

Description

KAR-HEC is a nonionic hydroxyethyl cellulose polymer used as viscosifier for fresh water and various brine based workover and completion fluids.

Typical Properties

Appearance : Off-white powder
pH (1% solution) : 6 - 8
Bulk Density : 600 - 800 kg/m³

Features and Benefits

KAR-HEC is a highly effective viscosifier for sodium chloride, potassium chloride, calcium chloride, sodium bromide and potassium bromide brines. It performs well at any salt concentration up to saturation point.

KAR-HEC produces shear-thinning and non-thixotropic fluids with high apparent viscosity, high yield points, and low fragile gel strengths.

KAR-HEC has excellent tolerance to divalent ions and is effective over a wide pH range.

KAR-HEC is completely water soluble and hydrates rapidly in fresh water and brine fluids without "fisheyes".

KAR-HEC is readily breakable by hydrochloric acid, oxidizing agents and enzymes.

Because of its exceptional solubility and degradation features, KAR-HEC is regarded as being non-damaging polymer for clear brine applications.

KAR-HEC is not susceptible to bacterial attack and hence no biocide is needed.

KAR-HEC is nontoxic and environmentally compatible.

Application

KAR-HEC is used as primary viscosifier in a variety of brine based workover, completion and gravel packing fluids as well as in sea water and fresh water.

It can also be used to improve hole-cleaning in drilling, milling and underreaming operations.

KAR-HEC, in combination of an acid soluble bridging agent such as KAR-CARB, provides fluid loss control to clear brine fluids.

Limitations

Since low fragile gel strengths are attained with KAR-HEC, it does not provide long term suspension. Therefore, it should be used incorporation with KAR-ZAN D or KAR-ZAN DS when prolonged suspension is needed in solid-laden fluids applications.

KAR-HEC is not used with sodium carbonate or bicarbonate.

KAR-HEC is thermally stable up to 105 °C (220 °F). The temperature stability can be increased by 20 °C (68 °F) using KAR-POLY TS or KAR-POLY TS temperature stabilizer.

Treatment

Normal treatment levels range from 1 to 2 lb/bbl (2.9 to 5.7 kg/m³). The concentration will vary according to the brine type and operational considerations. Higher concentrations, up to 4 lb/bbl (11.4 kg/m³), may be used for very high carrying capacity requirements.

KAR-HEC is added to the system uniformly at a rate of approximately 10 minutes per sack without forming lumps. Rapid addition may result in "fish eyes" and incomplete solution of the polymer.

For obtaining full hydration of KAR-HEC, it is recommended to adjust the base fluid pH to approximately 7.0-8.0 before adding KAR-HEC. After all KAR-HEC is added and well dispersed, pH is raised to 9.0-9.5 to accelerate polymer yield. Extra KAR-HEC addition in powder form to KAR-HEC treated fluid can cause lumping or fish-eyes.

Packaging

KAR-HEC is supplied in 25 kg (55 lb) multi-wall paper sacks.