

Well Stimulation

Lubrizol offers a comprehensive line of field proven fracturing and acidizing products designed to maximize operational efficiencies while minimizing environmental impact. Our non-flammable products include acid corrosion inhibitors, scale inhibitors, and non-emulsifier surfactants. For more information on well stimulation products from Lubrizol, visit www.lubrizol.com/Oilfield-and-Refinery/Well-Stimulation.

Product	Chemical Type	Key Function	Primary Applications
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Acid Corrosion Inhibitors

ENVIROHIB™ 3-IN-1	Thiourea polymer based corrosion inhibitor	Environmentally-friendly multi-functional corrosion inhibitor, iron control agent, non-emulsifier/anti-sludging agent. Effective up to 300°F (149°F) without an intensifier. Nonylphenol, DMF, arsenic, BTEX and quaternary amine free.	Spearheads. 0.25-10 gal/1000 gal acid
ENVIROHIB™ 600	Unique Quinoline quat, blended with synergistic surfactants and acetylenic alcohol replacement	Environmentally-friendly corrosion inhibitor for use in hydrochloric (HCl) and hydrochlorichydrofluoric (HCl-HF) acids for well temperatures up to 300°F (149°C). Typically used in higher acid concentrations. Nonylphenol, DMF and acetylenic alcohol free.	Acidizing & spearheads. 0.25-20 gal/1000 gal acid
ENVIROHIB™ 2001	Thiourea polymer based corrosion inhibitor	Environmentally-friendly corrosion inhibitor for use in hydrochloric (HCl) and hydrochlorichydrofluoric (HCl-HF) acids for well temperatures up to 300°F (149°C). Effective in lower acid concentrations and in organic acids. Nonylphenol, DMF, arsenic and quaternary amine free.	Acidizing & spearheads. 0.5-20 gal/1000 gal acid
ENVIROHIB™ HT	Thiourea polymer based corrosion inhibitor	Environmentally-friendly high temperature corrosion for well temperatures greater than 250°F (121°C). Effective up to 275°F (135°F) without an intensifier. Nonylphenol, DMF, arsenic, BTEX and quaternary amine free.	Acidizing & spearheads. 4-20 gal/1000 gal acid
AI 600	Quinoline quat, blended with synergistic surfactants and acetylenic alcohol replacement	Acid corrosion inhibitor for use in hydrochloric (HCl) and hydrochlorichydrofluoric (HCl-HF) acids for well temperatures up to 350°F (177°C). Typically used in higher acid concentrations. Does not contain propargyl alcohol.	Acidizing & spearheads. 0.25-20 gal/1000 gal acid

Acid Emulsifier

AE 8	Polyolefin amide alkeneamine blend	Used to prepare high acid internal phase emulsions with xylene, diesel and mineral oil to retard the rate of reaction for deeper penetration of live acid into the formation.	Acidizing. 2-10 gal/1000 gal of total emulsified fluid
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Anti-Sludging Agent

AS 10	Anionic, surfactant based anti-sludge additive	Prevents asphalt sludge and emulsions when treating with HCl acid. Promotes rapid return of the treating fluid to the wellbore on flowback.	Acidizing. 1-5 gal/1000 gal acid
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Clay Control Additive

ClayGuard™ E	Blend of amine salts	Provides both temporary and permanent clay control protection.	Water-based fracturing. 0.5-2 gal/1000 gal
XC 197	Complex oligomer benzyl quaternary ammonium chloride	Highly cationic amine permanent clay stabilizer. Cost effective and dilutable before use.	Water-based fracturing. 0.5-1 gal/1000 gal

Iron Control Agent

ICA 400	Organic salt solution	Liquid iron reducing agent for water and acid systems. Prevents the precipitation of iron by sequestering both ferric and ferrous iron into a soluble and stable colloidal suspension.	Acidizing, spearheads, & water-based fracturing. 0.5-10 gal/1000 gal acid
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Non-Emulsifier & Fluid Recovery Surfactants

NE 40	Environmentally friendly nonionic, water soluble nonemulsifier	Prevents the formation of emulsions within a broad range of crude oils and condensates. For use in cost effective treatments where a low freeze point is not required. Freeze point is 23°F (-5°C).	Acidizing, spearheads, & waterbased fracturing. 0.5-1 gal/1000 gal of total emulsified fluid
Kleen Rinse	Blend of water soluble surfactants	Prevents formation of emulsions within a broad range of crude oils and condensates. Water wetting cleaning agent.	Water-based fracturing. 0.5-1 gal/1000 gal
CWF 311	Alcohol-ether sulfonate foamer	Fresh water & brine tolerant fracturing foamer.	Foam fracturing. 3-5 gal/1000 gal

Scale Inhibitors

SCALE CLEAR™ 125	Phosphonate based scale inhibitor	Used for controlling the deposition of calcium carbonate, calcium sulfate, strontium sulfate and barium sulfate scales. Available winterized & non-winterized.	Water-based fracturing. 0.1-0.25 gal/1000 gal
BS 648A	Phosphonate scale inhibitor concentrate	Water dilutable phosphonate based concentrate scale inhibitor (neutralized).	Water-based fracturing. 0.1-0.25 gal/1000 gal
CARBOSPERSE™ K-7028	Polyacrylate scale inhibitor concentrate	Water dilutable polymeric based concentrate scale inhibitor.	Water-based fracturing. 0.1-0.25 gal/1000 gal
CARBOSPERSE™ K-739	Solid polyacrylate scale inhibitor	Used for controlling the deposition of calcium carbonate, calcium sulfate, strontium sulfate and barium sulfate scales.	Water-based fracturing. 0.25 lbs/1000 gal

H₂S Scavenger

SULFA-CLEAR™ 8640	Aqueous, cyclic tertiary amine polymer	Used as a sulfide scavenger in acidizing applications. Also provides odor control due to unique mercaptan scavenging capability.	Acidizing. 5% scavenges 0.104 lbs/gallon pure H ₂ S in 15% HCl 9% scavenges 0.0567 lbs/gallon pure H ₂ S in 28% HCl
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The Lubrizol Corporation
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