

# Sandstone Acidizing Portfolio

## ACID SOLUTIONS FOR SANDSTONE FORMATIONS

### SILICA SCALE™ ACID

Silica Scale acid is a high-HF acid very successful at removing formation damage. This acid system is most effective in low-clay wells or in geothermal wells. Due to the high HF concentrations, planning must be done beforehand to minimize secondary precipitation forming.

### SANDSTONE COMPLETION™ ACID

Sandstone Completion acid is our most versatile sandstone acidizing system. This acid system is designed for cases where the formation mineralogy is unknown or uncertain and can be used for most acidizing jobs. Sandstone Completion acid uses a HCl / HF blend, a penetrating agent, and a precipitation control agent to provide the maximize dissolving power while still being compatible with unknown mineralogy.

### FINES CONTROL™ ACID

Fines Control acid is a retarded HF acid system designed for treating sandstone formations that have been damaged from the migration and/or swelling of silica, feldspars, and clays. Due to the retarded nature of the system's reactions with sand, Fines Control acid is very effective in removing clay damage. The primary advantages of Fines Control acid are:

- » Deeper penetration of live HF into the formation with penetrating agent for maximum contact
- » Retarded reaction with sand and silica to promote deep damage removal and improve compatibility with feldspar-containing formations
- » Minimized damage to formation consolidation
- » Iron control and aluminum scaling prevention, as well as clay stabilizer for fines control during and following the treatment

For more information, contact your local Halliburton representative or visit us on the web at [www.halliburton.com](http://www.halliburton.com)

### K-SPAR™ ACID

K-Spar acid is a HCl/HF blend designed for formations containing significant sodium or potassium feldspar or illite. The system handles the challenge these formations have with increased fluosilicate precipitation. K-Spar acid should be used in almost all cases where the overall mineralogical content is 10 percent or greater potassium feldspar or illite.

### VOLCANIC™ ACID

Volcanic acid is an organic-HF acidizing blend designed to replace acetic-HF and formic-HF fluids. Volcanic acid has all the benefits of these acid blends, but does not have the problem of severe secondary precipitation common with those systems. Volcanic acid has these advantages:

- » Compatible with HCl sensitive minerals (for example chlorite, zeolites, and clays)
- » Can be used at higher temperatures than HCl based fluids
- » Will not cause sludging with formation crude oils
- » Avoids secondary precipitation observed with formic-HF and acetic-HF acids
- » Contains a penetrating agent to help acid contact, and a swelling-prevention agent for water sensitive clays



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