

Potassium Chloride KDF003

1. Introduction

Salts in drilling fluids inhibit shale hydration and wellbore collapse via ionic effects, regulate fluid density, filtrate activity and rheological properties, and meanwhile improve the system's resistance to calcium and magnesium contamination, low-temperature anti-freezing and anti-corrosion performance.

Potassium Chloride KDF003 is a major component of the KCl or mixed-salt systems.

2. Physical Properties and Hazards

Additives	Form	S.G.	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH
KDF003	White Crystals	2.00	Soluble	770	Eyes	Dust	6-8

3. Chemical Properties and Application

In KCl systems, potassium chloride serves as the source of potassium ions. These ions strongly compete for interlayer sites of swelling clay minerals such as montmorillonite and illite, displacing most naturally occurring calcium and sodium ions. These transforms swelling clays into a more stable mica-like structure. In mixed-salt muds, excess potassium chloride is applied to inhibit the dissolution of native potassium salts including halite and carnallite.

Chemical Nature: KCl with Molecular Weight 74.6.

Purity: The purity is often expressed at % K₂O. The conversion is
 63% K₂O = 100% KCl
 60% K₂O = 95% KCl
 50% K₂O = 80% KCl

4. Treatment

A typical range is 10 to 50 lbm/bbl (29 to 143 kg/m³) in the KCl systems. The normal concentration would be 20 to 30 lbm/bbl (57 to 86 kg/m³) in the mixed-salt mud. Concentration depends on the level of magnesium and the estimated bottomhole temperature.

5. Packaging

KDF003 is supplied in 50 KG polythene paper sacks or metric-ton "big bags".

Keep it away from extreme conditions such as places are wet and humid or direct sunlight.