

Construction Solutions

D r y m i x a n d C o n c r e t e

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HPMC

Cellueast™ Hydroxypropyl Methyl Cellulose

■ Technical Index

(1) Fenchem Brand

FM HP 40 US
 ↓ ↓ ↓
 HPMCV viscosity Un - Surface treated

US : un-surface treated

Ag : Anti-sagging

AS : Anti-slipping

T : extend open time

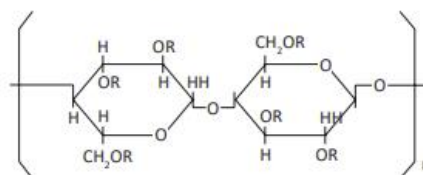
AST : Anti-sagging, Anti-slipping, extend open time

(2) Product Type

Product type	Viscosity Range
FM HP 400	350-550 mpa.s
FM HP 4000	3700-3900 mpa.s
FM HP 7000	6000-8000 mpa.s
FM HP 10000	10000-14000 mpa.s
FM HP 22000	20000-23000 mpa.s
FM HP 33000	30000-35000 mpa.s
FM HP 40000	40000-45000 mpa.s
FM HP 65000	55000-65000 mpa.s
FM HP 70000	70000-80000 mpa.s

* 2.0%, 20°C , Brookfield DVRV-II, mpa.s

Structure formula



n=polymer degree,
 R=H, -CH₃, {CH₂CH(CH₃)O}.H

(3) Main applications of Cellueast™ HPMC

Used in Building Materials

Because of its strong water retention, HPMC is an excellent thickener and adhesive for cement paste and mortar to improve fluidity and operation performance, lengthen vaporizing time of water, improve the beginning strength and avoid crack.

- Tile adhesive
- Cement base plaster
- Heat Insulation System EIFS
- Crack filler
- Self-leveling compound
- Gypsum plaster and putty
- Water base paint / paint remover
- Ceramic product

■ Storage and Packaging

1. Sealed, keep in dry place and no direct sun shine.
2. 25KG/bag, multi-ply paper bags with polyethylene intermediate layer.

MHEC

Cellueast™ Methyl Hydroxyethyl Cellulose

■ Technical Index

(1) Product Specification:

Index	Type
Moisture (WT%)	5.0% max
Ash (WT%)	5.0% max
Practicle size <0.200mm (through 60 mesh)	98.5%
Practicle size <0.180mm (through 80 mesh)	20.0%
PH (2% solution)	5.5-7.5

(2) Product Type

Product type	Type
FM ME 300	250-550 mpa.s
FM ME 2000	1800-2500 mpa.s
FM ME 2500	2000-3300 mpa.s
FM ME 4000	3000-4500 mpa.s
FM ME 7000	6000-8000 mpa.s
FM ME 9000	8000-10000 mpa.s
FM ME 20000	18000-25000 mpa.s
FM ME 30000	25000-35000 mpa.s
FM ME 40000	40000-45000 mpa.s
FM ME 60000	55000-65000 mpa.s
FM ME 90000	≥ 75000 mpa.s

*2.0%, 20℃ , Brookfield DVRV-II, mpa.s

■ Main application of Cellueast™ MHEC

• Adhesive:

Wallpaper adhesive Latex adhesives Plywood adhesive

• Binders:

Welding rods Ceramic glaze Foundry cores

• Coatings:

Latex paint Texture paint

• Construction:

Joint cements Hydraulic cements Plaster Caulking compound and putty Printing inks Asphalt emulsions

• Paper:

Coating colors Size press solutions

• Pharmaceuticals:

Lotions and emulsions Jellies and ointments

• Polymerization:

PVAC and acrylic latex PVC suspension

■ Storage and Packaging

- 1.Sealed, keep in dry place and no direct sun shine.
2. 25KG/bag, multi-ply paper bags with polyethylene intermediate layer.

HEC

Cellueast™ Hydroxyethyl Cellulose

■ Technical Index

(1) Product Specification

Index	Type
Appearance	White to light tan power
Particle Size	100% pass 60 mesh
Moisture, as packed(%)	Max 5
Ash content(Na ₂ SO ₄)(%)	Max 5
PH	6.0-8.5

(2) Product Type

Cellueast™	Viscosity Range
FM HE 300	250-650 mPa.s
FM HE 2000	1800-2500 mPa.s
FM HE 5000	4500-6500 mPa.s
FM HE 8000	7000-9000 mPa.s
FM HE 10000	9000-14000 mPa.s
FM HE 20000	15000-25000 mPa.s
FM HE 30000	25000-30000 mPa.s
FM HE 50000	45000-58000 mPa.s

* 2.0%, 25±2℃ , Brookfield DVRV-II, mpa.s

■ Main application of Cellueast™ HEC

• Used in Water Emulsion Coating:

HEC is used to protect colloid in acetic alkene emulsion polymerization, improve the stability of polymer in wide pH range, make pigment and additives uniformly disperse, stable and thicken in production of finished products. It is also used as disperant in suspensive polymer such as styrene, acrylate, acrylonitrile, etc.

• Used in Building Materials:

Because of its strong water retention, HEC is an excellent thickener and adhesive for cement paste and mortar to improve fluidity and operation performance, lengthen vaporizing time of water, improve the beginning strength and avoid crack.

• Used in Water-soluble Ink:

HEC can make ink dry fast and not penetrate. Moreover, HEC is widely used in textile, printing, paper making, daily chemical, etc.

■ Storage and Packaging

1. Sealed, keep in dry place and no direct sun shine.

2. 25KG/bag, multi-ply paper bags with polyethylene intermediate layer.

EHEC

Ethyl Hydroxyethyl Cellulose

■ Technical Index

(1) Product Specification:

Index	Type
Appearance	White powder
Moisture, as packed(%)	Max 5
Ash content(%)	Max 5
Transmittance,(%)	Min 60
PH Value	5.5-7.0

(2) Product Type

Cellueast™	Viscosity Range
FM EHEC 300	250-650 mPa.s
FM EHEC 2000	1800-2500 mPa.s
FM EHEC 5000	4500-6500 mPa.s
FM EHEC 8000	7000-9000 mPa.s
FM EHEC 10000	9000-14000 mPa.s
FM EHEC 20000	15000-25000 mPa.s
FM EHEC 30000	25000-30000 mPa.s
FM EHEC 50000	45000-58000 mPa.s

■ Storage and Packaging

- 1.Sealed, keep in dry place and no direct sun shine.
2. 25KG/bag, multi-ply paper bags with polyethylene intermediate layer.

■ Description

EHEC is a modified non-ionic, water soluble cellulose ether. It improves the consistency and the water retention of cement based mortars.

■ Applications

EHEC is used in cement and gypsum based mortars for improvement of

workability, consistency and water retention, leading to a prolongation of the open time.

EHEC effectively counteracts the sagging tendency of plaster.

EHEC should be admixed in dry form before the water is added. Normal dosage is 0.2 - 0.7 % depending on type of mortar. Due to its small particle size **EHEC** will dissolve rapidly after addition of water to the dry mix.

Redispersible Polymer Powder

A widely used additive in drymix mortars

■ Description

Redispersible polymer powder is a free-flowing, white powder obtained by spray drying of High- polymer Emulsion, It has a good redispersible ability and can be emulsified into stable polymer-emulsion again when mixed with water; its chemical property is exactly same as the initial emulsion.

■ Specification

Index Item	Type	FM8006 (Vac/VeoVa)	FM8020 (VAC/E)	FM8044 (VAC/E/A)	FM8045 (VAC/E/V2EH)
Flexibility		Hard	Middle	Flexible	Middle
Ash content (1000 C)		10±2%	11±2%	10±2%	10±2%
Bulk density (g/l)		400-600	400-600	400-600	400-600
Residue moisture		< 2%	< 2%	< 2%	< 2%
Particle Size (μm)		150μm Tailover <10%	150μm Tailover <10%	150μm Tailover <10%	150μm Tailover <10%
PH		6 ~ 8	6 ~ 8	6 ~ 8	6 ~ 8
Minimum film forming temperature		Approx. 5	Approx. 0~5	Approx. 0	Approx. 0
TG		Approx. 20	Approx. 6	Approx. -8	Approx. 2
Recommended Application		Tile adhesive, level ground material	Tile adhesive, wall putty, skim coat	Flexible adhesive mortar, flexible skim coat & plaster	Water proofing mortars, crack filler

■ Storage and Packaging

1. Should be stored at damp-proof places below 30℃. It is recommended to avoid stacking items on top of bags without a protective cardboard outer, so as to avoid caking. Opened sacks should be used promptly.
2. 25KG/bag, multi-ply paper bags with polyethylene intermediate layer.

Hydroxypropyl Starch

■ Description

Hydroxypropyl starch is a kind of starch ether, with good ability to be applied in construction and building industries. It can improve the performance and optimize the workability of dry mortar by modification the thickness and rheology of dry mortars based on gypsum, cement, lime, etc. It can perform well in neutral and alkaline conditions, and it is compatible with other additives in gypsum-based and cement-based building materials.

■ Application

It is a good mortar additive to be applied in construction and building areas and it also can be applied in papermaking, textile, oil drilling, daily chemical and other industries as additives.

■ Specification

ITEM	Specification
Appearance	White or light yellow powder
Odore	Characteristic
Particle Size	100% through 80 mesh 98.5% min through 100 mesh
Solubility	Soluble in cold water, colorless
Moisture	11% max
pH Value (1%, 25℃)	5-11.5
Viscosity (5%, 20℃)	100 mPa/s min
Hydroxypropyl content	20%-40%

■ Storage and Packaging

- 1.Sealed, keep in dry place.
2. 25KG/bag, plastic polypropylene woven bag package.

Polycarboxylate superplasticizer

(Powder)

■ Description

Polycarboxylate superplasticizer [Powder] is a kind of water reducer for high performance concrete, high strength concrete, high volume fly ash/slag concrete and grouting/self-leveling screed/mortar.

High water reduction rate, good dispersion, and excellent adaptability with cement and gypsum, good fluidity. It is a green environmental product with good comprehensive index and no pollution. This product is in line with the national standard GB8076-2008 for the superplasticizer index.

■ Specification

ITEMS	SPECIFICATION
Appearance	whitish to light brown powder
Water Content (powder) (%)	≤5.0
PH-value (20℃) (20% solution)	4.0~6.0
Chlorine ion content (%)	≤0.6
Concrete water reduction ratio(%)	≥25.0
Dosage Recommendation(%) in relation to weight	0.15~0.2

■ Storage and Packaging

1. Sealed, keep in cool and dry place.
2. 25KG/bag, multi-ply paper bags with polyethylene intermediate layer.

■ Production type

Name	Application
FM 1021	Cement based and gypsum based self-leveling mortar. Grouts, Special early strength mortar, repair mortar. grouting agent, grouting materials etc.
FM PCA 603 FM PCA 900	special for cement riched mortars with requirements of high fluidity and high strength.

Calcium formate

■ Description

Calcium formate is the calcium salt of formic acid. It is produced synthetically by reacting calcium oxide or calcium hydroxide with formic acid.

■ Specification

ITEMS	SPECIFICATION
Appearance	White crystalline powder
Assay	98% Min
Ca content	30.1% min
Moisture	0.5% max
pH (10% solution)	7.0-7.5
Insoluble matter	1% max
Heavy metals (as Pb)	10 ppm max
Bulk density	900-1000 g/l

■ Application

- It can be used as new type feeding additive, adaptable for sorts of acidogenic mold inhibitor of feedstuff. It has the function of preventing diarrhea and dysentery and promoting digesting and absorbing.
- Calcium formate can be used as quick solidification agent, lubricant agent and early strength agent of cement.
- It can be widely used in the production of high grade leather and many other chemicals.

■ Packaging and Storage

25kg/bag Store in a dry, ventilated place under room temperature ($\leq 35^{\circ}\text{C}$). Avoid direct sun exposure and water contact. 24 months shelf life.

■ Properties

- Accelerate the hardening rate of cement and shorten the setting time
- Making the retarding of cement change regularly under low temperature condition.
- Increasing the early strength growth rate of mortar and reducing water.



Defoamer

FM A-406

■ Description

A-406 is a kind of modified polyether powder form defoamer with high efficiency. It is suitable for cement based or gypsum based mortar with requirement of high fluidity and high strength.

■ Specification

ITEMS	SPECIFICATION
Appearance	whitish powder
Bulk density	400-700kg/m ³
Dispersing ability in water	easily dispersing into water
pH value (1.0% in water , 20℃)	7.0-9.0

■ Product performance

- A-406 is of excellent dispersing ability, quick de-foaming ability and long de-foaming effect in mortar system.
- Through its dosage adjusted, A-406 can optimize air bubble content & structure in system to improve mortar flowing ability.
- A-406 is of good compatibility with various kind of ordinary cement and gypsum binders as well as other additives such as de-foaming agent, retarder, expansive agent, accelerator etc.
- For flowing mortar with A-406 inside, it is easy to get a perfect finishing surface, especial for self-leveling compounds as well as for grouting materials.

■ Usages and dosage

It can be used in Grouting mortar, Spreading mortar, brushing mortar and so on.

Dry Mixed homogeneously with other ingredients of dry mortar and then packaged as one product, which can be mixed with recommended water for application at job site.

Recommending normal dosage can be 0.01-1.00% based on binder weight. The detailed dosage should be determined by test in advance according to local raw materials and construction regulation.

■ Storage and Packaging

1. Sealed, keep in cool and dry place, and no direct sun shine. Moisture proof and pressure-proof under high temperature should be done to avoid coalescence or agglomeration.
2. 25KG/bag, PE-lined plastic woven bag.



Cellueast™ ----- for Building Materials

Cellueast MC series products are widely used in many construction systems and have excellent performance.

Cellueast MC series products are not only specialized in the thin bed process while laying tiles, but also the essential additives in the process of mortars in continuously working plastering machines.

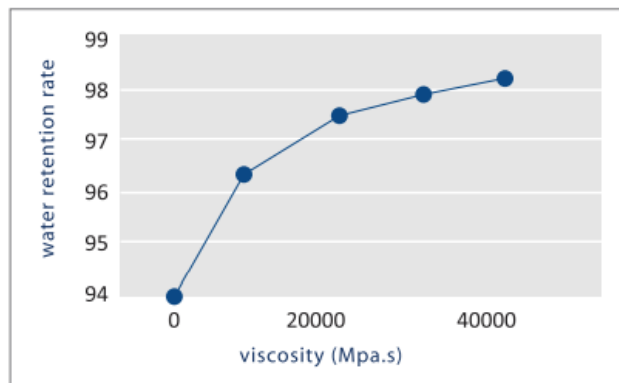
In building material systems Cellueast MC series products have good performance on water retention and consistency, at the same time, Cellueast MC series products can increase the homogeneity and stability of all types of mortar. To achieve this only very small addition cost are required.

The most popular application for Cellueast MC series products are adhesive, renders and trowelling compounds.

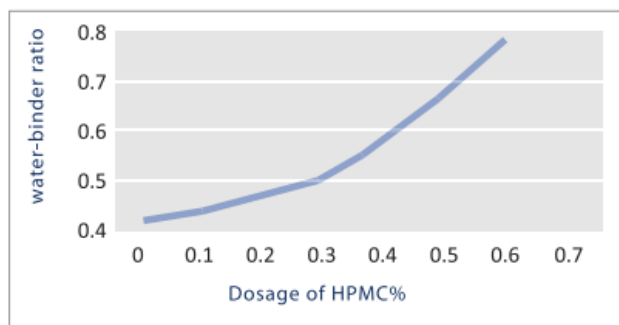
■ Cellueast™ help to improve following properties

- Water retention
- Consistency control
- Adhesion improvement
- Stabilising of air pores
- Improvement of workability

■ The effect of different viscosity level to water retention



■ The effect of dosage of HPMC to water-binder ratio



■ Recommended application field

Cement based building materials											
Application Grade	Tile adhesive (Standard)	Tile adhesive (Premium)	Interior water resistant putty	Exterior wall putty	Interior ordinary putty	Base renders	Self-levelling trowelling compounds	EPS thermal insulation mortar	ETIRS	Inorganic thermal insulation mortar	Decorative renders
HP400							4‰-8‰				
HP15000						3‰-5‰					
HP33000					3‰-5‰	3‰-5‰					3‰-5‰
HP40000	3‰-5‰	3‰-5‰	3‰-5‰	4‰-6‰	3‰-5‰	2‰-4‰		3‰-5‰			2‰-5‰
HP40000AST		3‰-5‰									3‰-5‰
HP65000									4‰-7‰	4‰-7‰	
ME40000	3‰-5‰	3‰-5‰	3‰-5‰	4‰-6‰	3‰-5‰	2‰-4‰		3‰-5‰			2‰-5‰
ME40000AST		3‰-5‰									
ME50000						2‰-4‰		3‰-5‰			2‰-5‰
ME65000									4‰-7‰	4‰-7‰	
MC40000	3‰-5‰	3‰-5‰	3‰-5‰	4‰-6‰	3‰-5‰	2‰-4‰		3‰-5‰			2‰-5‰
MC65000									4‰-7‰	4‰-7‰	
Redispersible polymer powder											
FM8006	10‰-20‰	25‰-35‰					15‰-25‰	10‰-25‰		15‰-20‰	
FM8020	5‰-10‰	30‰-60‰	5‰-20‰				10‰-15‰	10‰-25‰			
FM8044	10‰-20‰	20‰-45‰	10‰-15‰	10‰-20‰				10‰-30‰	10‰-30‰	10‰-30‰	20‰-30‰
FM8045			10‰-30‰								
FM8015L								10‰-30‰			

* Only recommended dosage



Gypsum based building materials					
Application Grade	Hand applied plasters	Machine applied plasters	Trowelling compounds	Joint fillers	Adhesives
HP40000US	3‰-5‰	3‰-5‰	2‰-5‰	2‰-5‰	3‰-5‰
ME40000US	3‰-5‰	3‰-5‰	3‰-5‰	2‰-5‰	3‰-5‰
MC40000US	3‰-5‰	3‰-5‰	3‰-5‰	2‰-5‰	3‰-5‰
Redispersible polymer powder					
FM 8044	10‰-20‰		20‰-30‰	20‰-30‰	

* Only recommended dosage

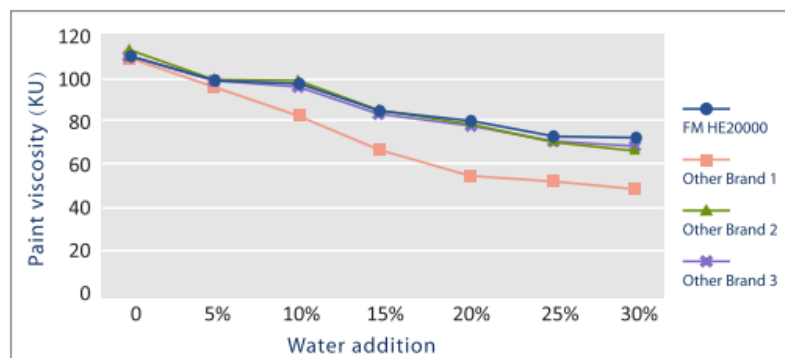
Emulsion Based Systems

Emulsion based construction products are ready to use paste formulations. These formulations include Cellueast MC (MHEC and HPMC) or Cellueast HEC or both. Cellueast improves water retention, consistency and adhesion of emulsion based building materials.

■ Cellueast™ products have below advantages

- Prominent thickening efficiency –Good rheological property
- Better color acceptance
- Easy to disperse, prevent clumping

■ Curve chart on dilution resistance ability PVC 70%



■ Recommended Cellueast products

To avoid lump formation during the preparation of emulsion based products, the use of Cellueast with delayed solubility is highly recommended.

Cellueast grades	Water-based paint	Glue	Tile-like coating	Emulsion paint	Stone-like coating	Multicolor paint
HP50000			3‰-5‰			
HP65000	4‰-6‰	4‰-6‰				
ME50000			3‰-5‰			
ME65000	4‰-6‰	4‰-6‰			3‰-5‰	
MC50000			3‰-5‰			
MC65000	4‰-6‰	4‰-6‰				
HE30000				3‰-5‰		3‰-5‰
HE50000				3‰-5‰		3‰-5‰
HE20000				3‰-5‰	3‰-5‰	3‰-5‰

* Only recommended dosage

■ Our Service

As a technology-based company, innovation in Fenchem is based on our expertise, and knowledge of customer orientation and market trends. Fenchem R&D is always trying to use our innovations to produce solutions to better serve our customers around the world, especially in construction and coating industries.

Also, Fenchem R&D group is utilizing the technology and experience in Fenchem Application Centre, to help our customers develop new products, solve application problems, reduce costs, and simplify their manufacturing process.

Fenchem R&D cooperates with research groups in universities and institutes, giving Fenchem extra power to keep the leading level in new technologies.



Ingredient Technology means we are not only providing ingredient, but also technology. We support our customers with our expertise knowledge of the ingredients, like what it is, where it can be used, what benefits it brings to you, and how to use it.

Fenchem's technical support team is dedicated to answering all these questions in time and bringing value-added service to our customers.

More importantly, Fenchem emphasizes the convenience and efficiency of technical support for the customers around the world. Fenchem's technical support is fully utilizing the global appearances of Fenchem branches, always providing instant technical consulting service, or even on-site supporting to local customers