

Atlac[®] 590UHT

Novolac epoxy vinyl ester resin for corrosive environments at ultra high temperature

Components based on Atlac[®] 590UHT feature superior retention of mechanical properties at high temperature, and superior corrosion to oxidizing chemicals and solvents etc.

Benefits

- Relatively low styrene emission
- High-crosslinking density
- Resisting elevated temperatures above 200°C
- High resistance to thermal aging
- Outstanding resistance to strong acids, oxidizing media and organic solvents over a wide temperature range

Application

Atlac[®] 590UHT resin is the preferred choice for applications with high operating/design temperatures. This resin is designed for ease of fabrication using hand lay-up, spray-up, filament winding, compression molding and resin transfer molding techniques.

Atlac[®] 590UHT resin has been applied in chemical storage tanks, pipes, flue gas desulfurization systems (FGD), stacks, scrubbers, ducts.

Atlac[®] 590UHT resin has excellent resistance to organic solvents due to itself high crosslinking density.

Product Specification

Property	Value	Unit	TM
Appearance	Clear	-	TM 2265
Solids content, IR drying	67.0-71.0	%	TM 2033
Viscosity @23°C	450-550	mPa.s	TM 2013
Gel Time (25 until 35 °C)	28-38	min	TM 2625

Remarks

Reactivity measurement: 1.0 g Butanox[®] M50 and 1.0 g Accelerator NL 49P added to 100 g resin.

Liquid resin typical properties

Property	Value	Unit	TM
Flash point	33	°C	TM 2800
Stability, no initiator, dark, 25 °C	6	Month	-

Unfilled castings typical properties

Property	Value	Unit	TM
Tensile strength ¹	72	MPa	ISO 527-2
Tensile modulus ¹	3,7	GPa	ISO 527-2
Tensile elongation ¹	2,3	%	ISO 527-2
Flexural strength ¹	115	MPa	ISO 178
Flexural modulus ¹	3,5	GPa	ISO 178
HDT ²	200	°C	ISO 75 Ae
Tg ²	210	°C	ASTM D570
Unnotched impact strength ¹	10	kJ/m2	ISO 179

Curing conditions

1. Cured with 1.0 g Butanox M50 and 1.0 g Accelerator NL 49P added to 100 g of resin. After 24h at RT followed by post curing for 3 h at 130 °C.
2. After 24h at RT followed by post curing for 3 h at 130 °C and 24 h at 200 °C .

Storage Guidelines

The resin should be stored in a dark and dry place at temperatures between 5 °C and 30 °C. Shelf life is reduced when resin is stored at higher temperatures and the properties of the resin might change during storage. The shelf life of styrene containing Vinyl ester will be significantly reduced when exposed to light. Therefore, store in dark and in 100% light tight containers only. Exposure to direct sunlight should be avoided.

Material Safety

A Material Safety Data Sheet of this product is available on request.

Test Methods

Test methods (TM) referred to in the table(s) are available on request.

Processing Guidelines

- A. Keep full strength catalyst levels between 1.0% - 2.0% of the total resin weight.
- B. Maintain shop temperatures between 18°C and 32°C and humidity between 40% and 90%. Consistent shop conditions contribute to consistent gel times and will help the fabricator make a high quality part.
- C. Cumyl hydroperoxide is suggested as a catalyst because Atlac® 590UHT is a reactive resin. Finished part surfaces that have been cured at room temperature in contact with air should be relatively tack free. They may not, however, be fully cured and are thus not as resistant to chemicals as a fully cured part. If no further laminating is planned, a 10% solution of 5% paraffin wax solution (MP 46-48°C) in styrene may be added to the last resin layer to provide a tack free surface.
- D. The use of cumene hydroperoxide catalyst is suggested since the resin cures quickly. If the composite is thin, high dimer MEKP catalysts can be used.
- E. Optimum cure and performance may be obtained by post curing room temperature cured laminates for two hours at 70-100°C.

Application Guidelines

Due to the excellent curing characteristics of Atlac® 590UHT resin, complete all secondary bonding as soon as possible. Exposing the laminate to sunlight will result in severe secondary bonding problems. After 48 hours of cure, it may be necessary to abrade the laminate with 16-24 grit to insure good secondary bonding, especially if the surface of the laminate is resin rich. Avoid low fiber-glass content and resin puddling.

Brochures

You can find additional information through the Atlac® Product Guide. For detailed information on the chemical resistance of Atlac® resins, please consult our Chemical Resistance Guide. Both brochures are available from our Business Technical Supports Engineer and Account Manager.

ISO 9001:2015 Certified

The Quality Management Systems at every AOC manufacturing facility have been certified as meeting ISO 9001:2015 standards. This certification recognizes that each AOC facility has an internationally accepted model in place for managing and assuring quality. We follow the practices set forth in this model to add value to the resins we make for our customers.

About AOC

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AOC. Trusted Solutions

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