Dow Construction Chemicals

WALOCEL™ MKW Methyl Cellulose

Powering Performance of High Quality Cement Renders

Version December 2017

WALOCEL™ MKW for cement renders – Driving efficiency, supporting cost-effectiveness

If you are a manufacturer of cement based renders, you'll know that improving both the performance and on-site workability of your products can help end-users drive down application time and minimise issues, such as cracking.

And, with increasing pressure for contractors on construction sites to deliver against evertighter time and cost margins, materials that can deliver fast yet reliable results will always be welcomed.

Adding high performance cellulose ethers to your formulations can help enhance the effectiveness of your products, offering your customers the performance and efficiency they need, day-in, day-out.

Enhancing performance through WALOCEL™ MKW cellulose ethers

Cement based renders are used to give a smooth, water resistant coating to external and internal walls, and are generally a mixture of sand, Portland cement, water and additives. Good mortar mixes should benefit users by offering efficient application, effective curing, long-term strength and attractive appearance.

WALOCEL™ MKW cellulose ethers offer you targeted support in the four key areas vital to an effective, high performance cement based render:

1 **Air void stability**
meaning that the mortar maintains density and consistency during application.

2 **Good workability**
so that mortar can spread and level easily without sticking to tools.

3 **Temperature tolerance**
allowing mortar to retain water and avoid drying out before curing is complete.

4 **Minimal retardation**
to reduce curing times and support efficiency on site.

Cutting down on compromise

If you've used cellulose ether additives in the past you may have been forced to compromise on performance against the key attributes that you know make a difference in effectiveness when it comes to cement render products. You may have used a certain additive in a specific formulation and seen improvements in workability, for example, but at the cost of curing time.

The key difference with WALOCEL™ MKW cellulose ethers is that they have demonstrated best-in-class performance against all four attributes vital to effective cement based renders.

You are also supported by the range of grades available in the WALOCEL™ MKW cellulose ethers portfolio, allowing you to choose precise technical criteria for specific formulations, delivering you flexibility as well as performance.

Targeted technical properties

WALOCEL™ MKW cellulose ethers are designed to support you in a number of ways, all of which help deliver high performance cement based renders for your customers.

Supporting air void stability

Air voids in the render lower its density, making it smoother and improving workability. WALOCEL™ MKW cellulose ethers contribute to stabilising entrained air, helping maintain consistency of the render and prolonging the open time. This can extend the timeframe for levelling after spraying and enables users to work more effectively during consecutive spraying and levelling stages.

Workability

Good workability is vital for any render and key to applicators; mortar should be easy to spread and should adhere to walls, not tools.

WALOCEL™ MKW cellulose ethers help to achieve an optimum balance between standing strength (which helps prevents sagging) and shear stability (which supports levelling), while at the same time exhibiting low 'stickiness'.

The additives also support quick consistency development, particularly crucial in machine application where mixing times can be as short as five seconds.

Water retention and temperature tolerance

In order for a render to harden properly, it must retain water during the curing process. Only when this happens the render can reach its full strength potential and ensure cement hydration. Circumstances that promote premature water loss in render include application:

- Over highly absorbent substrates;
- When ambient temperatures are high, particularly above 30°C;
- On substrates when there is a strong wind.

If render dries out before cement hydration is complete it can be weakened and develop surface cracks. Adding cellulose ethers improves water retention – particularly critical at high temperatures.

WALOCEL™ MKW cellulose ethers have been designed with water retention properties that operate at temperatures as high as 40°C. These properties support extended open times, good workability and effective curing achieving their design flexural, tensile and adhesive strength in a variety of climates, enabling you to increase standardisation of your products, even across a range of geographic regions.

Fast curing through minimal retardation

Adding cellulose ethers improves workability and water retention of renders – however, it can interfere with the hydration process and slow curing times, all of which can hinder finishing and the entire construction process.

WALOCEL™ MKW cellulose ethers have been specially engineered to help minimise retardation and deliver shorter curing times, even at temperatures as low as 10°C and below. Users benefit from increased efficiency on job sites, thanks to a reduction in delays between initial render application and final surface treatment.

Supporting choice

For more information on how WALOCEL™ MKW cellulose ethers could improve the performance of your cement based renders, why not consult your local Dow sales representative?
In the meantime, have a look at our product portfolio shown below, and see how, with the right additive choice for specific formulations, you could deliver materials which gain an enviable reputation on construction sites.

Did you know...

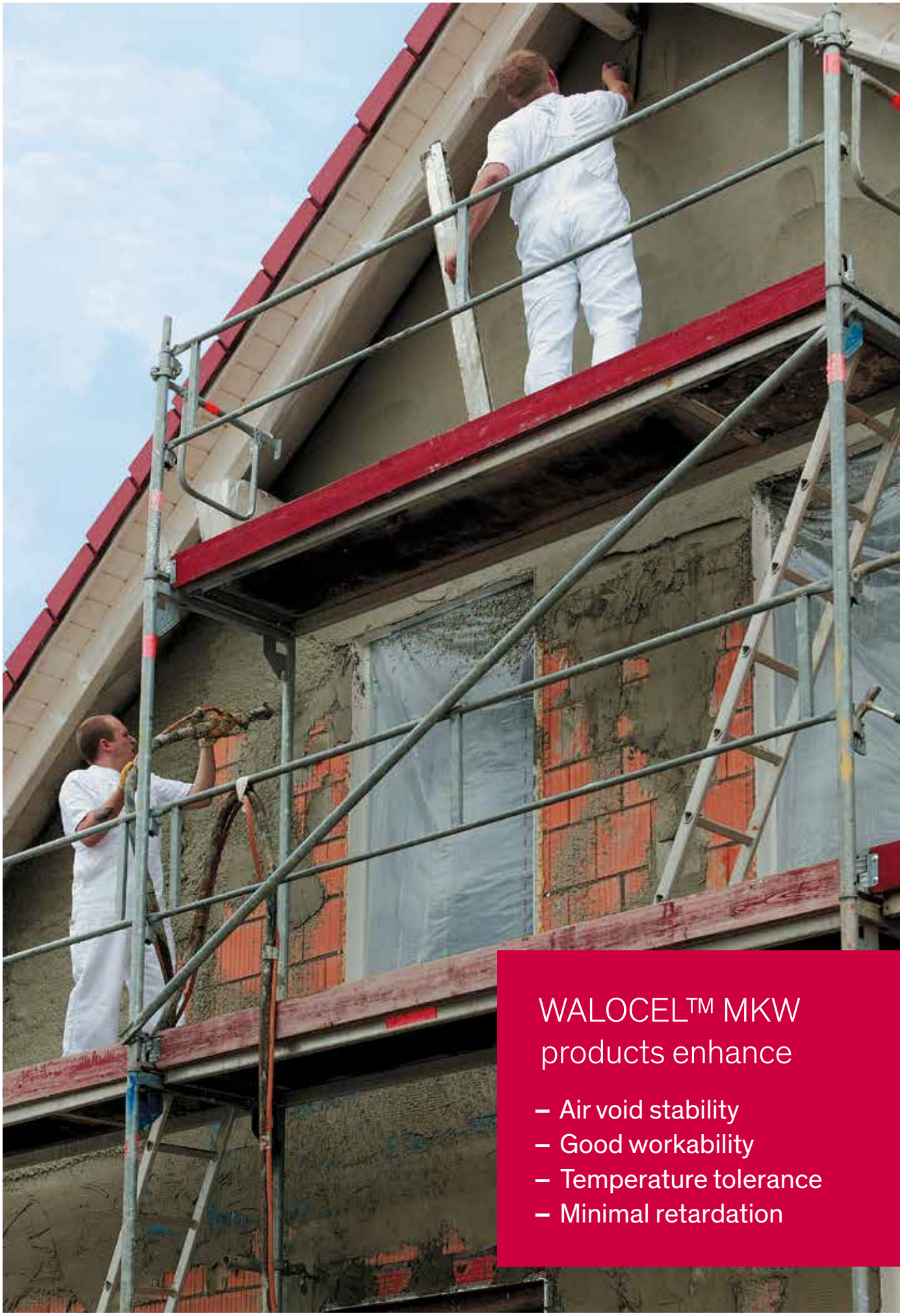
WALOCEL™ MKW methyl cellulose helps mortar producers to reduce carbon footprint of their products by offering a specially high formulation robustness in use with various cement blends.
Results of spray trials as well as laboratory evaluation can be found in our latest TechLine 10 "WALOCEL MC – robust performance in a range of cement qualities".

WALOCEL™ MKW	Viscosity [mPas]*	Modification	Features of End-Product				
			Water retention	Workability – ease of levelling	Reduced influence on cement setting	Shear stability	Standing strength
10000 PP 01	10.000	no	★★☆☆	★★☆☆	★★★★	★★★★	★★☆☆
15000 PP 30	15.000	medium	★★☆☆	★★★☆	★★☆☆	★★★☆	★★★★
20000 PP 01	20.000	no	★★★☆	★★☆☆	★★★★	★★★★	★★☆☆
20000 PP 20	20.000	low	★★★☆	★★★★	★★★☆	★★★☆	★★★☆
20000 PP 30	20.000	medium	★★★☆	★★★★	★★★☆	★★★☆	★★★☆
20000 PP 40	20.000	high	★★★☆	★★★☆	★★★☆	★★★☆	★★★★
30000 PP 10	30.000	low	★★★☆	★★★☆	★★★☆	★★★☆	★★☆☆
30000 PP 30	30.000	medium	★★★☆	★★★☆	★★★☆	★★★☆	★★★★
40000 PP 10	40.000	low	★★★★	★★★☆	★★★☆	★★★☆	★★☆☆
40000 PP 20	40.000	low	★★★★	★★★☆	★★★☆	★★★☆	★★☆☆

★☆☆☆ fair ★★☆☆ good ★★★☆ excellent ★★★★ outstanding

WALOCEL™ MKW: all Base Coat products: excellent water retention at high wet mortar temperatures and outstanding air void stabilisation.

* 2 % solution in water, Haake Rotovisko RV 100, shear rate 2.55 s^{-1}, 20°C



WALOCEL™ MKW products enhance

- Air void stability
- Good workability
- Temperature tolerance
- Minimal retardation

About Dow

DowDuPont Materials Science, a business division of DowDuPont (NYSE: DWDP), combines science and technology knowledge to develop premier materials science solutions that are essential to human progress. The division has one of the strongest and broadest toolkits in the industry, with robust technology, asset integration, scale and competitive capabilities that enable it to address complex global issues. DowDuPont Materials Science's market-driven, industry-leading portfolio of advanced materials, industrial intermediates, and plastics businesses deliver a broad range of differentiated technology-based products and solutions for customers in high-growth markets such as packaging, infrastructure, and consumer care. DowDuPont intends to separate the Materials Science Division into an independent, publicly traded company. More information can be found at www.dow-dupont.com.

For more information please send your email to:
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Or consult our web site
www.dowcc.com

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