Palatal P 51-01

DSM

Product Data Sheet

a DSMProduct

Chemical/physical nature

Palatal P 51-01 is an unsaturated polyester resin based on tetrahydrophthalic acid and standard glycols, dissolved in styrene.
Palatal P 51-01 has a high reactivity and a medium viscosity.

Major applications

Palatal P 51-01 is particularly suitable for the production of glass-fibre reinforced mouldings that have to withstand both high mechanical and dynamic loads (e.g. pressure tanks and pipes). Cracking of resin accumulations in moulded products is to a large extend absent. Due to its good resistance to styrene Palatal P 51-01 may be used for the construction of GRP moulds.

Approvals

Cured unreinforced Palatal P 51-01 conforms to type 1140 according to DIN 16946/2 and is classified in group 1 according to DIN 18820/1.

Product specifications upon delivery

Property	Range	Unit	TM
Appearance	clear	-	2265
Colour, Lico 200	0 - 100	APHA	2017
Viscosity	900 - 1100	mPa.s	2013
Solids content, IR	64 - 67	%	2033
Acid value, as such	27 - 31	mg KOH/g	2401
Cure time from 25 to 35°C	11 - 17	Min	2625
Cure time from 25°C to peak	14 - 22	Min	2625
Peak temperature	165 - 185	°C	2625

Remarks

Viscosity measurement: S 2/100 s^{-1}/23°C
Reactivity determined with 1.0 g Trigonox 44B (AKZO-Nobel) and 0.5 g Accelerator NL 49P (AKZO-Nobel) added to 100 g resin

Properties of the liquid resin (typical values)

Property	Value	Unit	TM
Density, 23°C	appr. 1100	kg/m³	2160
Refractive index	1.5255	-	2150
Flash point	appr. 32	°C	2800
Stability, no init., dark, 25°C	6	Mon	-

Typical values of cast unfilled resin

Property	Value	Unit	TM
Tensile strength	75	MPa	ISO 527-2
Mod. of elasticity in tension	3.1	GPa	ISO 527-2
Elongation at break	7	%	ISO 527-2
Flexural strength	125	MPa	ISO 178
Mod. of elasticity in bending	3.3	GPa	ISO 178
Elongation in flex	6.8	%	ISO 178
Impact res. - unnotched sp.	19	kJ/m²	ISO 179
Heat deflection temp. (HDT)	84	°C	ISO 75-A
Glass transition temp. (Tg)	120	°C	DIN 53445

Curing conditions

Cured with 1 ml AAP-NA 2 (Peroxid-Chemie GmbH) and 0.4 ml Co-oct. solution (1% Co in styrene). Cured 24 h at room temperature and post-cured 24 h at 100°C.

Processing

Palatal P 51-01 normally exhibits tack-free cure, if at least 1% of Co-accelerator solution (1% Co in styrene) is added. If less Cobalt is used or under certain other conditions in order to ensure a tack-free curing of surfaces exposed to air, suitable additives (e.g. paraffin solution) should be added.
Palatal P 51-01 is miscible with styrene. However, addition of styrene by more than 10% deteriorates physical properties considerably.
The final state of cure may be optimized by post-curing at elevated temperatures (e.g. 80 °C) for several hours.

Version: 010508/5.0
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

Guidelines 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
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. 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.

Version: 010508/5.0
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