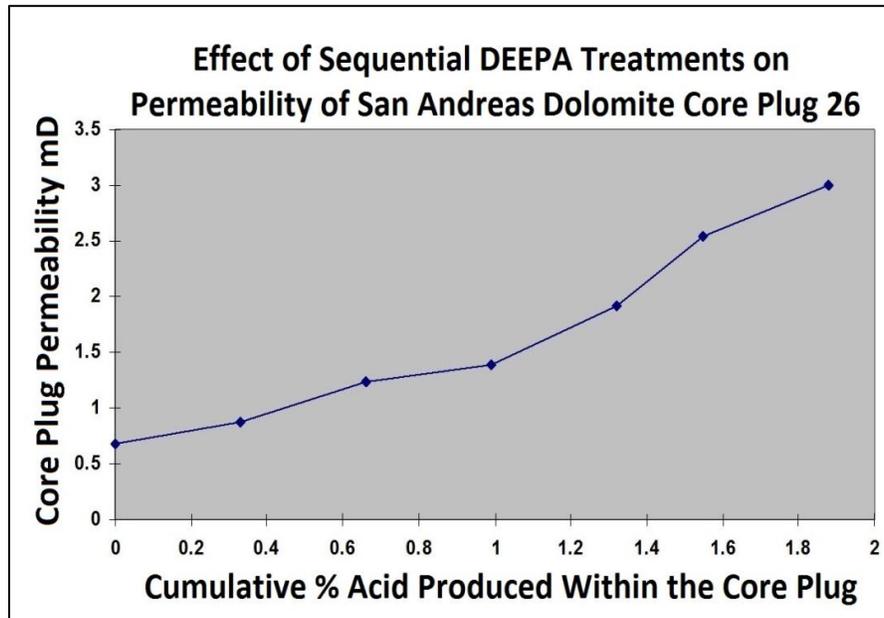
- deep matrix acidizing of carbonate formations
- deep matrix acidizing of sandstone formations containing some carbonate (e.g. carbonate cementation or secondary mineralization)
- deep matrix acidizing of formations that have a build-up of carbonate scale
- stimulation of natural fracture networks in carbonate formations

Shipping and Handling

DEEPA has a storage life of better than one year. Keep container closed when not in use. As with all chemical products and materials, take care as to where you store them. Refer to the SDS for other shipping and handling information.

Laboratory Validated

- Sequential, low concentration DEEPA treatment steps produce only a few percent of organic acid in total within the core
- Significant increases in permeability are achieved



Fully Delayed Acid Generation

