

Information Sheet

Veova™ 10 Vinyl Ester Specialty Redispersible Powders



The Need For Polymer Modified Mortars

High Performance cementitious mortars, renders and plasters

The use of cementitious mortars, renders and plasters modified with polymers is rapidly growing world-wide in order to meet the technical as well as the productivity requirements of the modern construction industry. Polymer modified mortars provide a range of advantages for end-use products including:

- Improved workability
- Higher flexural strength and flexibility
- Better water retention and open time
- Increased adhesion to a variety of substrates

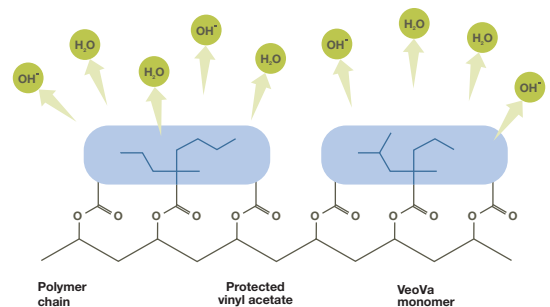
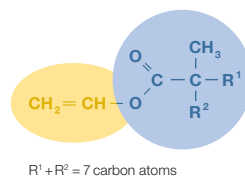
Redispersible Powders for Dry-mix Mortars

Polymer modified mortars can be made by adding an emulsion polymer to the cementitious mix or by adding redispersible powders (RDPs) to the so called dry-mix. These RDPs are produced through the spray-drying of wet polymers. During the spray-dry process water is removed, resulting in a dry and free-flowing powder. Dry-mix mortars using RDPs, combine the performance benefits of liquid latex modifiers with the convenience, reliability and handling/storage advantages of one-component systems.

Veova 10 Vinyl Ester

Veova vinyl ester for redispersible powders

Polyvinyl alcohol stabilized latices are commonly used to manufacture RDPs due to their excellent dispersibility. The most popular latices used to make RDPs are vinyl acetate/Veova™ 10 copolymer, vinyl acetate/ethylene copolymer and vinyl acetate/ethylene/Veova 10 terpolymer. Veova 10 monomer is the vinyl ester of Versatic™ acid 10 and has a similar reactivity ratio than vinyl acetate in radical polymerization. The highly branched and bulky alkyl chemical structure of Veova monomers provides specific properties such as a very high hydrophobicity and higher resistance to alkali by protecting the neighboring acetate ester groups in the copolymer from hydrolysis. This is called the “umbrella effect” (see diagram on the right).



Benefits of Veova Vinyl Ester based RDPs

Thanks to these intrinsic properties of Veova 10 monomer, redispersible latex powders based on Veova 10 monomer provide significant benefits:

- Easily stabilized with PVOH (unlike acrylates)
- High alkali resistance
- Reduced water absorption and increased water repellence
- Improved adhesion
- Superior workability and open time

Examples of Performance Improvement

Veova monomer enables high quality redispersible powders

These property improvements are illustrated by the following examples. The water absorption resistance and the wet/dry adhesion of an external insulation finishing system (EIFS) is significantly improved when the amount of Veova 10 monomer is increased in the polymer (figure 1 and 2). These property improvements can be also observed when Veova 10 monomer is incorporated in pressure polymers (figure 3).

Fig 1: EIFS Water Absorption
(5% RDP in dry-mix)

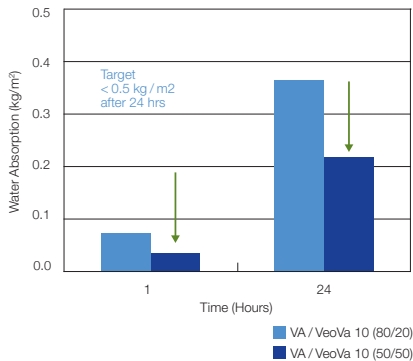


Fig 2: EIFS Adhesion
(3% RDP in dry-mix)

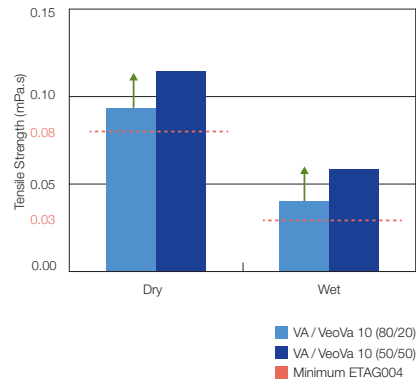
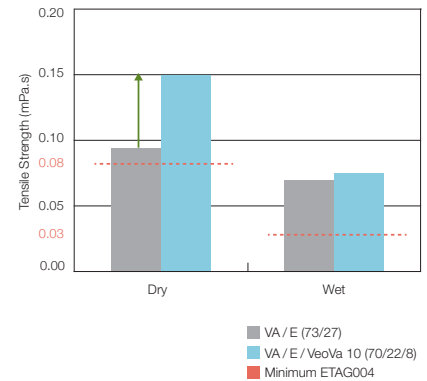
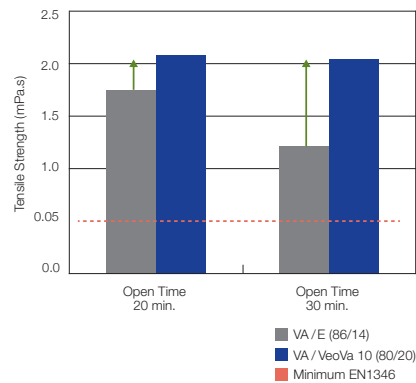


Fig 3: EIFS Adhesion
(3% RDP in dry-mix)



Veova 10 monomer can also improve application properties such as workability and open time for ceramic tile adhesives for example (figure 4).

Fig 4: CTA Adhesion
(3% RDP)



Summary

The modification of cementitious mortars, renders and plasters with polymers is a must in order to meet the technical and productivity requirements of the modern construction industry.

The intrinsic properties of Veova 10 vinyl ester enables this technology by:

- Protecting polymer integrity in alkali rich environments
- Improving water resistance and
- Improving adhesion to various substrates

The Hexion Versatics business unit is a global leader in specialty monomers and has supplied Veova 10 vinyl ester to the construction industry for over 50 years.



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