



## Technical Data Sheet

# MECHSTER™ 5310HX(T)

(High HDT Vinyl Ester Resin for Tooling Applications)

**Mechster™** designates a variety of unsaturated polyester and vinyl ester resins manufactured by **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™ 5310HX(T)** is a thixotropic Vinyl Ester Resin, specially designed for application by either hand layup / sprayup to fabricate the FRP tool laminate and the back up structural laminate.

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

- fast wet out of reinforcements and easy air release
- multiple layers build up even on varticle surfaces
- lower shrinkage
- higher heat deflection temperature
- excellent performance properties

### Liquid Resin Properties

Property	Nominal Values	Test Method*
Appearance	Yellowish Hazy Viscous Liquid	AM-113
Specific Gravity @ 25°C	1.07 ± 0.01	AM-103
Viscosity <sup>1</sup> @ 25°C, cP	350 ± 50	AM-101
Acid Value, mg KOH/g	8 ± 2	AM-102
Volatile Content, (w/w) %	40 ± 3	AM-106

### Curing Characteristics

Standard Gel Time Test<sup>2</sup> @ 25°C

Property	Nominal Values	Test Method*
Gel Time, minutes	25 ± 5	AM-110
Peak Exotherm Temperature, °C	150 ± 10	AM-110

Notes:

\* Internal Test Method, available on request

1: By Brookfield Viscometer, Sp. No 3, 50 rpm

2: Determined using 1.0 % v/w P110 + 1.0 % v/w A101 + 2.0% v/w C109

3 Cast is prepared by Catalysing resin with 1.0 % v/w P110 + 1.0 % v/w A101 + 1.5% v/w C109 and curing at room temperature for 24 hours followed by post curing for 6 hours @ 80°C followed by 2 hours @ 100°C and 1 hour @ 120°C

P110: 10% Dimethyl Aniline solution in Styrene

A101: Cobalt Octoate solution (containing 1% Cobalt)

C109: Methyl Ethyl Ketone Peroxide (containing 9% Active Oxygen)

### Properties of Cured Resin (Unfilled Cast)<sup>3</sup>

Property	Nominal Values	Test Method*
Specific Gravity	1.15	AM-201
Tensile Strength, MPa	88	ISO 527-2
Tensile Modulus, MPa	3350	ISO 527-2
Elongation at Break, %	5.0	ISO 527-2
Flexural Strength, MPa	145	ISO 178
Flexural Modulus, MPa	3500	ISO 178
Izod Impact Strength, kJ/m <sup>2</sup> (unnotched)	18	ISO 180 (2000 (E))
Heat Deflection Temp., °C	120	ISO 75-2
Volume Shrinkage, %	~6.0	AM-114
Barcol Hardness	35	ASTM 2583
Coefficient of Linear Thermal Expansion, (0-60°C), m/m.°C x 10 <sup>-6</sup>	110	ASTM E831
Water Absorption, (w/w) % @ 30°C	<0.10 <sup>#</sup> 0.10 <sup>##</sup>	AM-203

The mechanical properties of the glass reinforced **Mechster™ 5310HX(T)** laminates can be greatly improved by ensuring complete wetout and incorporation of directional reinforcements like rovings, woven rovings, glass cloth, etc.

### Uses

**Mechster™ 5310HX(T)** is suitable for fabricating FRP moulds for contact moulding and RTM processes. It is to be used as a backup resin for skin laminate behind Tooling Gel Coats, viz., **Mechster™ 5310HXG(T)** or **Mechster™ 5310NG(T)**.

### Storage and Handling

**Mechster™ 5310HX(T)** resin should be stored in a cool dry place away from sunlight, preferably below 25°C. Under these conditions, the shelf life is 2 months. Material must be stirred well before using.

**Mechster™ 5310HX(T)** has a flash point of 32°C and is classified as flammable. Containers should be kept in a cool and ventilated place away from sunlight and sources of ignition. "No Smoking" rules should be strictly enforced. In case of fire, use dry chemical, foam, carbon dioxide or water spray to extinguish the flame. Spillages may be absorbed onto sand or earth and shovelled off and disposed according to local disposal regulations.

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.

### 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

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 warrant or assume any liability for the information provided.