

VRE-5513 / VRE-5521

DESCRIPTION

The VRE-5513 and VRE-5521 are Bisphenol-A based epoxy vinyl ester resin, unpromoted and non-thixotropic.

FEATURES AND BENEFITS

- Good wet out/roll out properties
- Low viscosity.
- Provide good chemical resistance.
- Good Mechanical properties.

APPLICATIONS

- Pultrusion, filament winding, compression molding, RTM, and Hand- lay Up process.

TYPICAL LIQUID PROPERTIES

Property	Units	VRE-5513	VRE-5521	Test Method
Acid number (Solution)	Mg KOH/g sample	6 max.		TARQ – 100
Non-volatile content	%	56-61		CCP-300.8
Brookfield viscosity ³	cps	-----	250-450	TARQ – 300
Gel time	Min.	18-24 ¹	15-25 ²	CCP-503.7
Cure time	Min.	26-46	1-3	CCP-503.7
Exothermic Peak	°C	149 min.	150-185	CCP-503.7
Stability at 120°C	Hours	1 min.		TARQ – 660
Appearance	-----	Clear		Visual

¹ 0.15% Co (12%), 0.05% DMA, 1.5% Luperox DDM-9 catalyst @25°C; ² 0.15% Co (6%), 0.05% DMA, 1% Luperox DDM-9 catalyst @25°C; ³ LVDV-E, spindle #3, 60 rpm @25°C.

NOTE: Tests results compared with the reported in certificate can be affected due to: batch age, temperature, moisture, type and amount of catalyst, testing equipment and method.

PHYSICAL PROPERTIES

Physical properties are shown for fiberglass laminate: These are typical values and are provided for reference only.

Property	Units	VRE-5513	VRE-5521	Test Method
Tensile Strength	Mpa	78		ASTM D-638
Tensile Modulus	Mpa	3655		ASTM D-638
Elongation	%	7.4		ASTM D-638
Flexural Strength	Mpa	146		ASTM D-790
Flexural Modulus	Mpa	3350		ASTM D-790
HDT @ 1.82 MPa	°C	101		ASTM D-648
Barcol Hardness	-----	37		ASTM-D-2583

- 1.- Laminate construction: 30% fiberglass to resin ratio.
- 2.- Laminate cured overnight at room temperature and post-cured at 65°C for 5 hours.
- 3.- HDT is evaluated at neat resin casting.

RECOMMENDATIONS

- 1.- The catalyst level should not exceed 2.8% or fall below 1% for proper cure.
- 2.- These products should not be used when temperature conditions are below 16°C, as curing and handling may be adversely affected.
- 3.- Do not add any material different to the catalyst recommended for these products.
- 4.- Do not mix organic peroxides with metallic soaps, amines or any type of accelerators or promoters, because it can result on violent decomposition with fire or explosion.
- 5.- Any additional questions, please contact your Reacciones Químicas SA de CV sales representative.

STORAGE

Uncatalyzed VRE-5513 and VRE-5521 resins, have a usage life of three months from invoice date, when stored at 25°C or below, in a closed, factory sealed opaque containers, and out of direct sunlight, heat sources or moisture. For every 7°C increase in storage temperature, the shelf life is reduced by one half.

SAFETY AND HANDLING

Detailed information for safe handling of VRE-5513 and VRE-5521 resins, can be found on its SDS. For more information, please contact your Reacciones Químicas SA de CV sales representative.

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