ATLAC® 580 ACT

CHEMICAL/PHYSICAL NATURE

Atlac® 580 ACT is a pre-accelerated thixotropic, high grade bisphenol A vinyl ester urethane resin.
It which combines exceptional chemical resistance and an outstanding combination of heat resistance and flexibility. Furthermore Atlac® 580 ACT has very good handling and curing properties. Atlac® 580 ACT is resistant to many aqueous acidic salts and alkaline solutions. Especially against alkaline media and hot water Atlac® 580 ACT has an outstanding performance.

MAJOR APPLICATIONS

Atlac® 580 ACT is especially adapted 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 deaerating properties. It produces less foam when peroxides are added with less air inhibition resulting in a tack free cured surface.
Due to its urethane incorporation, Atlac® 580 ACT can be thixotropized easily and shows an improved compatibility with aramid fiber reinforcements. Atlac® 580 ACT has a low exotherm in curing allowing thick sections to be fabricated.

PRODUCT SPECIFICATIONS UPON DELIVERY

Property	Range	Unit	TM
Solids content, IR	49.5 - 52.5	%	2033
Viscosity, Physica, 2 s-1, 23°C	1000 - 1600	mPa.s	2313
Viscosity, Physica, 20 s-1, 23°C	500 - 600	mPa.s	2313
Viscosity, Physica, 250 s-1, 23°C	370 - 430	mPa.s	2313
Water content	0 - 1000	ppm	2350
Acid value, as such	4 - 8	mg K/g	2401
Gel time from 25 to 35°C	25.5 - 31.5	minutes	2625
Cure time from 25°C to peak	42.5 - 52.5	minutes	2625
Peak temperature	125 - 155	°C	2625

PROPERTIES OF THE LIQUID RESIN (TYPICAL VALUES)

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

CURING CONDITIONS

Conditions: 100 g resin + 1,50 g Butanox M 50
TM 2999 Curing agent batchnr. Peroxide,
Conditions Butanox M 50

PROPERTIES OF CAST UNFILLED RESIN (TYPICAL VALUES)

Property	Value	Unit	TM
Specific weight	1110	Kg/m3	-
Barcol hardness GYZJ 934-1	40	Barcol	ASTM D2580
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
Impact resistance	15	KJ/m^2	ISO 179
Glass transition temp. (Tg)	132	°C	DIN 53445
Mod. of elasticity in bending	1.7	GPa	DIN 53445
Water absorption, 25°C	0.16	%	ISO R62
Water absorption, 100°C	0.22	%	ISO R117

CURING CONDITIONS

All properties are measured at 20°C unless otherwise specified.
Cure system: : Atlac 580 + 1.5% Butanox M-50.
All samples were cured during 24 hrs. at ambient temperature, followed by a post cure of 3 hrs. at 100°C.

PROPERTIES OF CAST FILLED RESIN (TYPICAL VALUES)

Property	Value	Unit	TM
Glass content	30	%	-
Density, 20°C	1320	kg/m³	-
Tensile strength	105	MPa	ISO 527-2
Mod. of elasticity in tension	7.4	GPa	ISO 527-2
Flexural strength	160	MPa	ISO 178
Mod. of elasticity in bending	6.8	GPa	ISO 178
Compressive resistance	175	MPa	ASTM D695
Mod. of elastic in bending	3070	MPa	DIN 53445
Impact resistance-Izod unnotched	115	kJ/m ^{2}	ASTM D256
Linear expansion	30 x 10-6	C-1	ASTM D 696
Thermal conductivity	0.21	W/m.k	DIN 52612

CURING CONDITIONS

All properties are measured at 20°C unless otherwise specified.
Cure system: Atlac 580 + 0.5% NL63-10P, 0.5% NL51P and 1.5% Butanox M-50.
All samples were cured during 24 hrs. at ambient temperature, followed by a post cure of 3 hrs. at 100°C.
Glass mat used OCF M 710 or Vetrotex M 113 (450 g/m²).

A complete documentation of the mechanical properties of the resin is available in the brochure:
"*High Performance Resins of outstanding quality*".

CHEMICAL RESISTANCE

The Chemical resistance information is available in the ``Guide to chemical resistance of unsaturated polyester and vinyl ester resins``.

WORKSHOP CHARACTERISTICS

Pot life as function of temperature with 3 g methyl ethyl ketone peroxide in 200 g resin:

At 15°C = 45 min
At 20°C = 35 min
At 25°C = 20 min

Pot life/ gel time in laminate:

Temperature = 23°C
3 Glass mats 450 g/m^2 (M711)
Methyl Ethyl ketone peroxide (Butanox M50)

	1,5 % (weight)	2 % (weight)
Pot life	28 min	24 min
Gel time	42 min	37 min
(Durometer 934)		
Barcol hardness (ASTM D2583) after:		
- 1 hrs. 30	0	0
- 2 hrs. 00	10	10
- 2 hrs. 30	20	20
- 3 hrs. 00	30	30
- 24 hrs. 00	40	40
- 48 hrs. 00	40	40

STORAGE GUIDELINES

The resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C and the properties might change during storage. Shelf life is reduced at higher temperatures and the properties of the resin might change during storage. The shelf life of styrene containing unsaturated polyesters will be significantly reduced when exposed to light. Store in dark and in 100%light tight containers only.

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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