



# TECHNICAL DATA SHEET

## VINYL ESTER RESIN LAFFAN VE400

### General Description:

Bis-Phenol A Epoxy Based Vinyl Ester Resin (**LAFFAN VE400**) is a non-promoted medium viscosity , it is a Bis-Phenol A Epoxy based resin formulated for maximum corrosion resistance to most chemicals and it is heat resistant. It also displayed excellent mechanical properties like high impact strength and tensile elongation . LAFFAN VE400 is manufactured from ingredients listed as acceptable in FDA Code of Federal Regulation Title 21, CFR 177.2420.

### Features and benefits :

#### FEATURES

- 1.High Physical Properties
- 2.Highly Versatile Viscosity Properties
- 3.Outstanding Corrosion Resistance
- 4.High Heat Distortion Resistance

#### BENEFITS

- 1.Makes extremely tough composites
- 2.Formulated for spray-up and hand lay-up needs
- 3.Resists caustics and solvents with hydrolytic stability
- 4.Maintains dimensional stability

### Moulding Information:

- Hand lay up
- Spray up
- Filament Winding

### Typical Properties for LAFFAN VE400:

Table 1: Specification of Liquid Resin				
No.	Property	Test Method	Unit	Value
1	Viscosity at 25°C ( LV3 , Rpm 60 )	ISO 2555:2018	mPa.s	400-600
2	Specific gravity	ISO 1675:2022	g/mL	1.02-1.05
3	Acid Value	ISO 2114:2000	mg KOH/g	Max. 20
4	Non-volatile-matter content	ISO 3251:2019	%	53.5-56.0
5	Gel Time @ 25°C	ASTM D2471-99 ISO 2535:2001	Minutes	16-19
6	Gel to Peak Time		Minutes	10-15
7	Peak Exothermic Temperature		°C	165-182

Note :Properties can be adjusted based on the customer's requirements.

### Contacts us:

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No.	Property	Test Method	Unit	Value
1	Tensile Strength	ASTM D638	MPa	Min.80
2	Tensile Modulus		MPa	Min.3240
3	Elongation at break		%	Min.5%
4	Flexural Strength	ASTM D790	MPa	Min.134
5	Flexural Modulus		MPa	Min.3100
6	Barcol Hardness	ASTM D 2583-13a (934-1)	-	Min.35
7	Heat Deflection Temperature † (1.80 MPa)	ISO 75-1:2020 ISO 75-2:2013	°C	100-112

**Note :** Properties can be adjusted based on the customer's requirements.

#### Shelf life and Storage:

To ensure maximum stability and maintain resin properties within the desirable range, Vinyl ester should be stored in closed containers at temperatures below 25 °C, and away from heat sources such as, but not limited to, direct sunlight, steam pipes or furnaces. Under proper storage conditions the minimum shelf-life performance is estimated at six months, provided that the product is stored in the original, unopened container. Shelf life decreases with increasing storage temperature, or when it is kept near a heat source or direct sunlight.

#### Typical Curing Characteristics and Recommendations

Resin (g)	Accelerator	Promoter	Catalyst	Temperature °C	Gel Time minutes	Peak Exothermic
100g	Cobalt octoate 12% 0.22g	N, N-Dimethylaniline 0.05g	Hi Point 90 1.2g	25 °C	16-19	165°C - 182°C

**Note :** Properties can be adjusted based on the customer's requirements.

**LAFFAN VE400** should be processed at room temperature (18-25°C) . Lower temperature have an adverse effect om proper curing .Especially when stored in the presence of air ,there may be an increase in the gel time ,although this can be compensated by increasing the amount of curing agent.

#### Standard Packaging:

The standard packaging available are standard intermediate bulk containers (IBC), 220 kg stainless steel drums and trailer tanks. However, vinyl ester can be packaged in different quantities. as per the request of the customer.

**Dot Label Required: Flammable Liquid**

#### Precaution for handling:

Laffan Resin Production Factory (LRPF) maintains and regularly updates the Material Safety Data Sheet (MSDS) of all its products. All supervisory personnel and employees expected to be working with the resin must be provided with the MSDS. Due attention should be given to the precautions for handling chemicals provided in the MSDS prior to any use of this product.

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