

# HMT 507

## 205-300°F (95-150°C) Cure Hot-melt Towpreg

### Typical applications

Pressure vessels

### Out life

30 days at 70°F (21°C)

### Shelf life

6 months at 40°F (4°C)

12 months at 0°F (-18°C)

### Description

HMT 507 is a 205°-300°F (96°-149°C) cure, hot melt towpreg, utilizing a toughened, well controlled flow epoxy resin matrix. HMT 507's unique resin formulation is designed to maximize strength potential. Leading to excellent burst pressure and cycle life in composite overwrapped pressure vessel (COPV) testing.

### Benefits/features

- Consistent resin content
- Stable bandwidth
- Easy de-spooling
- Moderate tack (adjustable)
- Excellent mechanical properties
- High ultimate burst strength and long cycle life in COPV test
- Compatible with many of MCCFC's 250°F (121°C) to 300°F (149°C) cure epoxy systems

### Application

HMT 507 is specifically designed for pressure vessel applications. The product is well suited for filament winding. HMT 507 is well suited for pressure vessel applications which requires high tank burst pressure and long cycle life. Long out time also makes HMT 507 ideal for large scale parts where a layup process can take days or weeks.

HMT 507 can be supplied with most commercially available fibers, including carbon, quartz, aramid, S-glass, E-glass and other specialty fibers.

### Recommended processing conditions

HMT 507 can be cured at temperatures from 205°-300°F (96°-149°C) depending on part size and complexity. Low, medium, and high pressure molding techniques may be used to cure HMT 507 product.

#### Higher Temperature Cycle (275°F)

Recommended cure cycle is 50–100psi (345–690kPa), 3°F/min (1.7°C/min) ramp to 180°F (82°C), dwell for 30-60 min, ramp to 275°F (135°C), hold for 90-120 min, cool to <140°F (<60°C).

#### Lower Temperature Cycle (205°F)

Recommended cure cycle is 50–100psi (345–690kPa), 3°F/min (1.7°C/min) ramp to 180°F (82°C), dwell for 30-60 min, ramp to 205°F (96°C), hold for 6 hours, cool to <140°F (<60°C).

Please contact your account manager or MCCFC technical support to discuss specific applications.





## Neat resin data [values are average and do not constitute a specification]

Property	Value
Gel time @ 275°F (135°C), minutes	7 - 13
Elongation (%) Cured @ 275°F-90mins., ASTM D638	6.3
Elongation (%) Cured @ 205°F-6hours, ASTM D638	5.9

## Laminate T<sub>g</sub> data [values are average and do not constitute a specification]

Property	Value
T <sub>g</sub> (DMA, E'), °F (°C) Cured 90 minutes at 275°F	300 (149)

## Mechanical data [values are average and do not constitute a specification]

TRH50 18K, 24%RC, autoclave cured, 80 psi, 90 minutes at 275°F, normalized to 60%FV

Property	Test method	RT
0° Tensile strength, ksi (MPa)		457 (3150)
0° Tensile modulus, Msi (GPa)	ASTM D3039	20.7 (143)
Poisson's ratio		0.26
90° Tensile strength, ksi (MPa)		11.1 (76.5)
90° Tensile modulus, Msi (GPa)	ASTM D3039	1.3 (9.2)
0° Short beam shear strength, ksi (MPa)	ASTM D2344	12.9 (88.9)

## Composite overwrapped pressure vessel (COPV) data

TRH 50 18K, 30%RC, type 3, aluminum liner, 7.5 liter

<b>Ultimate burst pressure</b> 97% delivered fiber strength	6960 psi (48 Mpa)
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The information contained herein has been obtained under controlled laboratory conditions and are typical or average values and do not constitute a specification, guarantee, or warranty. Results may vary under different processing conditions or in combination with other materials. The data is believed to be reliable but all suggestions or recommendations for use are made without guarantee. You should thoroughly and independently evaluate materials for your planned application and determine suitability under your own processing conditions before commercialization. Furthermore, no suggestions for use or material supplied shall be considered a recommendation or inducement to violate any law or infringe any patent.

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