Product Data Sheet

Oldopal - Laminierharz 102

Chemical/physical nature

Oldopal - Laminierharz 102 is based on unsaturated orthophthalic polyester, dissolved in styrene.
Oldopal - Laminierharz 102 has a medium reactivity and a medium viscosity.
The resin is pre-accelerated and thixotropic.

Major applications

Oldopal - Laminierharz 102 is intended for the production of glass reinforced parts and has been especially adapted to the requirements of the hand lay up - and spray up process.
Good mechanical properties have been combined with excellent process ability.
Fast air release and excellent wetting properties guarantee fast processing of powder and emulsion bound mats, as well as fabrics based on filaments or woven roving.
The favourable temperature development during reaction does not only permit the elaboration of thicker laminates in one step, also thinner laminates show satisfactory through cure.

Approvals

Oldopal - Laminierharz 102 has been approved by Germanischer Lloyd on 29.03.2004 (Certificate nr. WP 0420002 HH)

Product specifications upon delivery

Property	Range	Unit	TM
Appearance	Hazy	-	2265
Viscosity, 23 °C	1050 - 1450	MPa.s	2313
Viscosity, 23 °C	465 - 545	mPa.s	2313 1
Viscosity, 23 °C	300 - 340	mPas.s	2313 2
Solids content, IR	58 - 61	%	2033
Gel time from 25 to 35°C	19 - 26	Minute	2625
Cure time from 25°C to peak	55 - 65	Minute	2625
Peak temperature	60 - 90	°C	2625

Remarks
Viscosity measurement:
TM 2313: Z2/2 s^{-1}/23°C
TM 2313 1: Z2/20 s^{-1}/23°C
TM 2313 2: Z2/250 s^{-1}/23°C
The curing characteristics are obtained using 2,0 g of Butanox M 50 (AKZO-Nobel) added to 100 g of resin.

Properties of the liquid resin (typical values)

Property	Value	Unit	TM
Density, 20°C	1120	kg/m³	2160
Flash point	32	°C	2800
Stability, no init., dark, 25°C	3	Month	-

Properties of cast unfilled resin (typical values)

Property	Value	Unit	TM
Tensile strength	70	MPa	ISO 527-2
Tensile E modulus	4,3	GPa	ISO 527-2
Elongation at break	2,0	%	ISO 527-2
Heat Deflection Temp. (HDT)	63	°C	ISO 75-A

Curing conditions

The mechanical characteristics are obtained curing the resin at RT and 24 h at 80 °C.

Processing

The final state of cure may be optimised by post-curing at elevated temperatures (e.g. 70 °C) for several hours, if this is technically applicable.

Guidelines before use

Homogenize the resin thoroughly 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).

Storage guidelines

Oldopal - Laminierharz 102 should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 20°C. 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.

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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.