ATLAC® 580 ACT

CHEMICAL/PHYSICAL NATURE

Atlac® 580 ACT is a high grade Bisphenol A Urethane Vinylester, dissolved in styrene.
The resin is pre-accelerated and thixotropic.
Atlac® 580 ACT features medium viscosity and medium reactivity.

MAJOR APPLICATIONS

Atlac® 580 ACT is specially developed to meet the requirements of hand lay-up and spray-up applications.
The resin is recommended for the fabrication of chemical resistant equipment and marine applications.

PRINCIPAL PROPERTIES

Atlac® 580 ACT has excellent wet out and de-aerating properties for easy processing. Compared to conventional Vinylester resins foaming after MEK peroxide addition is highly reduced in Atlac® 580 ACT leading to less air inhibition inside the laminate and on the surface.
Due to its urethane incorporation, Atlac® 580 ACT features enhanced thixotropic behavior preventing rinse off inclined mold surfaces and shows an improved compatibility with aramid fiber reinforcements.
Atlac® 580 ACT provides low exothermic reaction during cure allowing thick sections to be fabricated in one go, however through cure in thin laminates is favored by excellent curing behavior.
Final products made with Atlac® 580 ACT show excellent hydrolysis resistance and good thermal stability.
Atlac® 580 ACT is resistant to many aqueous media, acidic salts, alkaline media and hot water.
The resin offers an outstanding combination of heat resistance and flexibility.

APPROVALS

Cured non-reinforced Atlac® 580 ACT conforms to type 1310 according to DIN 16946/2.
According to EN13121/1 Atlac® 580 ACT is classified group 7B.
The resin is certified by Lloyd's Register and Registro Navale Italiano (R.I.Na.) as laminating resin for use in Marine applications.

PRODUCT SPECIFICATIONS UPON DELIVERY

Property	Range	Unit	TM
Water content	0 - 1000	ppm	2350
Acid value as such	4.0 – 8.0	mg KOH/g	2401
Solids content, IR	49.5 – 52.5	%	2033
Viscosity, 2 s^{-1}	1000- 1600	mPa.s	2313
Viscosity, 20 s^{-1}	500 – 600	mPa.s	2313
Viscosity, 250 s^{-1}	370 – 430	mPa.s	2313
Time from 25 °C – 35 °C	25.5 – 31.5	Minute	2625
Time from 25 °C - Peak	42.5 – 52.5	Minute	2625
Peak temperature	125 – 155	°C	2625

REMARKS

Viscosity measurement: Z2/23°C
Reactivity measurement: 1.5 g Butanox M 50 added to 100 g of resin

PROPERTIES OF THE LIQUID RESIN (TYPICAL VALUES)

Property	Value	Unit	TM
Flash point	33	°C	2800
Stability, no init., dark, 25°C	3	Month	-

PROPERTIES OF CAST UNFILLED RESIN (TYPICAL VALUES)

Property	Value	Unit	TM
Density, 20 °C	1110	kg/m^3	-
Tensile strength	83	MPa	ISO 527-2
Tensile E-modulus	3.5	GPa	ISO 527-2
Elongation at break	4.2	%	ISO 527-2
Flexural strength	153	MPa	ISO 178
Flexural E-Modulus	3.55	GPa	ISO 178
Heat deflection temp. (HDT)	115	°C	ISO 75-A
Glass transition temperature (Tg)	132	°C	DIN 53445
Modulus of elasticity in bending	1.7	GPa	DIN 53445
Impact strength- unnotched spec.	15	kJ/m^2	ISO 179
Water absorption, 25 °C	0.16	%	ISO R 62
Water absorption, 100 °C	0.22	%	ISO R 117
Barcol hardness	40	Barcol	2604

CURING CONDITIONS

Cured with 1.5 g Butanox M-50 added to 100 g of resin.
After 24 h at RT followed by post curing for 3 h at 100 °C.

PROPERTIES OF CAST REINFORCED RESIN (TYPICAL VALUES)

Property	Value	Unit	TM
Density, 20 °C	1320	kg/m^3	-
Glass fiber content	30	%	-
Tensile strength	105	MPa	ISO 527-2
Tensile E-modulus	7.4	GPa	ISO 527-2
Flexural strength	160	MPa	ISO 178
Flexural E-Modulus	6.8	GPa	ISO 178
Compressive strength	175	MPa	ASTM D695
Modulus of elasticity in bending	3.07	GPa	DIN 53445
Impact resist. - unnotched spec.	115	kJ/m^2	ASTM D256
Linear expansion	30 x 10^{-6}	K^{-1}	ASTM D696
Thermal conductivity	0.21	W/m.K	DIN 52612

CURING CONDITIONS

Laminates made with Atlac 580 cured with 0.5 % Accelerator NL 63-10P, 0.5 % Accelerator NL 51P and 1.5 % Butanox M-50Glass fiber matt: OCF M 710 or Vetrotex M 113, both 450 g/m^2
After 24h at RT followed by post curing for 3 h at 100 °C.

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 for download from the Aliancys web site (www.aliancys.com).

WORKSHOP CONDITIONS

Pot life as function of temperature for 200 g of resin with 3.0 g medium reactive MEK-peroxide

Temperature	Pot life	Unit
15 °C	45	Minute
20 °C	35	Minute
25 °C	20	Minute

POT LIFE AND DEVELOPMENT OF BARCOL HARDNESS (TYPICAL VALUES)

Laminates with 3 layers of glass fiber mat (450 g/m^2) cured at 23 °C

Pot life	1.5 weight % MEK- Peroxide	2.0 weight % MEK-Peroxide	Unit
Resin	28	24	Minute
Laminate	42	37	Minute

Cure time in h	1.5 weight % MEK- Peroxide	2.0 weight % MEK- Peroxide	Unit
1.5	0	0	Barcol
2.0	10	10	Barcol
2.5	20	20	Barcol
3.0	30	30	Barcol
24	40	40	Barcol
48	40	40	Barcol

Barcol hardness determined with Durometer 934 according ASTM D2583

GUIDELINES BEFORE USE

Before use, the resin should be conditioned at a well defined application dependent temperature (usually 15°C minimum for a MEKP / Co cure).
Stir the resin well before use.

STORAGE GUIDELINES

The resin should be stored in a dark and dry place in original unopened and undamaged packaging at temperatures between 5°C and 30°C.
Shelf life is reduced at higher temperatures and the properties of the resin might change during storage.
The shelf life of styrene containing Vinylester will be significantly reduced when exposed to light. 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.

Aliancys is a leading global company active in the sales of Quality Resins for composite applications. Together with its customers, Aliancys is pushing the limits of both composite part manufacturing and performance. Taking an integral approach to new product development, Aliancys is using its full expertise in resin chemistry, material science, and component manufacturing for shaping new applications in composites. So let's talk and increase our mutual business success, both today and tomorrow. More information on www.aliancys.com

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