




Tiling – Adhesion and Flexibility

Redispersible Polymer Powders

●●● = excellent ●● = very good ● = good

Products	ELOTEX®	MP2100 	FX3300 	FX5600	FX6300 
Technical Information	Chemical base	VA/E	VA/VV/E	VA/VV/E/Ac	VA/E/VV/C
	MFFT (°C)	3	5	0	0
	VOC Emission Class	EC1 ^{PLUS}	EC1 ^{PLUS}	EC1	EC1 ^{PLUS}
Physical Properties	Thixotropy	—	●●	—	—
	Open time	●	●●	●●	●●●
	Flexibility	●	●●	●●●	●●
	Wet adhesion	●	●●	●●	●●●
Applications	Standard quality C1–C2	●●●	●●	●●	●●
	High quality C2S1	●	●●●	●●	●●●
	Outdoor application C2S2	—	—	●●●	●●
Comments		High quality RPP with multipurpose properties suitable for standard tile adhesives.	High quality, flexible RPP with excellent workability recommended for high quality tile adhesives and large tiles.	High quality, flexible RPP with excellent workability and water resistance, recommended for high quality tile adhesives, large tiles and outdoor applications at high RPP dosage.	High quality, flexible RPP with excellent workability, improved wet adhesion and increased open time properties, recommended for large tiles and high quality tile adhesives like C2S1, C2ES1 and C2TES1.

Cellulose Ethers

Products	BERMOCOLL®	M 10	M 30	M 50	BCM 050	MT 500
Technical Information	Chemical base	MEHEC	MEHEC	MEHEC	MEHEC	MEHEC
	Viscosity (2%, mPas)	7'500	18'000	30'000	3'900	4'500
	Modification	no	no	no	strong	very strong
	Particle size	fine powder	fine powder	fine powder	fine powder	fine powder
Physical Properties	Open time	●●	●●	●●	●●	●●●
	Water retention	●●	●●	●●●	●●	●●
	Anti-sagging	●	●	●	●●	●●●
Applications	Standard quality C1	●●	●●●	●●●	●●	●●
	High quality C2–C2S1	●●●	●●	●●	●●●	●●●
	Outdoor application C2S2	●	●	●	●●	●●
Comments		Non-modified, low viscosity cellulose ether designed for improving water retention, consistency, workability and strength of cement based tile adhesives.	Non-modified, medium viscosity cellulose ether designed for improving water retention, consistency, workability and strength of cement based tile adhesives.	Non-modified, medium high viscosity cellulose ether designed for improving water retention, consistency, workability and strength of cement based tile adhesives.	Strongly modified, low viscosity cellulose ether specifically designed for C2S1 cement based tile adhesives. Improves water retention, consistency, workability and strength of cement based tile adhesives.	Extra strongly modified, low viscosity cellulose ether specifically designed for C2, C2ES1, C2TES1 cement based tile adhesives. Improves water retention, consistency, workability, open time and especially wet strength properties of formulations.

Key
 ●●● = excellent ●● = very good ● = good  = eco-friendly product

Abbreviations
 VA = Vinyl acetate, VV = Vinyl versatate, E = Ethylene, St/Ac = Styrene/Acrylic Ester, Ac = Acrylate



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ELOTEX® FX6300 and BERMOCOLL® MT 500

The latest advances in dry mortar additives technology for high class tiling coming from the Building & Construction Laboratories of AkzoNobel

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Experience the difference of ELOTEX® FX6300 redispersible polymer and BERMOCOLL® MT 500 cellulose ether

AkzoNobel's Performance Additives Building & Construction is continuously investing in fundamental research both internally and in partnership with our extensive network of world renowned research institutes and Universities.

We aim to better understand underlying mechanisms and principles governing behavior and performance of dry mix mortar systems. With this knowledge in our laboratories we develop unique, innovative and sustainable additives which take the performance of dry mortar systems to new heights.

The latest additions to our Performance Additives product portfolio, ELOTEX® FX6300 redispersible polymer powder (RPP) and BERMOCOLL® MT 500 cellulose ether (CE) bring the performance of cement based tile adhesives to a new level. The two new products have been developed to bring significant improvements to tile adhesive formulations when used individually, however, when used in combination with one another, ELOTEX® FX6300 and BERMOCOLL® MT 500 bring additional improvements in terms of:

- Delayed skin formation of the CTA mortar
- Excellent adhesive bond strength even under wet conditions
- Extended open time of the CTA

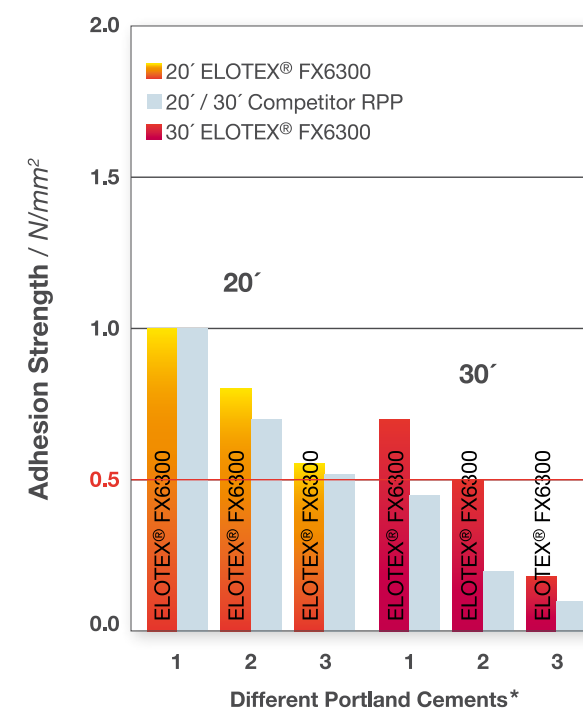
As the topic of sustainability becomes more and more important and a general market trend to use different quality of cement accelerates, use of our two new products will allow our customers for one additional degree of formulation freedom - unparalleled performance in combination with different types of CEM I Portland Cement. Improvements are visible in wet adhesion performance and, most strikingly, in open time performance.

Test formulation with different types of CEM I Portland Cement

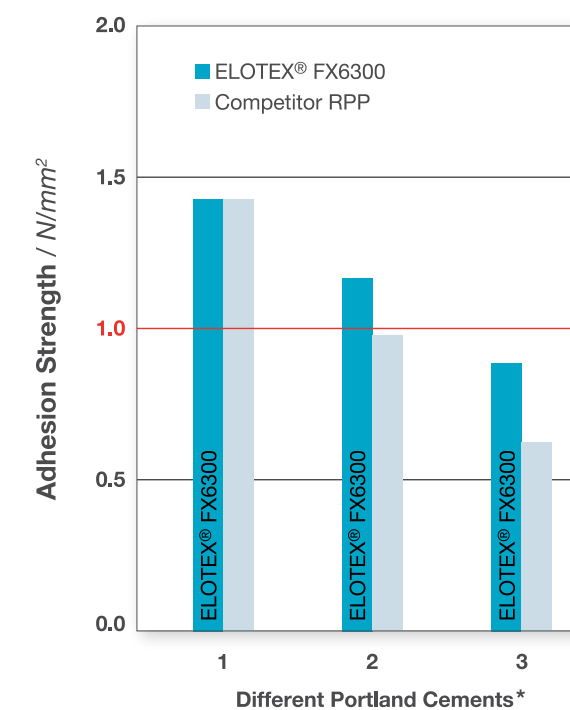
Test formulation C2-1	Weight %	Test formulation C2-2	Weight %
Portland Cement CEM I*	40.0	Portland Cement CEM I*	40.0
Quartz Sand 0.1-0.3 mm	23.6	Quartz Sand 0.1-0.3 mm	23.6
Quartz Sand 0.1-0.6 mm	20.0	Quartz Sand 0.1-0.6 mm	20.0
Calcium Carbonate (< 100µm)	10.0	Calcium Carbonate (< 100µm)	10.0
Reactive Filler, Metakaolin	2.0	Reactive Filler, Metakaolin	2.0
BERMOCOLL® MT 500	0.4	BERMOCOLL® MT 500	0.4
Redispersible Powder ELOTEX® FX6300	4.0	Competitive Redispersible Powder	4.0
Water approx.	26-29	Water approx.	26-29

Combination of ELOTEX® FX6300 and BERMOCOLL® MT 500 provides excellent open time and wet adhesion with all different types of Portland Cement (CEM I)

Open Time (EN 1346)



Wet Adhesion (EN 1348)



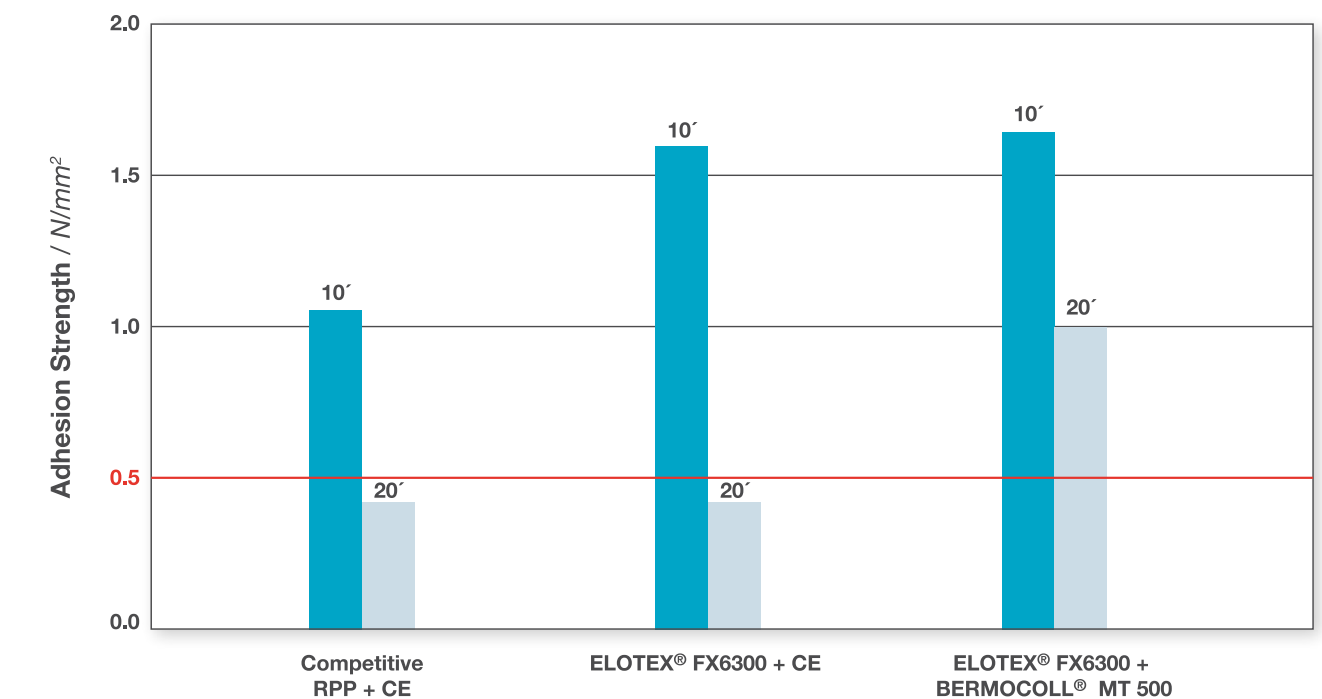
- * 1. OPC CEM I 52.5 R
- * 2. OPC CEM I White 53
- * 3. OPC CEM I 42.5 R

Combining ELOTEX® FX6300 and BERMOCOLL® MT 500 allows our customers to achieve Extended (E) open time rating (open time adhesion strength after 30' >0.5 N/mm²) in combination with two different CEM I types, whereas none of the tested competitive products reach this level.

Another market trend visible in the challenging sub segment of high class tile adhesives is the use of fast setting systems. These systems offer sustainability advantage in terms of durability of the final tile adhesive and offer improvements in time efficiency during tile installations. Main drawback of the fast setting systems and their further market penetration is the short open time. When used in combination in the fast setting systems, ELOTEX® FX6300 and BERMOCOLL® MT 500 significantly improve open time of fast setting systems.

Open time performance of commercially available fast setting tile adhesive with competitive polymer powder and cellulose ether and with ELOTEX® FX6300 and BERMOCOLL® MT 500 (polymer powder dosage 5%, cellulose ether dosage 0.35%).

Open Time after 10 and 20 min (EN 1346)



Combination of ELOTEX® FX6300 and BERMOCOLL® MT 500 further boosts performance of fast setting CTA formulations and ensures excellent open time after 10' and 20' without setting retardation (> 0,5 N/mm² after 6 hours).

Use of ELOTEX® FX6300 and BERMOCOLL® MT 500 will ensure conformity of the tiling mortar to EMICODE® EC1^{PLUS} VOC emission requirements.