Product Data Sheet

Atlac 382

Chemical/physical nature

Atlac 382 is a propoxylated bisphenol A fumarate unsaturated polyester resin, dissolved in styrene.

Performance

Atlac 382 is suitable for high temperature water, acid and salt solutions and medium temperature alkali solutions.

Major applications

Atlac 382 can be used in all fabrication methods, but is especially adapted to meet the requirements of filament winding, centrifugal casting, hand lay-up and spray-up applications. Atlac 382 may also be used to formulate glassflake coatings and mortars.

Approvals

Cured non-reinforced Atlac 382 conforms to type 1310 according to DIN 16946/2 and is classified group 5 according to DIN 18820/1 and group 6 according to EN12131/2.

Product specifications upon delivery

Specification	Range	Unit	TM
Viscosity, 23°C	560 - 660	mPa.s	2013
Solids content, IR	49 - 51	%	2033
Stability	min. 60	min.	2300C
Acid value, as such	4 - 8	mg KOH/g	2401
Appearance	Sl. hazy	-	2265
Gel time from 25 to 35°C	5 - 12	minutes	2625
Cure time from 25°C to peak	22 - 30	minutes	2625
Peak temperature	140 - 170	°C	2625

Remarks
TM 2013: Z2/100 s-1/23°C
TM 2625: 0.5g Accelerator NL51P + 1g Accelerator NL 63-10 + 1.5g Butanox.M 50 (all AKZO-Nobel) added to 100 g resin

Properties of the resin upon delivery (typical values)

Property	Value	Unit	TM
Density, 23°C	1030	kg/m³	2160
Flash point	33	°C	2800
Stability, no init., dark, 25°C	6	Month	-

Properties of cured unfilled resin (typical values)

Property	Value	Unit	TM
Density, 20°C	1120	kg/m³	-
Hardness	40	Barcol	2604
Tensile strength	62	MPa	ISO 527-2
Mod. of elasticity in tension	3.4	GPa	ISO 527-2
Elongation at break	2.1	%	ISO 527-2
Flexural strength	113	MPa	ISO 178
Mod. of elasticity in bending	3.4	GPa	ISO 178
Impact res. - unnotched sp.	9	kJ/m²	ISO 179
Heat deflection temp. (HDT)	120	°C	ISO 75-A
Glass transition temp. (Tg)	137	°C	DIN 53445

Curing conditions
Cure system: 0.5% DMA-10%, 0.8% Co-6% and 1.5% MEKP-50%.
Cure schedule: 24 hrs at 20°C followed by 3 hrs at 100°C.

Properties of cured glass reinforced resin (typical values)

Property	Value	Unit	TM
Density	1330	kg/m³	-
Glass content	30	%	ASTM D 2584
Tensile strength	85	MPa	ISO 527-2
Mod. of elasticity in tension	7.5	GPa	ISO 527-2
Flexural strength	139	MPa	ISO 178
Mod. of elasticity in bending	6.6	GPa	ISO 178
Impact res. - unnotched sp.	80	kJ/m²	ISO 179
Glass transition temp. (Tg)	135	°C	DIN 53445
Linear expansion	31 x 10-6	C-1	
Thermal conductivity	0.22	W/m.K	DIN 52612

Curing conditions
Cure system: 0.5% DMA-10%, 0.8% Co-6& and 1.5% MEKP-50%.
Cure schedule: 24 hrs at 20°C followed by 3 hrs at 100°C
450 g/m2 powder bound chopped strand glass mat used OCF M 710, Vetrotex M 113 .

Atlac 382

Measuring the degree of cure

ABarcol hardness

Properly cured laminates of Atlac 382 should have a Barcol reading of 20 to 30 after 24 hrs at ambient temperature. After one week, readings of 35 - 40 should be expected. A postcure treatment should increase Barcols levels to 40 or above.

Free styrene measurements

Free styrene measurements is the best method to determine the extent of the cure. Full details of the method can be supplied on request. Typically, a well cured product based on Atlac 382 will contain 3% free styrene after one month at room temperature. A postcure will reduce this to less than 0.2%

Postcuring

Postcuring is necessary to obtain the full heat and chemical resistance of Atlac 382. Recommended postcure conditions are three to six hours at 90 to 100°C. Longer times are being required for thicker laminates. Lower temperatures are ineffective; higher temperatures can lead to embrittlement. Laminates must be at least 24 hours old before postcuring. Laminates up to one year can be postcured successfully.

Guidelines before use

The resin should be conditioned at 15 °C minimum before use, to obtain a sufficient cure when Co-oct and MEKP is used as a curing system. 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 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 referred to in the table(s) are available on request.

Date of issue: September 11 Version: 001893/7.0