Stimulation Chemical Services

CUSTOMIZED OILFIELD CHEMICALS AND STIMULATION TREATMENTS
Stimulation Chemical Services

Multi-Chem offers unparalleled technical expertise and superior local service through the application of stimulation treatments and customized specialty oilfield chemicals. Our stimulation chemical portfolio includes a comprehensive array of both standard and custom-formulated chemicals, along with integrated fluid systems, for every well stimulation challenge. Application experience and thorough compatibility testing ensures chemical and fluid recommendations are selected which are compatible, effective, and correctly dosed to prevent under or overtreatment—and our team is singularly focused on getting you the right solution, at the right time.

**SERVICE**

The high level of service quality and commitment we offer during stimulation is inherent in Multi-Chem’s culture. You receive the same top-notch service—for both stimulation and production phases—throughout the Multi-Chem organization. Our collaboration and complete transparency across teams, as to what additives were used downhole, make diagnosis and production planning highly efficient.

**Onsite Metering**

Multi-Chem offers onsite additive dosing to simplify logistics and deliver high service quality. In such cases, we ensure dosage is within tight margins of the technical recommendation. In 2011, for example, Multi-Chem managed a dosage tolerance with an average of 2% of the prescriptive technical requirements, or as called-out by the customer, with our equipment onsite.

**Logistics**

Multi-Chem offers both wellsite delivery and pick-up models for your convenience. Chemical containers are per your exact specifications, whether you need ISO containers, tote containers, or other sizes. With our wellsite delivery service, both onsite monitoring and drop-off options are available. All of our commercial drivers are qualified with proper drivers license credentials, including necessary hazardous material endorsements, and meet all other federal motor carrier safety standards.

**Post-Frac Monitoring**

As part of Multi-Chem’s focus on asset integrity and quality assurance, we offer the option of post-frac monitoring for biocide and scale efficacy. This involves follow-up visits to your location 30 and 90 days after a well is produced following fracturing treatment, with the express purpose of analyzing water samples to measure/verify service quality for both biocide and scale inhibitor results.

**HYDRAULIC FRAC FLUID**

Transferring hydraulic horsepower downhole is key to any stimulation treatment. Both friction-reduced water sources and crosslinked fluid systems are available from Multi-Chem. These systems are tailored to meet each customer’s needs.

**FRACProcess™ Program**

FRACProcess is Multi-Chem’s proprietary friction reducer account assurance method to optimize the functioning of our friction reducers, so they perform as required by the customer in the field. This method has multiple levels of customizable service, depending on the specific needs of your completions:

- **Basic** — ensures friction reducer performance and chemical additive compatibility. This involves pre-frac screening of additives used in the fracturing fluid, flow loop testing ahead of time to understand limitations and expectations of the additives and, finally, on-site friction reducer field performance validation with the customer.

- **Intermediate** — provides all the benefits of basic, plus it enables on-the-fly dosage customization and determines which friction reducer to use for the job.

- **Advanced** — gives you all the benefits of basic and intermediate, with the addition of custom-tailored additives that enhance friction reducer performance on location.

**Legend™ Borate-Crosslinked Fracturing Fluid System**

Hybrid fracturing treatments use both friction reducers and crosslinked fluid systems. Multi-Chem provides crosslinked fluid systems in addition to friction reducers to meet your needs for these fluids. Our Legend series of crosslinked fluid systems use either guar, or a derivative of guar, and take into account various parameters, such as viscosity and bottomhole temperature, making it a truly customizable service.

We measure performance in real-time during the fracturing treatment and make adjustments, as necessary, in response to immediate feedback. This allows us to overcome water quality issues, respond to increases or decreases in pressure due to the formation, and when needed, to switch between different friction reducers and dosages. Our friction reducer benefits are, therefore, maximized, without over- or under-dosing due to unpredictable variances during the fracturing job.
ENHANCED PRODUCTION

Core to Multi-Chem’s stimulation service is the ability to improve production. In some cases, this generates wells with 150% production improvements relative to offsets.

PowderPerm

PowderPerm is a patented procedure unique to Multi-Chem to validate relative surfactant performance for a specific acreage. We test at increased temperature and under lateral flow using connate water, hydrocarbon material from the reservoir, and formation material to determine relative performance enhancement of surfactant additives. Coupled with emulsion and compatibility tests, we are able to give accurate recommendations to maximize flow.

Rock-on-a-Chip™ Microfluidic Device

Rock-on-a-Chip microfluidic device allows most geometric features observed in shale formations to be recreated digitally through photolithography and etching methods onto a “fingernail-sized” device, for the purpose of investigating fracturing fluid invasion, flowback, and hydrocarbon recovery during well stimulation. This method is ideally suited for direct visualization of oil recovery with various surfactant fluids.

Ascend™ Surfactant System

Multi-Chem’s Ascend surfactant system is the latest generation of surfactant advancements. This tailored, two-part system enables more treatment deep into the formation matrix. Improved production results from the surfactant’s ability to reduce capillary pressures found in tight formations. Like our other additives, this chemical delivery can be tuned to meet your challenges.

RockOn™ Surfactants

RockOn surfactants improve production in oil wells by reducing interfacial tension between oil and frac fluids. This enables oil to flow through smaller capillaries, effectively allowing more drainage, faster than other fracturing treatments relative to offsets.

Non-emulsifying Surfactants

Multi-Chem’s extensive production chemistry experience also has equipped us with advanced non-emulsifying surfactants for use in fracturing operations. We offer non-emulsifying surfactants for the prevention of blockages due to oil/water emulsion issues. Our additives are tailored to give break times in under five minutes under BHST conditions, or as needed to meet challenges encountered in our customer’s wells. Multi-Chem is equipped to test emulsion challenges in every region for quick diagnosis and recommendations.

ASSET INTEGRITY

Bacteria, scale and formation damage can cause significant production reduction and uneconomic hydrocarbon production for a well or pipeline system. Multi-Chem believes in protecting your wells to extend the lifetime production from your assets.

Biocides

At Multi-Chem, we have developed the portfolio and skillsets to combat any bacterial contamination that can arise from the oilfield. We have one of the most diverse portfolios for the treatment of biological organisms. Our biocide recommendations are qualified by real-world experience and lab testing based on API-standard experimentation.

SourShield™ H₂S Control

SourShield H₂S control, a biological option to treat bacteria, starves sulfate; thus, reducing bacteria of their food source, keeping them in-check for the lifetime of a well. SourShield H₂S control is selective in its ability to starve undesired microorganisms—it is one of the most ecologically friendly biocidal systems available today. With recent technology advancements and efficiency improvements, this treatment is now a viable candidate for a much greater segment of wells.

Scale Inhibitors

Reservoirs have had eons to achieve equilibrium with the surrounding geochemistry, and hydraulic fracturing significantly disrupts that equilibrium by changing pressure, temperature and ion concentrations, causing substantial scale potential. Multi-Chem offers one of the broadest arrays for scale inhibition and prevention in the marketplace. We recommend scale inhibitors and concentrations after careful water analysis, screening and testing of criteria based on your water source to improve your wells production lifetime.

Clay Inhibition

Approximately 30% of the mineralogy in US shale plays consist of either migrating or swelling clay particles. Swelling and fines migration due to clay can significantly reduce the effective production from an asset. Multi-Chem uses real formation materials from your asset to assess damage from hydraulic fracturing and during flowback. To maintain the formation integrity of the producing zones, we have a wide array of clay control additives that improve the longevity of your assets.
Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale.

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