

decocel[®]

Cellulose Ethers



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GUANGDONG LONGHU SCI. & TECH. COMPANY LIMITED



Who is LONGHU?

- Construction chemicals and innovation solutions provider
- Established in 1992 in Shantou, China
- ISO9001 certified
- Operating a cellulose ethers production site covering an area of up to 40,000 sqm with an annual capacity of 7,000 MT
- Five R&D centers in mainland China

What are decocel® cellulose ethers?

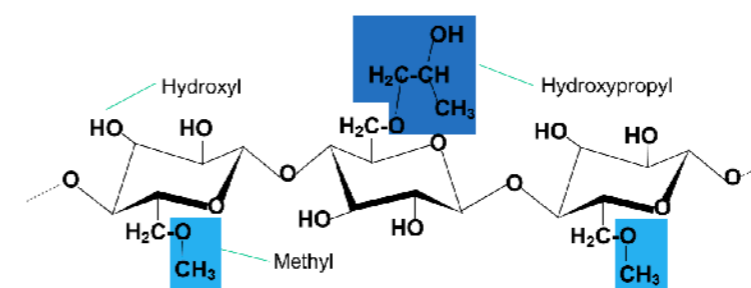
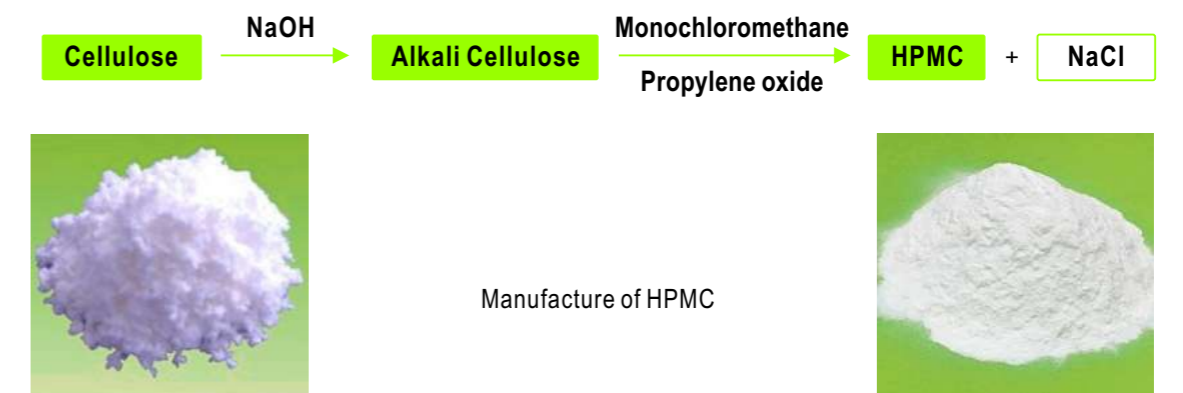
decocel® is a trademark of Longhu's cellulose ether products.
decocel® cellulose ethers are widely used in a variety of construction applications.
 The main product of **decocel®** cellulose ethers is Hydroxypropyl Methyl Cellulose (HPMC).



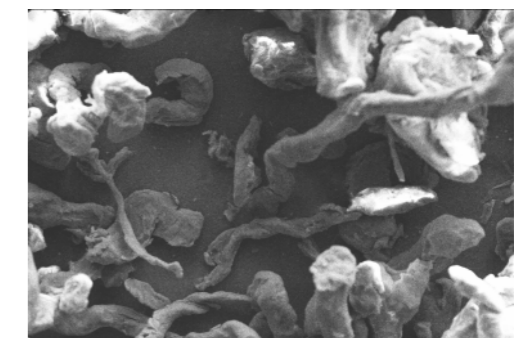
What is cellulose ether and HPMC ?

Cellulose ether is a cellulose derivative that the hydroxyl(-OH) of cellulose are partially or completely substituted by ether groups.

HPMC (Hydroxypropyl Methyl Cellulose) has the polymeric backbone of cellulose, a natural carbohydrate that contains a basic repeating structure of anhydroglucose units. During the manufacture of HPMC, cellulose fibers which are heated with a caustic solution, are treated with methyl chloride and propylene oxide in turn to form the fibrous reaction product, then it's purified and ground to a fine, uniform powder to gain final HPMC.



Chemical Structure of HPMC



HPMC Electron Micrograph

Applications of **decocel**[®] HPMC in Construction

General Properties of **decocel**[®] HPMC

Water Solubility: **decocel**[®] HPMC is easily dissolved in cold water. Surface-treated HPMC can be added directly into aqueous systems.

Water Retention: **decocel**[®] HPMC keeps water in formulated systems and prevents loss of water to atmosphere or substrate.

Lubrication: **decocel**[®] HPMC reduces friction, improves pumpability and workability of cement or gypsum products, and ceramic extrusions.

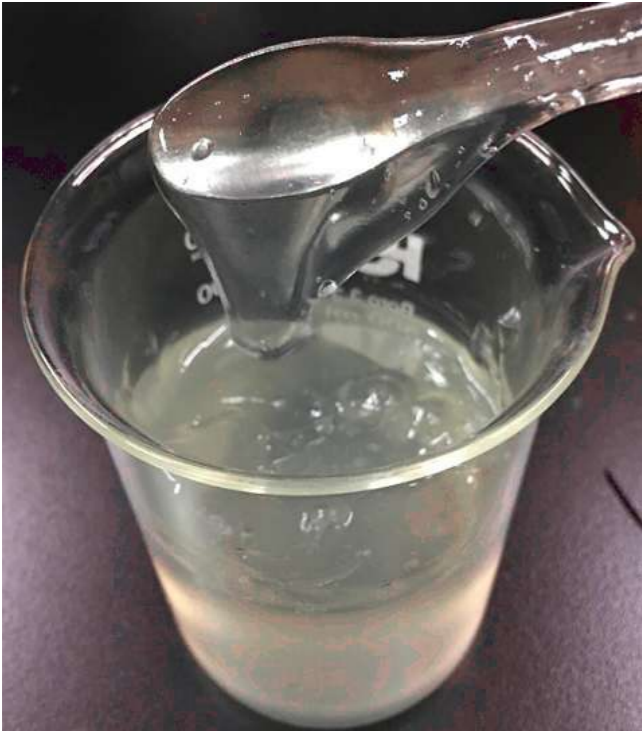
Thickening: **decocel**[®] HPMC increases consistency and improves the sag resistance of cement or gypsum products.

Binding: **decocel**[®] HPMC is used in cement or gypsum products as a binder to improve adhesion performance in formulations.

Wetting: **decocel**[®] HPMC improves the wettability of cement and gypsum products and makes them easier to bond with different interfaces.

Retarding: **decocel**[®] HPMC retards the hydration of cement, and delays the setting time of cement products more or less.

Air Entraining: **decocel**[®] HPMC as a surfactant in cement or gypsum products has an air entraining action to form certain bubble to improve the workability and increase rate of yield.



pH Stability: **decocel**[®] HPMC is stable over a pH range of 3.0-12.0, but affected by the presence of acid or alkali.

Thermal Gelation: **decocel**[®] HPMC transforms into gel form when aqueous solution is heated above a particular temperature. Gel can go back into solution upon cooling.

Surface Activity: **decocel**[®] HPMC acts as a surfactant in aqueous solution to provide emulsification, protective colloid action, and phase stabilization.



Plasters



Masonry Mortars



Exterior Insulation and Finish Systems (EIFS)



Repair Mortars



Decorative Mortars

Applications of **decocel**® HPMC in Construction



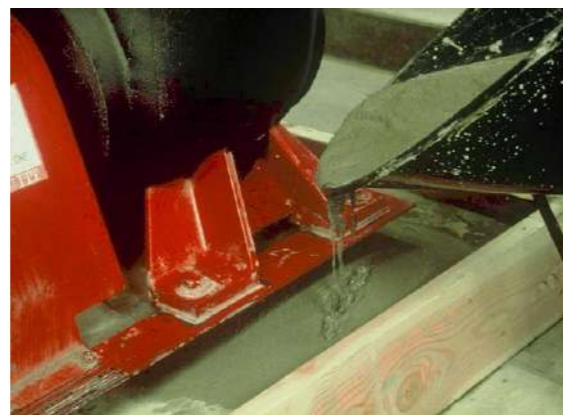
Lightweight Thermal Insulating Mortars



Skim Coat



Self-Levelling Compounds (SLC)



Grouting



Latex-Based or Liquid Systems



Tile Grouts



Gypsum-Based Joint Fillers



Tile Adhesives



Gypsum-Based Plasters



Gypsum-Based Adhesives

Applications of **decocel**[®] HPMC in Construction

decocel[®] HPMC for Cement-Based Plasters/Masonry Mortars

Product	Viscosity, mPa.s Brookfield,2%	Properties	Thin Layer	Thick Layer
H228	40000	Good standing strength Good workability	●	○
H620	45000	Good water retention Air void stability	●	○
H735	25000	Good standing strength Easy workability	○	●
30000S	30000	Easy dispersity Less stickiness	●	●
33SK	45000	Good water retention Good adhesion strength	●	○
40SK	25000	Strong thickening effect Good sag resistance	○	●

decocel[®] HPMC for EIFS/Repair Mortars/Decorative Mortars

Product	Viscosity, mPa.s Brookfield,2%	Properties	EIFS	Repair Mortars	Decorative Mortars
H228	40000	Good standing strength Good workability	○	○	○
H620	45000	Good water retention Air void stability	○	●	○
40010C	40000	Good water retention Good workability	●	●	●
30000S	30000	High adhesion strength Less stickiness	●	●	●
40000S	40000	High adhesion strength Easy dispersity	●	●	●
35SK	55000	High water retention High adhesion strength	●	●	○

decocel[®] HPMC for Lightweight Thermal Insulating Mortars

Product	Viscosity, mPa.s Brookfield,2%	Properties	EPS Granule	Expanded Perlite	Expanded Glass Bead
70000	70000	Outstanding wetting ability Excellent water retention	●	●	●

● Recommended ○ Suitable

decocel[®] HPMC for Cement-Based Skim Coat

Product	Viscosity, mPa.s Brookfield,2%	Properties	Interior	Exterior
H620	45000	Good water retention Good workability	●	○
40000S	40000	Easy dispersity High adhesion strength	●	●
40010C	40000	Good workability Long pot life	●	●
60013S	55000	Good water retention Very long pot life	●	●
33SK	45000	Good adhesion strength Good workability	○	○
35SK	55000	Good water retention Excellent workability	●	●

decocel[®] HPMC for Self-Levelling Compounds (SLC)/Grouting

Product	Viscosity, mPa.s Brookfield,2%	Properties	SLC	Grouting
500	500	Less segregation Good flowability	●	●
6000	6000	Less segregation Good pumpability	●	○

decocel[®] HPMC for Latex-Based or Liquid Systems

Product	Viscosity, mPa.s Brookfield,2%	Properties	Water Proof	Stone Paints	Paste Putties
20000S	20000	Delayed solubility Less stickiness	●	●	○
30000S	30000	Delayed solubility Avoid lump formation	●	●	●
40000S	40000	Delayed solubility Avoid lump formation	●	●	●

● Recommended ○ Suitable

Applications of **decocel**[®] HPMC in Construction

decocel[®] HPMC for Tile Adhesives

Product	Viscosity, mPa.s Brookfield,2%	Properties	Premium (C2)	Standard (C1)	Normal
30000S	30000	High adhesion strength Good workability	●	●	●
40000S	40000	Long open time Good wetting ability	●	●	●
40010C	40000	Good workability Good water retention	○	○	●
33SK	45000	Good adhesion strength Good workability	○	○	●
35SK	55000	Good water retention Long adjustment time	●	●	●
40SK	25000	Strong thickening effect Good sag resistance	●	●	●

decocel[®] HPMC for Tile Grouts

Product	Viscosity, mPa.s Brookfield,2%	Properties	Wide Joint	Narrow Joint
30000S	30000	Good workability Low shrinkage	●	●
20000S	20000	Easy workability Low shrinkage	●	●
6000	6000	Very easy workability Less stickiness	●	○
40SK	25000	Strong thickening effect Less stickiness	●	○

decocel[®] HPMC for Gypsum-Based Building Materials

Product	Viscosity, mPa.s Brookfield,2%	Properties	Plasters	Joint Fillers	Adhesives
H715G	40000	Strong thickening effect Excellent workability	●	●	●
35SK	55000	Good water retention Good adhesion strength	○	○	●
40SK	25000	Good sag resistance Good workability	●	○	○

● Recommended ○ Suitable



Packaging

25kg per bag
500 or 1,000 kg per pallet
10 MT in 20 ft container ; 20MT in 40 ft container.

Safety Considerations

Material Safety Data Sheets (MSDS) for **decocel**[®] HPMC are available on request to help satisfy your own handling, disposal and safety needs, and those that may be required by government regulations. Such information should be requested prior to handling or use. The general information that follows is not a substitute for the detailed safety information found in the MSDS.

Handling & Storage

During use or storage, safe handling is required to prevent dust with air from reaching explosive levels, as is true with other organic materials of similar particle size. When handling large quantities, local applicable regulations concerning the prevention of dust explosions should be followed. With cellulose ethers, the critical level may be reached at about 28 grams dust/m³. Additionally, **decocel**[®] HPMC, like other organic chemicals, should not be stored next to peroxides or other oxidizing agents. Please store under dry and clean conditions in unopen original packaging.

Health

As is typical when working with powders, ensure that adequate respiratory protection measures are taken. Please refer to the safety data sheet for more specific respiratory protection measures, as well as more detailed health and safety considerations.

Flammability

Cellulose ether products are organic polymers that will burn when exposed to heat and a sufficient oxygen supply. Fires can be extinguished by conventional means, avoiding any raising of dust by strong water jets. Recommend the use of water spray, carbon dioxide or powder extinguishers.

The information in this publication corresponds to the present state of our knowledge and is intended to describe our products and their possible applications. It is not intended to guarantee the suitability of particular product characteristics for a specific use. Any existing industrial rights are to be taken into consideration. Quality is guaranteed in accordance with our general conditions of sale.