Sildril D additive is a water-soluble sodium silicate powder which is used for primary chemical wellbore stabilization.

Secondary inhibition is achieved with the use of KCl or NaCl.

**Typical Physical Properties**

- **Physical appearance**: White crystalline solid
- **Specific gravity**: c. 2.5
- **pH**: >11.5 @ 4% in water
- **Solubility in water**: Soluble in water
- **Viscosity**: 200-400 cPs @ 40% in water
- **Molecular Ratio, SiO2:Na2O**: 2.0 – 2.8

**Applications**

Sildril D additive is a water-soluble sodium silicate with a 2.0 - 2.8 SiO₂ to Na₂O ratio. Sildril D additive can be used to provide superior chemical inhibition to shales, clay and claystone formations, chalk formations, and formations interbedded with dispersive clays. Treatment with 43 to 86 kg/m³ (15 to 30 lb/bbl) is the most effective maintenance concentration for optimum inhibition. Treatment with monovalent salts (KCl and NaCl) enhances the inhibitive performance of Sildril D additive. The use of potassium carbonate can also enhance inhibitive performance. Sildril systems are formulated with conventional drilling fluid polymers to achieve the required rheological and fluid loss properties. The Sildril system is engineered without commercial bentonite, although small quantities (3 - 5 lb/bbl) can be used in initial fluid make-up. The Sildril system has been successfully used in the field with densities varying from 1.1 to 1.7 sg (9 to 14 lb/gal). The Sildril system has the same temperature limitation as all other polymer-base fluids, approximately 300°F. Sildril D additive reacts readily with Ca⁺⁺ and Mg⁺⁺ ions. High concentrations of divalent ions will deplete the effective silicate concentration and diminish its inhibitive performance. Sildril D additive is, therefore, not recommended for drilling formations containing high concentrations of calcium or magnesium ions.

**Advantages**

- Highly effective shale and clay stabilizer
- No adverse effect on fluid rheology and filtration properties
- Effective in freshwater and NaCl and KCl salt systems
- Effective at temperatures up to 150°C (300°F)
- Provides effective corrosion inhibition

**Limitations**

- Formations containing high hardness levels (Ca⁺⁺/Mg⁺⁺), can cause rapid silicate depletions.

**Toxicity and Handling**

Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions as described in the Material Safety Data Sheet (MSDS).
Packaging and Storage

Standard pack unit: 25-kg (55-lb) sack.

Store in dry, well-ventilated area. Keep container closed. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.