

# Product Data Sheet

## Palatal U 541TV-03

### Chemical/physical nature

Palatal U 541TV-03 is an unsaturated polyester based on orthophthalic acid and standard glycols, dissolved in styrene. Palatal U 541TV-03 contains barrier-forming agents to reduce styrene emission and a thixotropic agent. The resin is pre-accelerated. Palatal U 541TV-03 has a medium reactivity and a low viscosity.

### Major applications

Palatal U 541TV-03 is well suited for hand lay-up and spray techniques.

It is mainly suitable for the production of thin laminates (<= 5 mm). It readily impregnates the reinforcing materials during lay-up and does not run off inclined laminates.

An outstanding feature of Palatal U 541TV-03 is its low level of styrene emission and as a consequence reduced exposure to styrene in the workplace. On account of its reactivity and curing behaviour Palatal U 541TV-03 is particularly suitable for the production of laminates almost free of internal stress.

### Approvals

Cured unreinforced Palatal U 541TV-03 conforms to type 1120 according to DIN 16946/2 and is classified in group 0 according to DIN 18820/1.

The resin is approved by Det Norske Veritas and Lloyd's Register of Shipping for use in boat building.

### Product specifications upon delivery

Property	Range	Unit	TM
Viscosity, 20 s <sup>-1</sup> , 23°C	310 - 400	mPa.s	2313
Solids content, IR	54 - 58	%	2033
Cure time from 25 to 35°C	27 - 34	Min	2625
Cure time from 25°C to peak	40 - 50	Min	2625
Peak temperature	85 - 115	°C	2625

### Remarks

Viscosity measurement: S 2/20 s<sup>-1</sup>/23°C

Reactivity determined with 1.0 g Butanox M 50 (AKZO-Nobel) added to 100 g resin

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### Typical values of the liquid resin (typical values)

Property	Value	Unit	TM
Density, 20°C	appr. 1100	kg/m <sup>3</sup>	-
Flash point	appr. 33	°C	2800
Stability, no init., dark, 25°C	3	Mon	-

### Typical values of cast unfilled resin

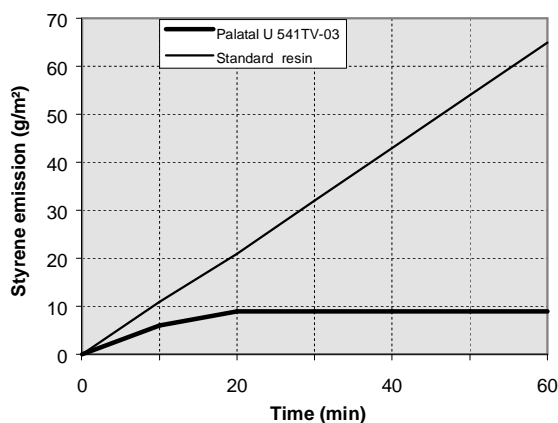
Property	Value	Unit	TM
Tensile strength	70	MPa	ISO 527-2
Mod. of elasticity in tension	4.3	GPa	ISO 527-2
Elongation at break	2	%	ISO 527-2
Flexural strength	110	MPa	ISO 178
Mod. of elasticity in bending	4.3	GPa	ISO 178
Elongation in flex	2.6	%	ISO 178
Impact res. - unnotched sp.	10	kJ/m <sup>2</sup>	ISO 179
Heat deflection temp. (HDT)	63	°C	ISO 75-A
Glass transition temp. (Tg)	93	°C	DIN 53445

### Curing conditions

Mechanical properties determined on resin not containing thixotropic agent.

Cured with 1 ml MEKP-HA 2 (Peroxid-Chemie GmbH) and 0.2 ml Co-oc. solution (1% Co in styrene). Cured 24 h at room temperature and 24 h at 80 °C.

### Graph showing reduced styrene emission versus standard resins



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### Processing

Palatal U 541TV-03 contains barrier-forming agents to reduce emission of styrene. These agents may reduce the bonding strength of overlaminates. Good strength can be obtained with overlamination of the base laminate within 24 hours, if the surface is not too resin rich. In other cases, the surface might need sanding.

Palatal U 541 TV-03 normally exhibits tack-free cure. Nevertheless the surface may not be cured wholly. To ensure complete cure of surfaces exposed to air, suitable additives (e.g. a paraffin solution) should be added.

The final state of cure may be optimized by post-curing at elevated temperatures (e.g. 80 °C) for several hours.

### Guidelines before use

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

### 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.

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