

Technical Sales Bulletin

Performance Additives

Addresses siliceous fines to enhance well production

Fines-Sta™ 100 Fines Control Agent



Siliceous fines are generally loosely bound to sandstone formations and easily mobilized into the produced liquids, particularly after stimulation treatments. Their presence may lead to plugging of the pores of the formation (or screens). They may also cause the formation of stable emulsions (fines may act as nucleating centers). The net effect is short and long-term production decline or well abandonment in severe cases.

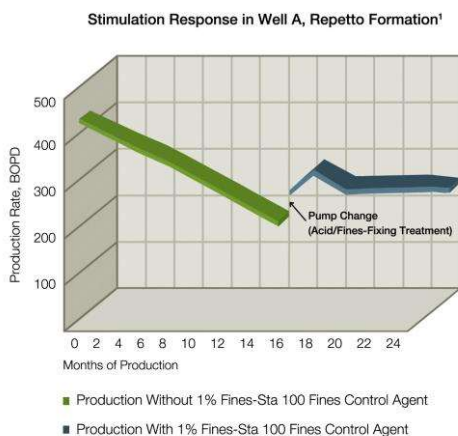
Our Fines-Sta™ 100 fines control agent is used to address fines migration challenges associated with siliceous rocks. In particular, it is used for fines encountered in crude oil production or generated as a result of hydraulic fracturing or sandstone acidizing. Such treatment can result in a significant increase in the productivity and stabilization of the well, typically for a long period of time (several years in some cases). The Fines-Sta 100 fines control agent can also reduce maintenance costs.

Key Features and Typical Benefits

- Powerful impact on siliceous fines consolidation
- May be used either during well completion or stimulation
- Reduces excessive mineral dissolution by hydrofluoric acid (HF) when used during acid jobs

Field Study on Stimulation Response

The Fines-Sta 100 fines control agent was used to treat a Repetto oil well with severely declining production. After treatment, the well's production remained higher than pre-treatment.¹



How the Fines-Sta 100 Fines Control Agent is Used

The Fines-Sta 100 fines control agent targets fines originating from non-clay minerals such as quartz, mica, amorphous silica, and feldspar, but also mitigates fines migration from clays. It is easily dispersible in water and in various brines.

When used in completion fluids, a recommended starting level is 1% v/v of Fines-Sta 100 fines control agent as received. At this concentration, the material is soluble in 2% KCl, 3% NH₄Cl or 3% CaCl₂ brines. The level of product will need to be adjusted depending on the severity of the problem and the effect required.

If the product is intended to be used in a conventional frac pack operation without the use of other fines stabilizing agents, normal process is recommended.

The Fines-Sta 100 fines control agent should be added to the pad portion of the fluid at a starting level of 0.5% to 1% v/v and used through the 2 PPA sand stage. This level will have to be adjusted depending on the severity of the problem and the effect required.

| Typical Physical Properties | | |
|--|---------|------------------------|
| Property | Unit | Value |
| Physical Form | - | Clear Liquid |
| Color | - | Light Yellow |
| Specific Gravity at 77°F (25°C) | - | 1.076 |
| Viscosity at 68°F (20°C) | cP | 4 |
| Flash Point, Pensky-Martens Closed Cup ASTM D-93 | °F (°C) | 212 (100) |
| Solubility | - | See How to Use Section |

Typical product values determined on commercial material whose properties might vary within the specification limits. Typical product data values should not be used as specifications. Assistance and specifications are available from Hexion.

Our Fines-Sta 100 fines control agent can also be used in acid jobs. At 1% v/v, it is soluble in 15% HCl, 12% HCl + 3% HF and in 10% HCl + 10% acetic acid. The success or failure of an acid job is highly dependent on the concentration of the acids, particularly HF: small concentration variations may have disproportionately high effects. The potential use of the Fines-Sta 100 fines control agent can help mitigate this issue, thus increasing the chances of success and the reliability of the treatment without the need for extensive laboratory work to establish the optimum levels of acids needed for a particular formation.

It is recommended that our Fines-Sta 100 fines control agent be evaluated at increasing concentrations from 0.5% up to 1% v/v. Alternately, the product may be blended at similar levels in the NH₄Cl brine overflush following the acid treatment.

Product Safety, Handling, and Storage

Our Fines-Sta 100 fines control agent is best stored at temperatures between 32° and 95°F (0° and 35°C) to facilitate ease of handling, but storage at lower or higher temperatures will not affect its subsequent performance.

Customers should review the latest Material Safety Data Sheet (MSDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, and any special storage conditions required for safety. MSDS documents are available upon request from your Hexion representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with Hexion products (primers, for example) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Limitations

Customers must evaluate Hexion products and make their own determination as to the fitness of use in their particular applications.

References

1. SPE 20076-MS, 1990.



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