

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 deaeration 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 thixotropised easily and shows an improved compatibility with aramid fibre 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 - 52	%	2033
Appearance	hazy	-	2265
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	3 - 7	mg K/g	2401
Gel time from 25 to 35°C	25.5 - 31.5	minutes	2625
Cure time from 25°C to peak	40 - 50	minutes	2625
Peak temperature	125 - 155	°C	2625

Curing conditions

Conditions: 100 g resin + 1,50 g Butanox M 50

Properties of the liquid resin (typical values)

Property	Value	Unit	TM
Flash point	appr. 31	°C	2800
Stability, no init., dark, 25°C	6	months	-

Properties of cast unfilled resin (typical values)

Property	Value	Unit	TM
Specific weight	1.11	-	-
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 + 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 postcure of 3 hrs at 100°C.

Version: 001957/4.0
Date of issue: March 2005

Head office: DSM Composite Resins AG
P.O. Box 1227, 8207 Schaffhausen, Switzerland, Tel. +41 (0)52 644 1212
Fax. +41 (0)52 644 1200, Internet site: www.dsmcompositeresins.com

Although the facts and suggestions in this publication are based on our own research and are believed reliable, we cannot assume any responsibility for performance or results obtained through the use of our products herein described, nor do we accept any liability for loss or damages directly or indirectly caused by our products. The user is held to check the quality, safety and all other properties of our product prior to use. Nothing herein is to be taken as permission, inducement or recommendation to practise any patented invention without a license.

Properties of cast filled resin (typical values)

Property	Value	Unit	TM
Glass content	30	%	-
Density, 20°C	1320	kg/m ³	-
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 postcure 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"*.

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/m² (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

Chemical resistance

The Chemical resistance information is available in the *"Guide to chemical resistance of unsaturated polyester and vinylester resins"*.

Guidelines before use

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

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. 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 for the product is available on request.

Test methods

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

Version: 001957/4.0
 Date of issue: March 2005

Head office: DSM Composite Resins AG
 P.O. Box 1227, 8207 Schaffhausen, Switzerland, Tel. +41 (0)52 644 1212
 Fax. +41 (0)52 644 1200, Internet site: www.dsmcompositeresins.com

Although the facts and suggestions in this publication are based on our own research and are believed reliable, we cannot assume any responsibility for performance or results obtained through the use of our products herein described, nor do we accept any liability for loss or damages directly or indirectly caused by our products. The user is held to check the quality, safety and all other properties of our product prior to use. Nothing herein is to be taken as permission, inducement or recommendation to practise any patented invention without a license.