ARALDITE® 580 Resin System

Product Description

ARALDITE® 580 resin system is a one-component highly toughened high-performance epoxy system for liquid processing.

Applications

ARALDITE® 580 resin system is designed to produce primary and secondary aerospace structures via Direct Liquid processes such as Infusion or Resin Transfer Molding (RTM).

Features

- 1-component system
- Very low viscosity at processing temperature (<60 mPa.s @120°C)
- Long pot life & injection window (<150mPa.s for 240 minutes @120°C)
- High thermal resistance (Dry Tg > 180°C)
- Very good behavior under hot/wet conditions (Wet Tg > 150°C)
- High impact resistance

Storage

ARALDITE® 580 resin system should be stored in a dry place, in its sealed original container, at temperatures of **-18°C.** Under these storage conditions the shelf life is **12** months **from date of manufacture**. The product should not be exposed to direct sunlight. **ARALDITE® 580 resin system** can be stored 15 days at 23°C.

Processing conditions:

Recommended thaw time: 24 hours at 23°C without opening the lid to avoid condensation.

Preheat the **ARALDITE® 580 resin system** at 80°C and degas it with agitation between 2-5 mbars residual pressure.

Preheat the Mold and Injection tubes at 100-120°C.

Inject **ARALDITE® 580 resin system** under vacuum (between 3-10 mbars residual pressure) and pressure from 1 to 5 bars.

Processing – Isotherm viscosity build-up

	T0	60 min	120 min	240 min	720 min
80°C	330 mPa.s	330 mPa.s	335 mPa.s	340 mPa.s	415 mPa.s
120°C	60 mPa.s	60 mPa.s	75 mPa.s	130 mPa.s	-

Kinexus Lab+, 40mm parallel plates, 500 micron gap, 15s-1 shear rate

Processing - Gel time by oscillation (rheology time sweep)

At 180°C : **50-60 min** At 200°C : **25-30 min**

TA Discovery DHR-2 + Environmental Control Chamber
Parameters : Strain: 1.0 %, Frequency: 10Hz, 500 micron gap, 25mm aluminium parallel plates

Processing – Typical cure time

Cure in mold: 2 hours at 180°C.
Based on in-house build simulation tools, alternative cure cycles can be determined on demand by Huntsman technical experts.

Typical CFRP Physical Properties (cure 2 hours @ 180°C)

Reinforcement: Toho Biaxial - NCF +45/-45° HTS45 (194/194 g/m²)
Powdered with 7g/m^2 epoxy binder. Fiber volume fraction: 56%

Property	Test Method	Value
Tensile strength Dry RT	ISO 527-4 type 3	1015 MPa
Tensile modulus Dry RT		70 GPa
Compression Strength Dry RT	AITM 1.0008A	650 MPa
Compression Strength Wet 90°C		570 MPa
Compression Modulus Dry RT		63 GPa
Compression Modulus Wet 90°C		63 GPa
IPS Strength Dry RT	AITM 1.0002	100 MPa
IPS Strength Wet 90°C		70 MPa
IPS Modulus Dry RT		4.0 GPa
IPS Modulus Wet 90°C		2.7 GPa
DMA Onset Dry/Wet[1]	AITM 1.0003	175°C / 150°C
ILSS Strength Dry RT	EN 2563	75 MPa
ILSS Strength Wet 90°C		50 MPa
CAI (30 J)	AITM 1.0010	255 MPa
FHC Dry RT	AITM 1.0008 BD	425 MPa

1) WET: 70°C / 85% humidity until equilibrium

Precautionary Statement

Huntsman Advanced Materials maintains up–to-date Safety Data Sheets (SDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest SDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

First Aid!
Refer to SDS as mentioned above.

KEEP OUT OF REACH OF CHILDREN

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