



Multicolor paints with sand



Reliable thickening and
suspension solutions

Nouryon

A broad range of products for multicolor paints

Multicolor paints (MCP) with sand as facade finish is becoming more and more popular as it simulates natural stone. This is also a very lightweight solution which makes construction easier compared to real stone, unlike traditional stone paints. MCP with sand decreases the reliance on colored sand resources to a great extent and hence leads to lower environment impact from mining. We provide a broad range of thickening and suspension solutions to MCP formulations, including base paints, hectorite solution (protective colloid) and continuous phase.

Bermocoll® cellulose ethers in base paints

Cellulose ether is an essential ingredient to MCP formulations. Apart from thickening the base paints, cellulose ether interacts with hectorite, which greatly impact on size, shape, hardness and color migration as well as storage stability of colored droplets through gel strength for base paints. MCP droplet properties are governed by the structure and gel strength, inside the matrix, cellulose ether chemistry plays a great role in this aspect, including type of CE (hydrophilic/hydrophobic), substituents (chemistry, degree of substitution, distribution) and chain length/molecular weight.

Benefits

- Outstanding versatility
- Adjustable gel strength, enabling different textures
- Improved gel strength versus competitive alternatives
- Effectively prevent color migration from droplet
- Excellent water whitening resistance
- Superior storage and transportation stability

Bermocoll® grade	Viscosity* mPa.s	Key feature
EHM 500	7000-10000	Adjust gel strength
EBM 3000	2000-3000	High performing grade, versatile
EBM 8000	7000-9000	More efficient, low dosage
EBS 481 FQ	4000-6000	Regular grade
Prime 3500	3000-4000	Regular grade

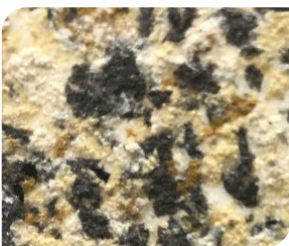
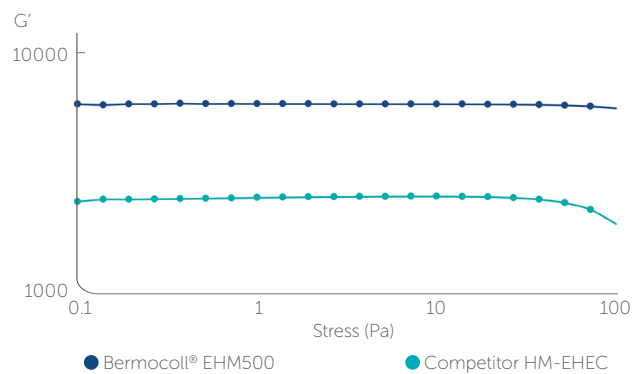
1% solution, 20°C (68F), Brookfield LV, 63# 12 rpm



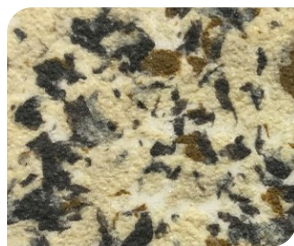
Bermocoll® EHM 500 cellulose ether in MCP with sand

Bermocoll® EHM 500 is an associative cellulose ether, which effectively prevents color and emulsion migration from the colored droplets. Bermocoll® EHM 500 cellulose ether gives superior gel strength for colored droplets. As illustrated in the graph, higher elastic modulus G' represents a higher gel strength, which gives a more textured MCP film, as seen below. Combining Bermocoll® EHM 500 cellulose ether with regular Bermocoll® grades, eg. EBM, Prime or EBS grades, in different ratios makes it possible to adjust the gel strength for the color droplets.

G' of color droplets



Higher dosage – more textured for colored particle



Lower dosage – more flat for colored particle



Bermocoll® EHM500 – no binder migration

Competitor 1 – binder migration

Competitor 2 – severe binder migration

Finnfix® 4000G cellulose ether in hectorite solution

Finnfix® 4000G is an anionic cellulose ether (CMC) extremely suitable to thicken highly ionic systems. Finnfix® 4000G cellulose ether in hectorite solution improves gel strength and thixotropy. This facilitates color droplet production with dispersion disc method, prevents color migration from droplets and improves the suspension of color droplets. Colored droplets with sand is highly recommended.

	Chemistry	Viscosity, 1% sol, 25°C (LV), mPa.s
Finnfix® 4000G	CMC	300-700

Excellent stability



Hectorite solution thickened by Finnfix® 4000G*

Hectorite solution without Finnfix® 4000G

* 0.5 g Finnfix® 4000G is added to 200 g 5% hectorite solution, Stormer 55.3 KU, Brookfield spindle 63, 6 rpm, 2820 cP

Outstanding clarity



Finnfix® 4000G

Competitor 1

Competitor 2

0.5g Finnfix® 4000G, competitor 1 and competitor 2 are dissolved separately in 200 g 5% hectorite solution. Finnfix® 4000G shows little impact on clarity of the hectorite solution.

Alcogum® L350/L344 rheology modifiers in continuous phase

Alcogum® L350/L344, HASE rheology modifiers, are able to efficiently thicken the continuous phase and improve storage stability of MCP, as well as ensuring good clarity for wet paints and water whitening resistance for dry film.

Viscosity, 1% solution (dry weight)

	Brookfield mPa.s, spindle 63, 12 rpm
Alcogum® L350 low / mid shear viscosity	2730
Alcogum® L344 mid shear viscosity	30
Competitive product	190

Thickening MCP continuous phase

	Brookfield mPa.s, spindle 64, 1 rpm*	KU
Alcogum® L350	38400	142.5
Alcogum® L344	16800	145.6
Competitive product	21000	135.8

* based on same dosage in the continuous phase

Oven storage stability for finished MCP

	RT	55°C, 2 weeks	
Alcogum® L350	101.6	97.0	↓ 4.6
Alcogum® L344	102.1	100.1	↓ 2.0
Competitive product	103.9	97.7	↓ 6.2

Outstanding water whitening resistance



Similar competitor

Alcogum® L350

Alcogum® L344

Expancel® microspheres in base paints

Microspheres are incorporated into base paints to improve the suspension of the colored droplets with sand.

Adding 1% Expancel® microspheres to base paint of MCP with sand, can decrease the density of the base paint from 1.4 kg/l to 1.26 kg/l. Additionally, it brings many benefits, such as reduction in finished paint consumption per m² from 1.2 kg to 1.1 kg.



Without Expancel®

With Expancel®
excellent storage stability

Recommended Expancel® grades

Expancel® grade	Estimated particle size D(0.5) μm	True density/(kg/m ³)	Solid content
921WE40d24	35-55	21-27	10% ±1.5
044WE20d36	20-30	32-42	15% ±2



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Nouryon

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