

HexFlow® RTM 6

180°C mono-component epoxy system for Resin Transfer Moulding and Infusion technologies

Product Data

Description

HexFlow® RTM 6 is a degassed, monocomponent resin specifically designed for resin transfer moulding (RTM) processes and to fulfil the requirements of the aerospace industry.

Nature

HexFlow® RTM 6 is a premixed epoxy system for service temperatures from -60°C up to 120°C (-75°F up to 248°F). At room temperature, it is a brown translucent paste but its viscosity decreases quickly by increasing the resin temperature.

Advantages

- Monocomponent system
- Already degassed. Ready for use
- High glass transition temperature
- Excellent hot/wet properties
- Easy to process (low injection pressure)
- Long injection window ≥ 150 min at recommended injection temp.
- Low moisture absorption
- Short, simple cure cycles

Transport classification

Product classification:

- HexFlow® RTM 6 Mono-Component: UN 3233 division 4.1 (type C)

Availability

HexFlow® RTM 6 resin is available with a wide range of Injectex®, HexForce® and multiaxial fabrics (carbon, glass, aramid, hybrid).

Storage

- | | | |
|-------------------------|---------|-----------------|
| ■ Shelf Life | @ 23°C | 15 days maximum |
| ■ Guaranteed Shelf Life | @ -18°C | 9 months |

Typical Resin Properties

Gel Time

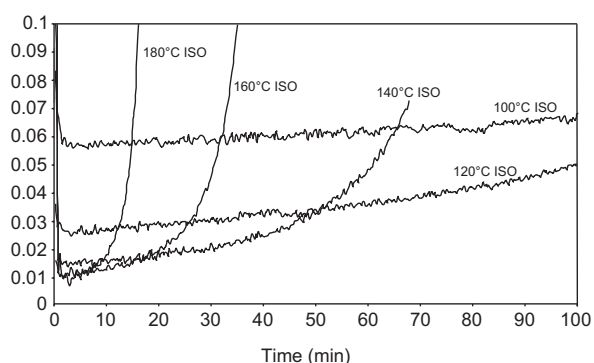
Temperature (°C)	Time (min)
120	> 240
140	95
180	30
210	12
240	5



HexFlow® RTM 6

Viscosity Profile

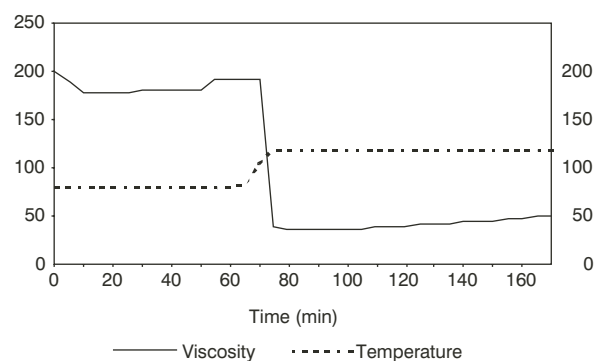
Complex viscosity (Pas)



HexFlow® RTM 6 Isothermal viscosity

Viscosity (mPa.s)

Temperature °C



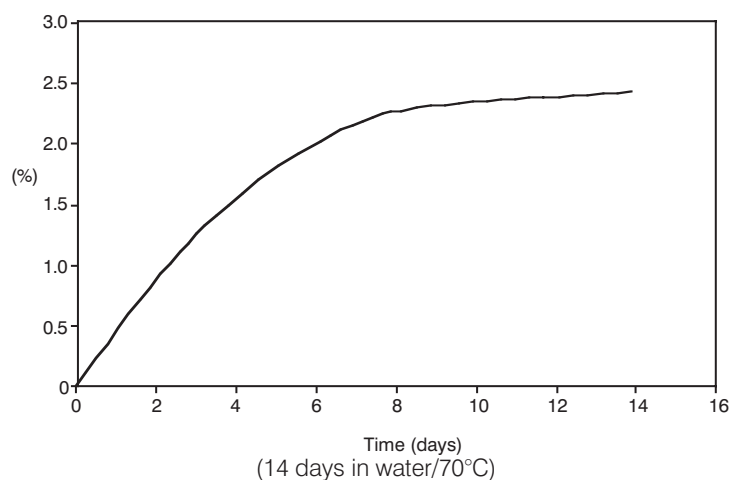
Viscosity for a standard injection cycle

Viscosity evolution versus storage time at 80°C

	Initial viscosity 120°C (mPa.s)	Viscosity after 2h at 120°C (mPa.s)
T0	33	59
T0 + 2h30 80°C	32	59
T0 + 5h00 80°C	33	63
T0 + 7h30 80°C	35	75
T0 + 10h00 80°C	38	89

T0: time to reach 80°C.

Water Pick-up (neat resin)



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Neat Resin Properties

	Tensile	Flexure
Strength (MPa)	75	132
Modulus (MPa)	2890	3300
Strain (%)	3.4	
Standard specifications	ASTM D638	ASTM D790

Uncured resin density: 1.11 g/cm³ at 25°C

Cured resin density: 1.14 g/cm³ at 25°C

Fracture toughness

(G_{1C}/ASTM D 5045): 89 J/m²

Coefficient of Thermal Expansion: 52.7 e-6 /K

Properties on Composite Laminate

Composition of the laminate: Injectex® G0926: 5H Satin weave of 370g/m², HR 6K
Epoxy powdered fabric
Fibre volume fraction: 57%
HexFlow® RTM 6 resin
Inject the resin under vacuum/low pressure (1 to 5 bar)
Cure cycle 120 min at 180°C - no postcure

Dry/RT Properties

	Tensile Warp	I.L.S. Warp	Compression Warp	In Plane Shear
Strength (MPa)	860	62	680	95
Modulus (GPa)	67	-	60	4.3
Standard specifications	EN 2597 B	EN 2563	EN 2850 A1	EN 6031

Values obtained for G0926 SD (AS4C J) E01 RTM6



HexFlow® RTM 6

Wet/70°C Properties

	Tensile Warp	I.L.S. Warp	Compression Warp	IPS
Strength (MPa)	895	44	370	78
Modulus (GPa)	65	-	63	3.5
Standard specifications	ISO 527-4 Type 3	EN 2563	EN 2850 A1	EN 6031

Values obtained for G0926 SD (AS4C J) E01 RTM6

Process Specification

Injection:

- Preheat resin at 80°C
- Preheat the mould at 120°C
- Inject the resin (80°C) under vacuum/low pressure (1 to 5 bars)

Please consult: HexFlow®RTM6/RTM6-2 Safety & Processing Recommendations for Injection & Infusion for more information.

Standard Cure and Post-cure Cycle

Recommended cure cycle : 120 min at 180 °C - no postcure

Cure Cycle Possibilities

	Cycle N°1 (*)	Cycle N°2 (*)
Temperature 180 °C	120 min	90 min
DMA dry - Glass Transition		
- E' onset value	202 °C	194 °C
- E'' peak	210 °C	206 °C
- Tan δ peak	215 °C	211 °C
Moisture weight gain (70°C/85%RH, equil)	0.80 %	0.84 %
DMA wet - Glass Transition		
- E' onset value	160 °C	155 °C
- E'' peak	170 °C	175 °C
- Tan δ peak	175 °C	190 °C

(*) Laminate Data G0926 SD (AS4C J) E01 RTM6

Important

All information is believed to be accurate but is given without acceptance of liability. Users should make their own assessment of the suitability of any product for the purposes required. All sales are made subject to our standard terms of sale which include limitations on liability and other important terms.

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Hexcel is a leading worldwide supplier of composite materials to aerospace and other demanding industries. Our comprehensive product range includes:

- Carbon Fibre
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- RTM Materials
- HexTOOL® composite tooling material
- Structural Film Adhesives
- Honeycomb Cores
- Engineered Core

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