

ClayTreat LT™

Environmentally Safe Clay control for the 21st Century



With today's technology we are capable of securing our Energy Future while preventing harm to our environment.

Environmentally Friendly and effective Clay Control has multiple uses in our agricultural industry and food supply.



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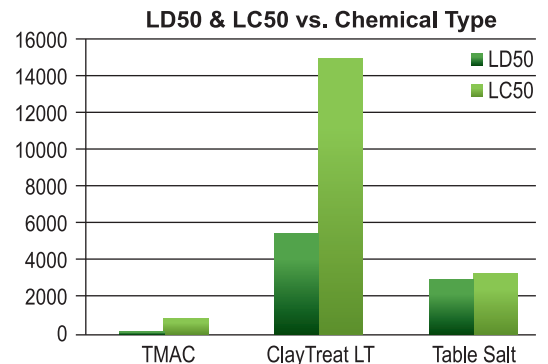
Low Toxicity Clay Control

The environment continues to be our most valuable resource and with today's technology we are capable of securing our energy future while preventing harm to our ecosystem. Research has allowed the introduction of compounds that perform in the same manner as previous clay control products (TMAC / DADMAC / Salts) but without the toxic side effects.

Environment

Clean Air – Clean Water, ClayTreat LT™ is DOT non-hazardous, compatible with drinking water and is biodegradable. Maintaining the safety of our drinking water and preserving the purity of the air is just one part of ensuring the work we do to power America doesn't damage any of our vital resources.

EcoTox Data



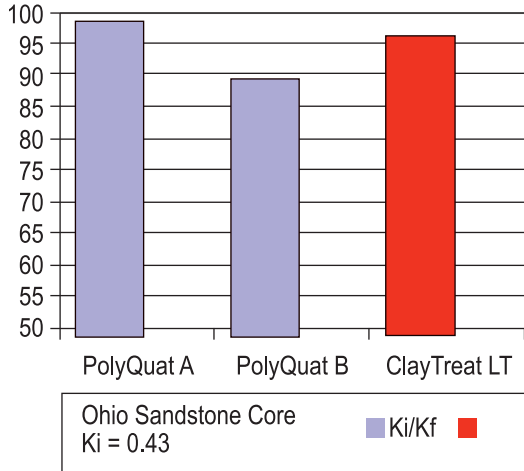
ClayTreat LT™ is less toxic than table salt and is shipped as DOT non-hazardous allowing for reduced risk in handling and spillage

Performance

The performance and protection provided by Clay Treat LT™ is due to the same qualities that allow polyquat technology to be effective. Its low molecular weight enables it to move through low permeability pore systems. Clay Treat LT™ does not oil wet clay or sands facies which can cause damage/flow restrictions.

Performance Cont'd

Percent Retained Perm vs. Treatment type



Retained Permeability – Ohio Sandstone Core
Ki = 0.43 md

Clay Treat LT™ is pumped as a liquid that is easy to handle with no disposal problems associated with dry KCl, ammonium chloride or TMAC chemistries.

Clay Treat LT™ is compatible with all known water based frac fluids, cross linkers, and breakers. It does not adversely affect fluid pH. Clay Treat LT™ is intended to be added continuously throughout the treatment.

Recommendations for Use

Clay Treat LT™ should be used at 1.0-2.0gal/Mgal where < 2% KCl has been employed. More or less can be used, depending on the clay type and content of the specific zone in question.

Performance Data

Appearance	Clear liquid
Odor	Slight amine
Specific Gravity	1.06 - 1.1
Density:	8.58 - 8.83(lbs/gal)
Wt. per Gal.:	8.5 lbs
Ionic Charge	Cationic
pH	6.5 - 8.0
Freezing Point	-20° F
Solubility:	Water, acid, brine
Solubility in Water	650 g/l

EcoStats

Bioaccumulation potential – Low

Acute toxicity - Low

LD50 - 5500 mg/kg oral (rat)

LC50 - 15,000 mg/liter

Mutagenicity – Negative

Biodegradability – Positive - Photodegrades

Special Handling/ Precautions

Clay Treat LT™ is DOT - Non-Regulated.

Refer to the Material Safety Data Sheet (MSDS) for handling and hazard data. Compatibility tests are recommended before use with other additives.

Ordering Information

Name:	Clay Treat LT™
Part Number:	xx-35-445-0020

Refer to the current SWSI Price Book for pricing information.



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