



HexPly® M901

High T_g Epoxy Resin Matrix for Prepregs



Product Data Sheet

Description

HexPly® M901 is a hotmelt, thermosetting, high-tack epoxy resin matrix, suitable for prepreg applications at which cure cycles of 130°C and above are required. HexPly® M901 is specifically designed for manufacture of structural composites that are exposed to harsh thermal and environmental conditions.

Upon cure within the recommended temperature range of 130 – 170°C, HexPly® M901 exhibits a high glass transition point and an excellent retention of its physical properties after hot-wet treatment. Short cure cycles of 10min and below can be applied to obtain an excellent green strength of the composite part, ready for demoulding and further processing. A maximum glass transition point of 195°C can be obtained by postcure of the matrix at elevated temperatures.

The product has an excellent shelf life, achieving 15 weeks at ambient conditions and 3 weeks at 35°C.

Resin Matrix Properties

Dynamic Thermal Properties by DSC (ISO 11357-5)

(cure -40 to 270°C @10°C/min) ⁽¹⁾

Uncured T_g: 0 – 5°C

T_{Onset}: 131 – 141°C

T_{Peak}: 141 – 151°C

Enthalpy: 380J/g +/-20%

(1) Data obtained from neat resin upon delivery

Isothermal Cure Properties by DSC

Cure Cycle	Typical Cured T _g (+/-5°C) ⁽²⁾
300min @ 90°C & 120min @150°C	160°C
30min @180°C	165°C
5min @150°C & 120min @150°C	175°C
2min @170°C & 120min @150°C	175°C
10min @130°C & 180min @150°C	180°C
30min @190°C	180°C
10min @130°C & 480min @170°C	190°C
15min @150°C & 120min @180°C	195°C

(2) According to ISO 11357-2 using a 10°C/min ramp rate, -40 to 270°C

Isothermal Cure Properties of HexPly® M901 in Prepreg Format, Press Cure (10bar)

Temperature	Cure Time	Typical Cured T _g (+/-5°C) ⁽³⁾
130°C	10min	160°C
140°C	10min	175°C
150°C	7min	170°C
160°C	5min	180°C

(3) Measured by DMTA according to ASTM E-1640-09 @3°C/min, Maximum Loss Modulus (G")



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- Density (ISO1183-1): 1.10 – 1.25g/cm³
- Color: Off-White/Yellowish
- Tack: High
- Hot-Wet Performance: ⁽⁴⁾
 - T_g Dry ⁽³⁾: 193°C
 - T_g Hot-Wet ⁽³⁾: 136°C

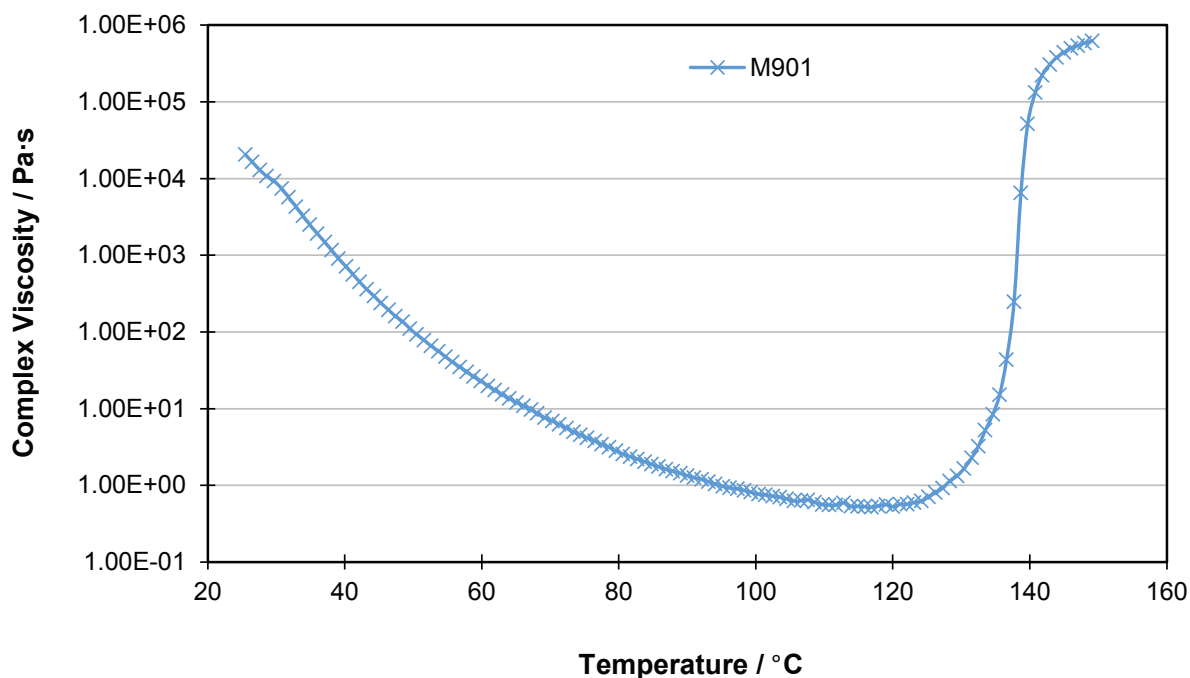
⁽³⁾ Measured by DMTA according to ASTM E-1640-09 @3°C/min, Maximum Loss Modulus (G")

⁽⁴⁾ 2 weeks at 70°C, specimens immersed in water

Typical Viscosity Profile

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

Dynamic Complex Viscosity of HexPly® M901 @ 5°C/min





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Shelf Life ⁽⁵⁾

(Stored sealed, in dry conditions and in absence of direct sunlight)

@ +35°C	3 weeks
@ +23°C	15 weeks
@ +5°C	>6 months
@ -18°C	18 months

(5) Shelf Life refers to the maximum time at given temperature after which the resin is being impaired in its thermal or rheological properties from the date of manufacture. An increase in uncured T_g above NTP temperature limitation (NIST) defines the end of shelf-life of the resin matrix.

Typical Curing Conditions

- Recommended cure temperature range: 130 – 170°C
- Recommended heat-up rate: 0.5 – 20°C/min
- Recommended cure cycle: 25 – 130°C @1°C/min, 10min @130°C, 130 – 150°C @1°C/min, 180min @150°C
- Pressure gauge: 0.5 – 35bar

Dependent on the application, alternative cure temperatures and pressures than the ones mentioned above might be applied but degree of conversion and cured T_g can deviate from stated ranges. The optimum cure cycle, heat-up rate and dwell period is dependent on component size, layup construction, oven capacity and thermal mass of tool.



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Precautions for Use

HexPly® M901 is exclusively available in prepreg or semipreg format and a 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:

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|------------------------------------|--|---|
| ● HexTow® carbon fibers | ● HexFlow® RTM resins | ● Engineered core |
| ● HexForce® reinforcements | ● HexBond™ adhesives | ● Engineered products |
| ● HiMax® multiaxial reinforcements | ● HexTool® tooling materials | ● Polyspeed® laminates & pultruded profiles |
| ● HexPly® prepregs | ● HexWeb® honeycombs | ● HexAM® additive manufacturing |
| ● HexMC®-i molding compounds | ● Acousti-Cap® sound attenuating honeycomb | |

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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