

FLO-WATE

FLO-WATE* salt is specially sized NaCl designed to be used as a weighting and bridging agent in saturated NaCl-base workover/completion and Reservoir Drill-In Fluids (RDF). FLO-WATE sized salt will bridge permeable formations, limiting fluid invasion and thereby minimizing the potential for permanent formation damage. FLO-WATE sized salt is soluble in freshwater and under-saturated brine, allowing easy removal from the producing formation.

Typical Physical Properties

| | |
|----------------------------------|---------------------------------|
| Physical appearance..... | White powder |
| Specific gravity..... | 2.15 to 2.17 |
| pH..... | 7.0 |
| Solubility in freshwater | 35 g/100 g H ₂ O |
| Particle-size distribution | D10 = 14μ; D50 = 37μ; D90 = 76μ |

Applications

FLO-WATE sized salt is a water-soluble weighting and bridging agent for controlling density and fluid loss in fluids saturated with NaCl. When used as a bridging agent, FLO-WATE sized salt will seal the permeable formations, reducing the invasion of fluid and therefore minimizing the potential for permanent formation damage. FLO-WATE sized salt is easy to remove by using freshwater or under-saturated brine. Typical concentrations are 40 to 60 lb/bbl (114.1 to 171.2 kg/m³).

The amount of FLO-WATE sized salt needed to increase the density of the fluid is calculated as follows:

FLO-WATE (lb/bbl)

$$\frac{756 (W_2 - W_1)}{18.0 - W_2} = X$$

Where:

X = Materials required in lb/bbl

W₁ = Initial density in lb/gal

W₂ = Desired density in lb/gal

FLO-WATE (kg/m³)

$$\frac{2160 (W_2 - W_1)}{2.16 - W_2} = X$$

Where:

X = Materials required in kg/m³

W₁ = Initial density in g/cm³

W₂ = Desired density in g/cm³



Advantages

- Avoids use of insoluble weight materials
- Avoids use of lost-circulation agents that could damage the reservoir
- Totally water soluble
- Can be supplemented with other sized salts for broad range of particle sizes to seal a variety of pore sizes

Limitations

- A viscosifier will be required for suspension
- Minimum density of 10.4 lb/gal (1,246 kg/m³)
- Upper limit for density is approximately 12.5 lb/gal (1,497 kg/m³)
- Solubility and particle-size distribution changes with temperature

Toxicity and Handling

Bioassay information is available upon request.

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

Packaging and Storage

FLO-WATE sized salt is packaged in either 50-lb (22.7-kg), 55.1-lb (25-kg) multi-wall, paper sacks or big bags.

Store in a dry location away from sources of heat or ignition, and minimize dust.

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