HexPly® M949

Cosmetic High Tg Epoxy Resin for Prepregs

HEXCEL®

Product Data Sheet

Description

HexPly® M949 is a toughened hotmelt, thermosetting and rapid-curing epoxy resin system, specifically designed for high quality surface carbon-look applications requiring glass transition temperatures above 145°C without the need for a post cure. M949 is compatible with autoclave and compression molding processes using ramped or hot-loaded cure cycles between 130-140°C. M949 exhibits exceptional surface finish characteristics for cosmetic carbon-look applications and superior tack for prepreg handling.

Resin Matrix Properties

- Dynamic Thermal Properties by DSC (ISO 11357-5: -40 to 270°C @ 10°C/min)(1)

Uncured T_g	-5 to +1°C
T_{Onset}	140 – 150°C
TP_{eak}	145 – 155°C
Enthalpy	340J/g ± 20%

(1) Data obtained from neat resin upon delivery

- Typical cured T_g 150 ± 5°C (following autoclave cure 90min cure @140°C)(2)
- Density (ISO 1183–1) 1.15 – 1.20g/cm
- Hot-Wet Performance
  - T_g Dry 150 ± 5°C
  - T_g Wet (2, 3) 125 ± 5°C

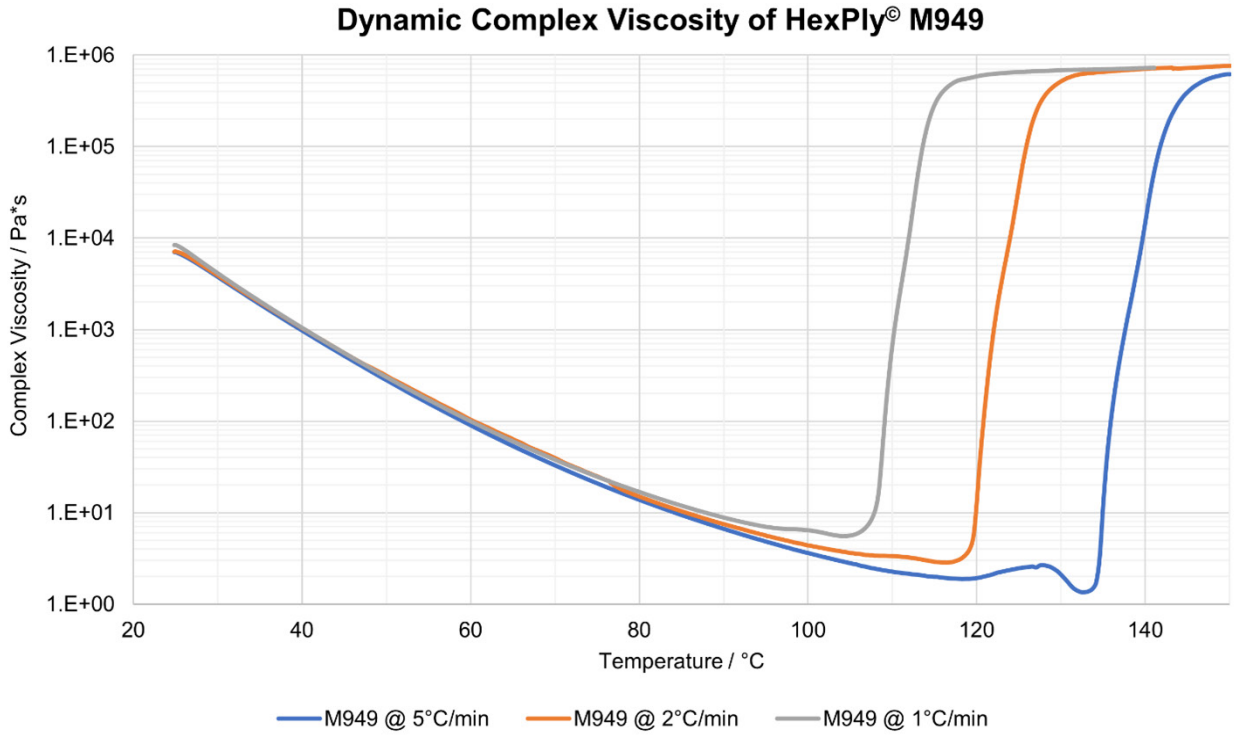
(2) Measured by DMTA according to ASTM E-1640-09 @5°C/min, Maximum Loss Modulus (E")
(3) 2 weeks at 70°C, specimens immersed in water

- Shelf Life(4)
  - @ + 23°C 21 weeks
  - @ + 5°C 6 months
  - @ - 18°C 18 months

(4) Stored sealed, in dry conditions and in absence of direct sunlight. Shelf Life refers to the minimum time at given temperature after which the resin is being impaired in its thermal or rheological properties. An increase in uncured Tg above NTP temperature limitation (NIST) defines the end of shelf life of the resin matrix.

Typical Viscosity Profile

(Data obtained from plate-plate rheometry, temperature run in reference to ISO 6721-10; Representative for a selected, single batch).



Recommended Curing Conditions

Cure Cycle		T_g (2)
Autoclave	Ramp up 2°C/min, 60 - 90min @ 130 - 140°C, 7bar pressure, 0.9 bar vacuum	150 ± 5 °C
Press cure	15 to 30 min @ 130 - 140°C (hot-in/hot-out), minimum 8 bar	150 ± 5 °C

(2) Measured by DMTA according to ASTM E-1640-09 @5°C/min, Maximum Loss Modulus (E")

Dependent on the application and requirements, lower cure temperatures can be applied. The optimum cure cycle, heat-up rate, dwell period and pressure are dependent on component size, shape, layup construction, oven capacity and thermal mass of tool. Higher temperature cure cycles than 140°C are not recommended.

Precautions for Use

M949 is exclusively available in prepreg format and a Material Safety Data Sheet can be provided for this product. The usual precautions when handling uncured synthetic resins and fine fibrous materials should be observed. The use of clean disposable inert gloves provides protection for the operator and avoids contamination of material and components.

For more information

Hexcel is a leading worldwide supplier of composite materials to aerospace and industrial markets. Our comprehensive range includes:

- HexTow® carbon fibers
- HexForce® reinforcements
- HiMax® multiaxial reinforcements
- HexPly® prepregs
- HexMC® molding compounds
- HiFlow® RTM resins
- HexBond® adhesives
- HexTool® tooling materials
- HexWeb® honeycomb
- Acousti-Cap® sound attenuating honeycomb
- Engineered core
- Engineered products
- Polyspeed® laminates & pultruded profiles

For U.S. quotes, orders and product information call toll-free 1-800-688-7734. For other worldwide sales office telephone numbers and a full address list, please go to:

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FTI-549-FB25