

## KIMA CHEMICAL CO.LTD

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### Oil Drilling grade CMC

Oil Drilling grade CMC Sodium carboxymethyl cellulose is made of natural cellulose by chemical modification of water-soluble cellulose ether derivatives, is an important water-soluble cellulose ether, white or yellow powder, non-toxic, tasteless, it can be dissolved in water, has good heat stability and salt resistance, antibacterial. The slurry fluid prepared by this product has good water loss, inhibition and high temperature resistance. Widely used in oil drilling, especially salt water Wells and offshore oil drilling.

Oil Drilling grade CMC products are divided into high viscosity (HV) and low viscosity (LV) categories, which are high-tech products with independent intellectual property rights of the company. It belongs to anionic cellulose ether, and has the characteristics of high purity, high degree of substitution and uniform distribution of substitution gao. It can be used as thickening agent, rheological regulator, water loss reducer, etc. CMC with high viscosity and low viscosity has excellent filtration loss reduction function in both fresh and sea water mud, and is an indispensable product in mud compatibility. CMC produced by our company is a highly purified product with white flowing powder in appearance and transparent viscous liquid in aqueous solution.

#### Product features

Carboxymethyl cellulose sodium salt is mainly used as viscosity increasing and filtration decreasing agent in drilling fluid. The long molecular chain of carboxymethyl cellulose sodium salt can adsorb with multiple clay particles, increase the cementation of mud cake, inhibit shale hydration expansion and consolidate well wall. Sodium carboxymethyl cellulose aqueous solution has many excellent properties and chemical stability, not easy to corrosion and metamorphic, harmless to physiological safety, suspension and stable emulsification, good adhesion and salt resistance. Good stability to oil and organic solvents.

- (1) The mud containing CMC can make the well wall form thin and firm, low permeability filter cake, so as to reduce the water loss.
- (2) After adding CMC to mud, the drill can get low initial shear force, so that mud is easy to release the gas wrapped in it, and the debris is quickly discarded in mud pit.
- (3) Drilling mud, like other suspended dispersions, has a certain lifetime, which can be stabilized and prolonged by adding CMC.
- (4) Muds containing CMC are less affected by mold and therefore do not need to maintain a high PH or use preservatives.
- (5) Containing CMC as drilling mud cleaning fluid treatment agent, can resist the pollution of various soluble salts.
- (6) CMC containing mud, good stability, even if the temperature is above 150°C can still reduce water loss.

A high viscosity, high displacement CMC is suitable for mud with low density, while a low viscosity, high displacement CMC is suitable for mud with high density. CMC has a high water loss control ability, efficient filtration loss, at a lower dosage, can control the water loss at a higher level, without affecting other mud properties; Good temperature resistance, excellent salt

resistance, especially suitable for offshore drilling and deep well requirements of natural gas drilling, digging well and other projects. As a deep-water colloid in drilling mud system, it can be used as fluid loss reducing agent and viscosity increasing agent.

**Functions :**

- (1) Quickly dissolved in cold or hot water;
- (2) can be used as thickening agent, rheological control agent, adhesive, stabilizer, protective colloid, suspension agent and water retention agent;

In the petroleum exploitation industry, CMC is a good drilling mud treatment agent and preparation of completion fluid material, high slurry formation rate, good salt resistance. Oil Drilling grade CMC is an excellent fluid loss reducing agent for freshwater mud and seawater mud rain saturated salt mud, and has good viscosity lifting ability and high temperature resistance (150°C). Suitable for the preparation of fresh, seawater and saturated brine completion fluids, and calcium chloride weight can be formulated to a variety of densities of completion fluids, and the completion fluid viscosity and low fluid loss. Our high viscosity and low viscosity CMC products meet GB/T 5005 standard, European OCMA standard and API 13A standard.

**Typical properties**

Appearance	White to off-white powder
Particle size	95% pass 80 mesh
Degree of substitution	0.7-1.5
PH value	6.0~8.5
Purity (%)	92min, 97min, 99.5min

**Popular grades**

Application	Typical grade	Viscosity (Brookfield, LV, 2%Soln)	Viscosity (Brookfield LV, mPa.s, 1%Soln)	Degree of Substitution	Purity
CMC For oil drilling	CMC LV		70max	0.9min	
	CMC HV		2000max	0.9min	

**Application:**

**(1) Usage of CMC in drilling fluid.**

CMC is ideal for use as an inhibitor and fluid loss reducer. The slurry fluid prepared by CMC inhibits the dispersion and expansion of clay and shale in high-salt media, thereby controlling

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well wall contamination.

**(2) Usage of CMC in workover fluid.**

The workover fluid prepared with CMC is low solid and does not block the permeability of the producing zone due to solids. And it has low water loss, so that the water into the production layer is reduced, and the water will be blocked by the emulsion and form a water holding phenomenon.

The workover fluid formulated with CMC provides advantages over other workover fluids.

Protect the production layer from damage;

Cleanhole portability and reduced borehole maintenance;

It is resistant to infiltration of water and silt, and rarely blistered;

It can be stored or reused from well to well at a lower cost than conventional mud workover fluids.

**(3) Usage of CMC in fracturing fluid.**

The fracturing fluid prepared by CMC can withstand 2%KCl solution (it must be added when preparing fracturing fluid), has good solubility, is convenient to use, can be prepared on site, and has a fast gelling speed and strong sand carrying capacity. It is more effective when used in low osmotic pressure formations.

**Packaging:**

CMC Product is packed in three layer paper bag with inner polyethylene bag reinforced , net weight is 25kg per bag.

14MT/20'FCL (with Pallet)

20MT/20'FCL (without Pallet)