

# GREENWELL ENERGY SOLUTIONS™

## Chemical Portfolio

**Our customers need a partner that guarantees the best performing chemicals available in the market. By leveraging such highly effective fluids, clients can rest assured knowing they've made the right choice that supports their ultimate goal – well completion and optimization.**

Unlike many providers in the industry, our success is not dependent on individual products or manufacturers. We develop chemicals by conducting extensive R&D of all available products on the market, completing tests with third-party labs and developing custom-blended solutions based on the results. This process guarantees that only chemicals that have succeeded in 'blind', unbiased tests are recommended to solve customers' specific challenges.

Greenwell has 100+ proven chemicals that enable clients to rely on one supplier for their complete chemical needs – and we are always expanding our product list. Our custom-blended solutions treat paraffin, scale, corrosion and all other chemically-treatable situations Greenwell customers face. While Greenwell's chemical portfolio may change more often than the competition as R&D results in new best performers, our clients always receive the optimal chemical. Why do we know our approach is the right one? Because we think it's time you receive the right chemical, the first time.



### Services

- Proprietary-blended chemicals
- Well-site assessments
- Laboratory testing
- Chemical performance monitoring
- Custom-designed containment
- Environmental remediation and protection
- In-house equipment design and fabrication

### CUSTOM-BLENDED SOLUTIONS (see reverse)

- |  |                     |                 |                |
|--|---------------------|-----------------|----------------|
| • Environmental Remediation and Protection | • Friction Reducers | • Lubricants    | • Stimulation  |
|  | • Inhibitors        | • Mud Additives | • Viscosifiers |

### GREENWELL COMMODITY CHEMICALS:

Acetic Acid 56%	Defoamer (Alcohol Based)	Potassium Hydroxide, Solution 45%
Aluminum Sulfate	Defoamer (Silicon Based)	Salt
Ammonium Bifluoride (ABF)	Erythorbic Acid	SAPP
Ammonium Chloride (Dry)	Ethylene Glycol	Soda Ash
Ammonium Fluoride 36% Solution	Fumaric Acid	Sodium Hypochlorite
Ammonium Persulfate	Glycerin	Sodium Metasilicate (Penta)
Ammonium Stearate	Glycol Ether	Sodium Persulfate
Antifoam (Silicone Based)	Hexane Blend	Sodium Silicate Solution
Barite	Hydrochloric Acid	Sodium Silicate Solution (Water Glass)
Bentonite (20 lbs per bbl. fresh water for 40+ Vis Pad)	IPA (Isopropyl Alcohol)	Sodium Thiocyanate
Benzoic Acid	KOH Flakes	Sodium Thiosulfate
Borax – Retarder/Contaminate	Magnesium Oxide	Sorbic Acid
Boric Acid	Methanol (Methyl Alcohol)	Stearic Acid
Calcium Carbonate	Milstarch	Sulfuric Acid 93% & 98%
Calcium Chloride (Dry) 94-97%	Mineral Spirits	TEG
Caustic Soda Beads	NTA Acid	Toluene
Caustic Soda Liquid 50%	PEG	TPA-1
Citric Acid	Potassium Acetate	Triethanolamine (TEA)
Class H (Texas Lehig)	Potassium Carbonate	Xylene
DBSA	Potassium Chloride KCL (Dry)	
	Potassium Hydroxide, Solid	

*Greenwell Energy Solutions is a project lifecycle partner delivering optimal performance through specialty products, oversight expertise and objective solutions adapted to our customer's specific challenges.*



**GREENWELL™**  
ENERGY SOLUTIONS

**Impacting Efficiency™**

**2000 B Edwards** (713) 993-7772 Office  
**Houston, TX 77007** (713) 993-7762 Fax

[www.greenwellsolutions.com](http://www.greenwellsolutions.com)

## GREENWELL CUSTOM-BLENDED SOLUTIONS

Product Name	Description	Application				
		Drilling	Completion	Production	Intervention	
<b>LUBRICANTS: <i>Quick Line</i></b>						
<b>Quick Drill™</b>	<ul style="list-style-type: none"> <li>- High temperature (&gt; 450°F) lubricant</li> <li>- Nano technology specifically engineered for drilling fluids</li> <li>- Increases ROP, extends bit life, eases sliding, improves cuttings removal and wellbore stability</li> </ul>	<ul style="list-style-type: none"> <li>- Contains surfactant, gellant, clay control</li> <li>- Does not affect rheology; can be used in OBM, WBM or SBM</li> </ul>	✓			
<b>Quick Reel™</b>	<ul style="list-style-type: none"> <li>- High temperature (&gt; 450°F) lubricant</li> <li>- Nano technology specifically engineered for coil tubing</li> <li>- Contains surfactant, corrosion inhibitor, gellant</li> <li>- For aqueous fluids</li> </ul>	<ul style="list-style-type: none"> <li>- Reduces metal-on-metal friction and turbulent flow friction, eases sliding, manages weight on bit, reduces fatigue, increases cuttings removal, controls corrosion</li> </ul>		✓		✓
<b>QL-100</b>	<ul style="list-style-type: none"> <li>- Biodegradable, high temperature (&gt; 350°F) pipe lubricant</li> <li>- Reduces the coefficient of friction</li> </ul>	<ul style="list-style-type: none"> <li>- Suitable for OBM and WBM</li> </ul>	✓	✓		✓
<b>FRICION REDUCERS: <i>Wet Frog™ Line</i></b>						
<b>Slick Frog™ FR</b>	<ul style="list-style-type: none"> <li>- Designed for fresh water through medium brine fluids &lt; 4000ppm tds</li> <li>- Rapid hydration in aqueous solutions</li> </ul>	<ul style="list-style-type: none"> <li>- High molecular weight</li> <li>- Contaminant tolerant</li> <li>- Anionic/nonionic compatible</li> </ul>	✓	✓		✓
<b>Salty Frog™ FR</b>	<ul style="list-style-type: none"> <li>- Designed for medium brine through high brine fluids &gt; 4000ppm tds</li> <li>- Rapid hydration in aqueous solutions</li> </ul>	<ul style="list-style-type: none"> <li>- High molecular weight</li> <li>- Contaminant tolerant</li> <li>- Anionic/nonionic compatible</li> </ul>	✓	✓		✓
<b>INHIBITORS: <i>SWAT Line</i></b>						
<b>SL-100</b>	<ul style="list-style-type: none"> <li>- Filming corrosion inhibitor</li> <li>- Cationic solution used in aqueous fluids to protect from H<sub>2</sub>S and other corrosive elements</li> <li>- Oil dispersible and water soluble</li> </ul>	<ul style="list-style-type: none"> <li>- Effective in high temperature oil and gas wells</li> <li>- Applicable in production and gathering systems and water flooding systems</li> </ul>		✓	✓	✓
<b>SL-200</b>	<ul style="list-style-type: none"> <li>- Scale inhibitor for barium sulfate</li> <li>- Prevents nucleation and crystal growth and iron and calcium scales from forming</li> <li>- Outstanding performance in iron levels up to 400ppm</li> </ul>	<ul style="list-style-type: none"> <li>- High tolerance to soluble calcium over 120,000ppm</li> <li>- Resistant to ferric ions that break down most inhibitors on the market</li> </ul>		✓	✓	✓
<b>SL-300</b>	<ul style="list-style-type: none"> <li>- Scale inhibitor for treatment of calcium carbonate, calcium sulfate, strontium sulfate scales</li> <li>- Moderately effective at treating barium sulfate scales</li> <li>- Uses low molecular weight and organic copolymers to inhibit scale growth in offshore and land-based oil production</li> <li>- Effective in all brine systems and production temperatures up to 248°F; down hole treatments stable from 40-500°F</li> </ul>			✓	✓	✓
<b>SL-400</b>	<ul style="list-style-type: none"> <li>- Concentrated H<sub>2</sub>S scavenger containing 80% organics; formaldehyde free</li> <li>- Effectively removes H<sub>2</sub>S from either aqueous or hydrocarbon fluid systems</li> <li>- Formulations provide efficient sweetening of wet gas streams</li> <li>- Not adversely affected by CO<sub>2</sub>, unlike most scavengers on the market</li> </ul>			✓	✓	✓
<b>MUD ADDITIVES: <i>Opti Line</i></b>						
<b>OptiSqueeze™</b> <i>Water and Oil-Based Formulations</i>	<ul style="list-style-type: none"> <li>- One sack severe fluid loss solution for vugular or cavernous formations</li> <li>- Dewatering system using broad range PSD to significantly reduce or eliminate major mud losses</li> </ul>	<ul style="list-style-type: none"> <li>- LC<sub>50</sub> compliant, temperature stable to 400°F, contaminant tolerant</li> </ul>	✓			✓
<b>OptiOne™</b> <i>Water-Based Formulations</i>	<ul style="list-style-type: none"> <li>- Complete WBM in one package</li> <li>- Engineered to include viscosifier, filtrate control, shale inhibitor, friction reducer and lubricant</li> </ul>	<ul style="list-style-type: none"> <li>- Compatible in all formation types</li> <li>- Increases wellbore stability</li> </ul>	✓			✓
<b>OptiBlock™</b> <i>Water and Oil-Based Formulations</i>	<ul style="list-style-type: none"> <li>- One sack seepage fluid loss solution for minor to major mud losses</li> <li>- Can be pumped through BHA</li> <li>- LC<sub>50</sub> compliant, temperature stable to 450°F, 30lbs/bbls without affecting ECD, contaminant tolerant</li> </ul>		✓			✓
<b>ENVIRONMENTAL REMEDIATION and PROTECTION: <i>Green Line</i></b>						
<b>Green Dog™</b>	<ul style="list-style-type: none"> <li>- Used to clean spills easily and efficiently – skims liquid hydrocarbons from water, does not react in water</li> <li>- Biodegradable polymer that crosslinks in hydrocarbons</li> </ul>	<ul style="list-style-type: none"> <li>- Forms a solid plastic-like material that can be transported off-site</li> </ul>	✓	✓	✓	✓
<b>Green Machine™</b>	<ul style="list-style-type: none"> <li>- Used to clean spills easily and efficiently – skims water from oil, does not react in hydrocarbons</li> <li>- Biodegradable polymer that crosslinks in water</li> </ul>	<ul style="list-style-type: none"> <li>- Forms a solid plastic-like material that can be transported off-site</li> </ul>	✓	✓	✓	✓
<b>VISCOSIFIERS: <i>Well Snot™ Line</i></b>						
<b>WS-100</b>	<ul style="list-style-type: none"> <li>- High viscosity xanthan gel slurry</li> </ul>	<ul style="list-style-type: none"> <li>- Contaminant tolerant</li> <li>- For aqueous-based fluids</li> </ul>		✓		✓
<b>WS-200</b>	<ul style="list-style-type: none"> <li>- Standard viscosity xanthan gel slurry</li> </ul>			✓		✓
<b>WS-300</b>	<ul style="list-style-type: none"> <li>- Xanthan gel dry powder</li> </ul>			✓		✓
<b>WS-400</b>	<ul style="list-style-type: none"> <li>- HEC linear gel slurry</li> </ul>			✓		✓
<b>WS-500</b>	<ul style="list-style-type: none"> <li>- PHPA polymer</li> </ul>			✓	✓	✓
<b>STIMULATION: <i>Terminator Line</i></b>						
<b>G-Terminator™</b>	<ul style="list-style-type: none"> <li>- Comprehensive well stimulation and debris clean-out service</li> <li>- Uses patented tool and engineered chemical solutions to increase the commercial life of a well</li> </ul>	<ul style="list-style-type: none"> <li>- Removes scale, paraffin and other blockages</li> <li>- Achieves greater flush production, revives lost production</li> </ul>	✓	✓	✓	
<b>TL-100</b>	<ul style="list-style-type: none"> <li>- Reduces oil-water emulsions, gives clean break at the interface between water and oil</li> <li>- Non-emulsifying blend of nano fluids</li> </ul>	<ul style="list-style-type: none"> <li>- Effective in CO<sub>2</sub> floods and water floods</li> <li>- Inhibits surfactant absorption by shales and sands</li> </ul>		✓	✓	
<b>TL-200</b>	<ul style="list-style-type: none"> <li>- Effective broad range demulsifier for reducing surface tension</li> <li>- Biodegradable and non-emulsifying</li> </ul>	<ul style="list-style-type: none"> <li>- Nano fluid technology for EOR</li> <li>- Applicable in sandstone and limestone formations</li> </ul>		✓	✓	