Product Data Sheet

Atlac *E-Nova* FW 1045

Chemical/physical nature

Atlac *E-Nova* FW 1045 is a flexibilized epoxy bisphenol A vinyl ester urethane resin, dissolved in styrene.

Performance

Atlac *E-Nova* FW 1045 provides improved resistance to a wide range of acids, alkali, bleaches and solvents for the use in corrosive environments in the chemical processing industry. The favorable combination of thermal resistance and elongation makes also this resin suitable for applications exposed to intermittent temperatures.
The *E-Nova* technology combines the easy processing of polyester with the chemical resistance of vinylester. Low foam curing is possible with standard MEKP peroxides and compared to traditional Vinylester resins it shows excellent fibre wetting. Atlac *E-Nova* FW 1045 can be easy made thixotropic.

Major applications

Atlac *E-Nova* FW 1045 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.

Approvals

Cured non-reinforced Atlac *E-Nova* FW 1045 conforms to type 1310 according to DIN 16946/2 and is classified group 5 according to DIN 18820/1 and group 7B according to EN12131/2. Atlac *E-Nova* FW 1045 received from the DIBt (Deutsches Institute für Bautechnik) a general approval for parts to store chemicals.

Product specifications upon delivery

Property	Range	Unit	TM
Viscosity, 23°C	350 - 450	mPa.s	2013
Solids content, IR	58 - 62	%	2033
Acid value, as such	3 - 10	mg KOH/g	2401
Gel time from 25 to 35°C	20 - 30	minutes	2625
Cure time from 25°C to peak	30 - 40	minutes	2625
Peak temperature	135 - 165	°C	2625

Remarks
TM 2013: Physica, Z2/100/23°C TM 2625: 3.0 g Accelerator NL49P and 2.0 g Butanox M 50 (both AKZO-Nobel) added to 100 g resin.

Properties of the liquid resin (typical values)

Property	Value	Unit	TM
Stability, no init., dark, 25°C	6	months	-
Flash point (indicative)	33	°C	-

Properties of cast unfilled resin (typical values)

Property	Value	Unit	TM
Tensile strength	85	MPa	ISO 527-2
Tensile E-modulus	3.3	GPa	ISO 527-2
Elongation at break	5 - 6	%	ISO 527-2
Flexural strength	140	MPa	ISO 178
Flexural E-Modulus	3.5	GPa	ISO 178
Heat Deflection Temp. (HDT)	125	°C	ISO 75-Ae
Impact res. - unnotched sp.	30	kJ/m²	ISP 179
Hardness	45	Barcol	DIN EN 59

Curing conditions
The curing characteristics are obtained using 0.3% Accelerator NL 51P, 0.2% Accelerator NL 63-10P and 1.5% Butanox M 50 (all AKZO-Nobel). All test samples were postcured for 3 hours at 100°C and 3 hours at 150°C.

Properties of reinforced resin (typical values)

Property	Value	Unit	TM
Glass content	32.5	%	ASTM D2584
Tensile strength	120	MPa	ISO 527-2
Tensile E-modulus	8.8	GPa	ISO 527-2
Flexural strength	200	MPa	ISO 178
Flexural E-Modulus	8.1	GPa	ISO 178
Hardness	60	Barcol	DIN EN 59

Curing conditions
The curing characteristics are obtained using 0.3% Accelerator NL 51P, 0.2% Accelerator NL 63-10P and 1.5% Butanox M 50 (all AKZO-Nobel). All test samples were postcured for 3 hours at 100°C and 3 hours at 150°C. Laminates were based on 4 layers of 450 g/m2 chopped strand mat

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.

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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. The shelf life of styrene containing unsaturated polyesters will be significantly reduced when exposed to light and/or higher temperatures. Store in dark and in 100% light tight containers only.

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

Material Safety
A material safety data sheet for the product is available on request.

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