Mechemco industries

Technical Data Sheet *Commitment to Quality and Consistency*

MECHSTER™ 5310(N) (T)

(Superior Vinyl Ester Resin for Tooling Applications)

Mechster™ designates a variety of unsaturated polyester resins synthesized at ***Mechemco Industries***. These resins are specially engineered to meet the most diverse needs of fibreglass reinforced plastic moulding industry. Our R & D is geared to tailor **Mechster™ Resins** for the customers' most specific end application. In fact we take pride in suitably formulating the resin to improve your production efficiency as also the field performance of the FRP product.

Mechster™ 5310(N)(T) is a High HDT Vinyl Ester Resin resin specially designed for application by either hand layup / sprayup to prepare the back up structural laminate of an FRP tool.

The **Mechster™ 5310(N)(T)** is designed to have,

- fast wet out of reinforcements and easy air release
- multiple layers build up possible due to controlled curing characteristics
- lower shrinkage
- higher heat deflection temperature
- excellent performance properties

Physical Properties of Liquid Resin

Appearance: Yellowish Green viscous liquid

Specific Gravity @30^{O}C	: 1.06 ± 0.01
Viscosity @ 30^{O}C by Brookfield Viscometer, cP	: 300 ± 50
Acid Value mg KOH/g	: 8 ± 2
Volatile Content (w/w) %	: 33 ± 2

Curing Behaviour of Liquid Resin

Gel time, minutes @ 30^{o}C, 50 gm mass : 30 ± 5
1.0 % Promotor (10% DMA Solution in Styrene))
1.0 % Accelerator (Cobalt Octoate with 3% Cobalt)
2.0% Catalyst (MEKP with 8% Active Oxygen)

Peak Exotherm Temperature^{O}C : 180 ± 10

Typcial Properties of Cured Mechster™ 5310(N)(T)

	Cast
Specific Gravity @ 25^{O}c	1.16
Tensile Strength, Mpa	83
Tensile Modulus, Mpa	3600
Tensile Elongation at Break, %	4.0
Flexural Strength, Mpa	135
Flexural Modulus, Mpa	3800
Izod Impact Strength, kJ/m^2(unnotched)	18
Heat Deflection Temperature, ^{O}C	150
Volume Shrinkage, %	~7.5
Barcol Hardness	40
Coefficient of Linear Thermal Expansion, (0-60^{O}C), m/m.^{O}Cx10^{-6}	110
Water Absorption, (w/w) % @ 30^{O}C	
1 day	< 0.10
7 days	< 0.10

The cast was prepared from **Mechster™ 5310(N)(T)** catalysed with 1.0% v/w promotor (10% DMA Solution in Styrene) 1.0% v/w accelerator (Cobtalt Octoate Solution- 3 % Cobalt) and 1.5% v/w catalyst (MEKP - 8% Active Oxygen). The specimens were first allowed to cure at room temperature and subsequently post cured at 80^{O}C for six hours and at 120 ^{o}C for two hours.

The mechanical properties of the glass reinforced **Mechster™ 5310(N)(T)** laminates can be greatly improved by ensuring complete wetout and incorporation of directional reinforcements like rovings, woven rovings, glass cloth, etc.
(Test methods : IS 6746-1994, ASTM and BS where IS not available.)

Uses

Mechster™ 5310(N)(T) is suitable for fabricating FRP moulds for contact moulding and RTM processes. It is to be used as a backup resin for building up thickness on Tooling Gel Coats, viz., **Mechster™** 5310G(T) or **Mechster™** 5310NG(T).

Storage

Mechster™ 5310(N)(T) resin should be stored in a cool dry place away from sunlight, preferably below 25^{O}C. Under these conditions, the shelf life is well over 2 months.

Caution

Store catalyst and accelerator separately. Do not allow them to come in contact with each other as they form an explosive mixture. Carry out separate addition of accelerator and catalyst to the resin mix for avoiding accidents

Precautions for Handling Mechster™ 5310(N)(T)

Skin contact and vapor inhalation should be avoided during moulding because of the presence of styrene monomer. In case of irritation in the eye or skin, wash with copious amount of water. In extreme case, seek immediate medical advice. The moulding area should be sufficiently ventilated for reducing the vapour levels in the air while compounding and moulding.

The above information and recommendation are based on our extensive experience in the field and is provided only as a general guidance for application of our product. The user should verify the suitability of our product for their own specific applications. We do not warrent or assume any liability for the information provided.

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