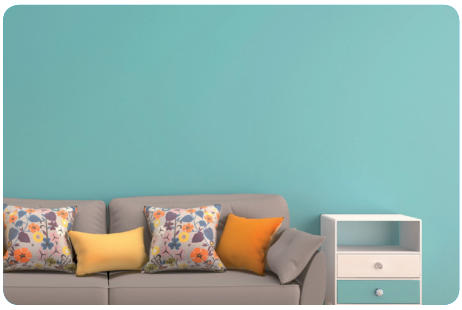
HEXION™

Information Sheet

VeoVa™ 10 Vinyl Ester
Alkali Resisting Masonry Primer





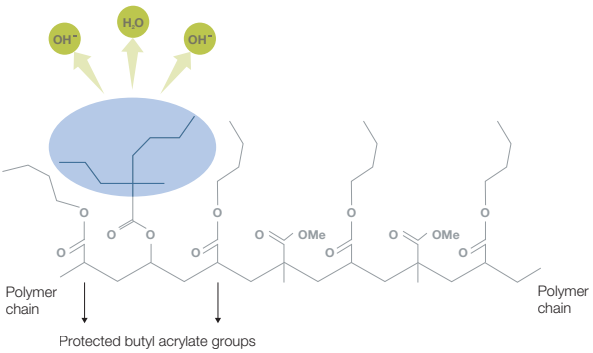
VeoVa Vinyl Ester - Acrylic Emulsions for Super Primer

VeoVa vinyl ester enhances barrier protection and hydrophobicity

VeoVa 10 vinyl ester can be copolymerized with (meth)acrylates to produce emulsion polymers known as VeoCryls. Such VeoCryls are suitable for masonry primer applications that require high-performance in terms of water, alkali, and efflorescence resistance.

VeoVa 10 vinyl ester exhibits a branched tertiary structure with bulky and hydrophobic hydrocarbon groups that protect butyl acrylate ester groups from hydrolysis and saponification in severe alkali conditions. VeoCryl systems exhibit outstanding alkali and water resistance when compared to conventional all-acrylic or styrene-acrylic polymers. The bulky structure of VeoVa vinyl ester offers an excellent barrier protection, as depicted in the figure below.

Barrier protection of the bulky structure of VeoVa vinyl ester



Due to the unique molecular structure of VeoVa vinyl ester, primers made from VeoCryl emulsion polymers have:

- Excellent water and alkali resistance
- Superior efflorescence resistance

VeoVa vinyl ester is also the most hydrophobic monomer as indicated by its very low solubility in water, which makes it perfectly suitable for primer applications (see table).

Monomer	Water solubility at 20 °C (g/100 mL)	Carbon/Oxygen (C/O) Ratio
VeoVa 10 vinyl ester (VV 10)	<0.001	6.0
2-Ethylhexyl acrylate	0.01	5.5
Styrene	0.03	-
Butyl acrylate (BA)	0.16	3.5
Methyl methacrylate (MMA)	1.5	2.5
Vinyl acetate (VA)	2.5	2.0

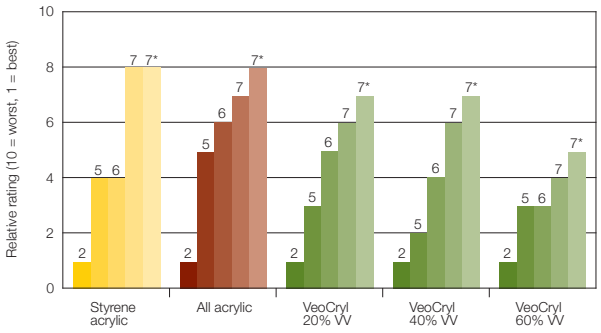
Efflorescence Resistance

Excellent performance in severe efflorescence resistance testing

Hexion has designed a laboratory efflorescence resistance method, based on common tests used in the decorative paint market. The test was developed to reflect real-life conditions as much as possibile. However, it is well known that real-life conditions may vary depending on the composition and curing conditions of the masonry substrates, presence of moisture and high humidity, and many other uncontrollable factors such as structural defects.

In Hexion's tests, increasing the content of VeoVa monomer in modified all-acrylic systems improves efflorescence resistance. All latices in this study were designed with similar glass transition temperatures (Tg) and surfactant type for fair comparison.

Efflorence Resistance Evaluation



Latex information:
Types tested :
- Styrene acrylic
- All acrylic
- VeoVa acrylic (VeoCryl)

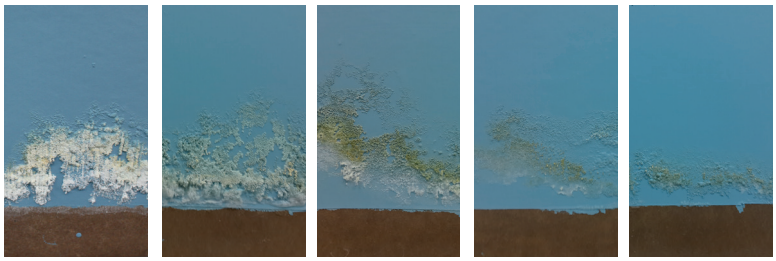
Tg (calculated) : 17 °C
Non volatile content (theoretical) : 47.5%
Stabilization : surfactant

Paint information:
Alkali resisting primer at 35% PVC

Based on in-house efflorescence resistance test method

2 = 2 days
5 = 5 days
6 = 6 days
7 = 7 days
7* = 7 days, after drying

Appearance of the panels after seven days of efflorescence resistance testing



Styrene Acrylic | All Acrylic | VeoCryl 20% VV | VeoCryl 40% VV | VeoCryl 60% VV

Summary

The bulky branched structure of VeoVa vinyl ester makes it an ideal monomer for producing emulsion polymers with excellent alkali resistance. As the most hydrophobic monomer, VeoVa vinyl ester imparts excellent alkali resistance, an important barrier property for primers for masonry and concrete substrates. Latices based on VeoVa monomers can also be designed to exhibit outstanding performance in terms of efflorescence resistance.

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