

Locus Bio-Energy SOLUTIONS®

Biosurfactant Technology:

Extending Total Well Life, Getting More Out of Existing Assets and Driving U.S. Production of Cleaner Fossil Fuels

A Shift in Focus to Domestic Oil Production



Production

An *immediate* need for increased U.S. oil & gas production, despite limited frac resources



ESG Compliance

SEC rule changes on climate related risks and GHG emission disclosures

Solution:

Biosurfactants

Immediately and sustainably boost oil recovery for a fraction of the cost of other methods ✓ ESG-friendly

✓ US-based

✓ Proven on 300+ wells

40+%

Increases across conventional and unconventional wells

Get more out of new and existing assets. Extend total well life.



Product Portfolio



SUSTAIN®

Chemistries for Hydraulic Fracturing and Acidizing

AssurEOR FLOW[®] & STIM[®]

Enhanced Oil Recovery

AVERT™

Solvent-Compatible Biosurfactant to Control Wax, Asphaltene Deposition

FloBoost[™]

Biosurfactantbased Injectivity Aids for SWDs

AssurClean[™]

Biosurfactantbased Cleaning Chemicals

AcidBoost™

Allows acid to access and dissolve more scale

The Role of Surfactants in Stimulation

Enhance Oil Mobility

From the Rock
Through the Fracture
Through the Fluids

Maintain Oil Integrity To the Surface

One is not enough!

Surfactants need to impact each stage in oil production to maximize recovery.



Performance Confirmed by Independent Lab Data

Microfluidic Technology confirms up to 90% more oil mobilized by Locus BE biosurfactants, reducing the need for continued (re)fracking to meet production goals

- Microfluidics provide high-resolution simulation of reservoir fluid dynamics
- Reproduces individual reservoir characteristics in microscopic format
- Effective way to compare oil mobilization potentials of different chemistries

Locus BE Biosurfactants





Nano-sized pores etched onto a test chip that simulate fluid flow in the natural micro-cracks and pore sizes in a shale reservoir

PORE

FRAC ZON

MATRI)

TX Case Study: Wolfcamp A Frac Q1 2021

Analog well provided by operator for performance comparison. Analog well used premium surfactant at a loading of 1.5 gpt

Results: 1/3 the dosage rate at a loading of 0.5 gpt **TX RRC Data**



SUSTAIN®

Lower Environmental Impact With Biosurfactants: Permian Basin Example



Case Study: Low Pressure Acid Restimulation San Andres Vertical Well Central Basin





Successful well treatments completed across top U.S. basins:

Appalachian		Central		Delaware		Illinois
States: Kentucky, Ohio, Pennsylvania, West Virginia Formations: Berea Sandstone, Clinton Sandstone, Upper Devonian, Utica		State: New Mexico, Texas Formation: San Andres		State: New Mexico, Texas Formations: Bone Spring, Brushy Cannon, Wolf Camp, Yeso		State: Illinois Formations: Salem, Warsaw
Midland		d South Te		exas	Williston	
	State: Texas Formations: Spraberry, Wolf Camp		State: Texas Formation: Eagle Ford, San Miguel		State: North Dakota, Montana Formations: Bakken, Red River	

*Case histories available upon request

ESG UPDATE

Locus BE biosurfactants are Carbon Neutral



- Locus BE biosurfactants are **Carbon Neutral**
- Manufacturing plant is transitioning to renewable-backed power
- Remaining small carbon footprint is offset with carbon credits to claim a Carbon Neutral footprint







ONE HUNDRED PERCENT OF THE OPERATIONAL ENERGY USE ASSOCIATED WITH SOLON PRODUCTION IS OFFSET BY NEW ON- OR OFF-SITE RENEWABLE ENERGY.

Biosurfactants: ESG-Friendly Solutions & Manufacturing



2.

ESG Value Propositions:

- Reduce Scope 1 emissions by maximizing oil recovery using sustainable and biodegradable biosurfactants
 - Toxicity of Locus BE biosurfactants are 10x lower than traditional oilfield surfactants and 100% biodegradable



- Made from renewable agricultural raw materials, including canola and sugar
- Produced with a near-zero carbon footprint
 - Locus BE biosurfactants are carbon-neutral
 - ISO 9001-accredited manufacturing program uses Lean Six Sigma techniques such as 5S methodology and renewable energy offsets
 - Production center can be built and scaled quickly (within months at < 10% CAPEX of traditional production)

Biosurfactants Answer the Call to Action for Energy Security

Augment production from:

✓ New Fracs

- ✓ Refracs
- ✓ Stimulations

Proven technology available to immediately increase domestic oil & gas production

(1) (2) (3) Enhance Meet New Boost ROI Oil SEC & Recovery Guidelines Profitability



Extend Total Well Life. Produce Cleaner Fossil Fuels.



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In-person or virtual meetings available

LocusBioEnergy.com



Biosurfactants: **Produced by Nature. Perfected by Locus.**