PRODUCT BULLETIN

# Synthetic Gel
# Polymeric/ Rheological Viscosifier Technology

Monolyte Synthetic Gel technology was developed as a superior cost and performance alternative to conventional natural gum viscosifiers.

Its proprietary molecular design provides the user with:

- dual polymeric and rheological viscosity building functionalities.
- structural cross linking
- resistance to methanol, dissolved solids and temperature degradation
- minimal (if any) post break requirement
- biodegradable option (EU 301 A compliant)

| | Indigenous/ Rheological Viscosification Potential | Polymeric Viscosification Potential | Friction Reduction Potential |
|---|---|---|---|
| 40% Guar (Oil Suspension) | None / Very Low | High | Low |
| Xanthan | Moderate | Very High | None |
| Synthetic Gelling Agent | | | |
| OHE 7300 | Low | Moderate | Very High |
| OHE 7400 | Moderate | Very High | High |
| OHE 7700 | Very High | High | Moderate |

| | Expected Friction (psi) Reduction | Shear Resistance/ Reformation | Break Mechanism | Relative Economic Comparison 5 Gal Pail(s)/ $M^3$ | |
|---|---|---|---|---|---|
| | | | | Sand/Water Mixture Viscosity of 25 cps (@25^C) | Coil Tubing Application |
| 40% Guar (Oil Suspension) | 12% | Poor | Required | 5 | 5 |
| Xanthan | 0% | Poor | Required | 4 | 4 |
| Synthetic Gelling Agent | | | | | |
| OHE 7300 | = >60% | Moderate | Optional | 4 | 4.5 |
| OHE 7400 | = >50% | Good | Optional | 4 | 4 |
| OHE 7700 | = >40% | Excellent | Optional | 2.5 | 4 |

To Become a Monolyte Customer or learn More About Their Innovative New Product line
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PRODUCT BULLETIN

# OHE Anionic Friction and Drag Reduction Product Lines

Monolyte is pleased to introduce the only field customizable series of friction and drag reduction technologies. Our series of base products are engineered to maximize pressure reduction over the widest array of substrate feed variations. Standard OHE Products are formulated with highest HS&E and "in process" standards including_ biodegradable_ auto-decomposition, extremely low formation impact and BTEX-free options.

OHE Product have a series of available MePAT (*Monolyte Emulsion Polymer Additive Technology*) options including integrated FR/DR with an infused: anti-scalent, dispersants, corrosion inhibitor, low and high temperature functionality , glass beads, fast break and low concentration break functionality.

## Monolyte Friction and Drag Reduction Product Lines

| | | Friction Reduction Potential | Viscosification Potential | 1% Activation Speed (time to achieve 80% total viscosity in fresh water (in seconds) | Viscosity @ 1.0% Concentration in Fresh Water | Viscosity @ 1.0% Concentration in 10,000ppm TDS Water |
|---|---|---|---|---|---|---|
| SNF EM 533 | | Average | Average | 120 | 325 | 12.5 |
| Kemira 1883 RS | | Above Average | Above Average | 25 | 600 | 47.5 |
| Ashland A3030 | | Average | Average | 60 | 350 | 13.0 |
| Monolyte FR's | | | | | | |
| | OHE 7300 | Best in Class | Above Average | 10 | 700 | 49.0 |
| | OHE 7400 | Above Average | Best in Class | 10 | 750 | 107.5 |
| | OHE 7700 | Average | Above Average | 10 | 700 | 55.0 |

| | | Head to Head Friction Reduction in Fresh Water (Dosage Factor to achieve 55% pressure reduction ) | Head to Head Friction Reduction in 10,000ppm TDS Water (Dosage Factor to achieve 55% pressure reduction) | Freeze Thaw Character @ -20^ C | Viscosity @ 0.25% Concentration in Fresh Water | Viscosity @ 0.25% Concentration in 10,000ppm TDS Water |
|---|---|---|---|---|---|---|
| SNF EM 533 | | 1.00 | 1.20 | Frozen Solid/Gel Upon Thawing | 45 | 2.5 |
| Kemira 1883 RS | | 0.85 | 1.05 | Thick at( -20^)C / No Gel | 105 | 6.0 |
| Ashland A3030 | | 1.00 | 1.10 | Frozen Solid/Gel Upon Thawing | 50 | 2.5 |
| Monolyte FR's | | | | | | |
| | OHE 7300 | 0.67 | 1.00 | Thick at( -20^)C / No Gel | 105 | 7.0 |
| | OHE 7400 | 0.85 | 0.60 | Thick at( -20^)C / No Gel | 120 | 8.0 |
| | OHE 770 | 1.00 | 0.70 | Thick at( -20^)C / No Gel | 100 | 7.5 |