

Potassium Chloride

Description

Potassium Chloride (KCl) is a white crystalline or colorless granular material. It is odorless, stable in air and highly soluble in water. It is widely recognized as one of the most effective clay inhibitors for water-based drilling fluids.

Applications

KCl is used in water-based drilling fluids as an effective clay inhibitor by preventing the clay from swelling. It is also used in completion or workover fluids to inhibit the clay found in reservoir rock and to increase fluid density. The highest density achievable with KCl in solution is 9.68 ppg (1,162 kg/m³). In addition KCl can also be used to slightly accelerate cement slurry setting time.

Features and Benefits

- KCl is readily soluble and easily mixed through the hopper.
- Inexpensive and easily obtainable source of K⁺ ion
- Hydrated potassium ion size is almost identical to the space between clay platelets making it one of the preferable ions for combatting clay swelling.
- Prevents bit and BHA balling
- Prevents mud rings from forming
- Improves drilling and tripping times while drilling troublesome shale intervals.
- Can provide densities up to 9.68 ppg (1,162 kg/m³) in aqueous solutions.
- Highly stable in solution
- Helps minimize fines migration

Typical Properties

Appearance	Crystals
Color	White
Specific Gravity	1.99
Purity	96% min
pH (saturated solution)	7.0
Molecular Weight	74.55

Recommended Treatment

Concentration to be used for drilling fluids will depend on the reactivity of the clays present in the formations to be drilled. Typical concentration ranges between 10 – 30 ppb (28.5 – 85.5 kg/m³). Pilot lab testing with formation cores or cuttings is recommended in order to determine the ideal concentration of KCl to be used.

Care needs to be taken when handling and storing KCl as it is hygroscopic and will absorb water from the atmosphere.

Safety and Handling

Prior to using this product, refer to the safety data sheet for information on use of personal protective equipment, safe handling, storage, transport, and disposal.

Packaging

KCl is packaged in 50 lb (22.7 kg), 55 lb (25 kg) bags or 1 MT sacks.

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