Product data

Synolite 2503-U-1

Chemical/physical nature
Synolite 2503-U-1 is an unsaturated polyester based on orthophthalic anhydride, dissolved in styrene. It has a high viscosity and high reactivity. The resin is pre-accelerated with polymeric amines.

Major applications
Synolite 2503-U-1 is a binder for highly filled knifing fillers and stoppers for marble and stone. This resin has been tailored to give excellent colour after curing, and yields pale hard polymers. Fillers based on Synolite 2503-U-1 cure fully both applied in thick and thin coats and castings. This resin is cold-curing, even around 0°C.

Principal properties
Synolite 2503-U-1 gives rapid hardening, also at lower temperatures and in thin layers. An optimal surface dryness is rapidly obtained during the curing of the resin. This putty resin gives excellent wetting of fillers, and putty storage stability is very good. The resin exhibits very good adhesion to marble, stone, polyester, and metal substrates.

Product specifications

Property	Range	Unit	TM
Appearance	clear yellow	-	2265
Colour, Gardner	4 - 6	G	2017
Acid value, as such	8.0 - 12.0	mg KOH/g	2401
Viscosity, Z3/ 100 s-1/ 23°C	2000 - 2400	mPa.s	2013
Solids content, IR	70.0 - 72.0	%	2033
Gel time from 25 to 35°C	8.0 - 10.0	minutes	2625
Cure time from 25°C to peak	10.0 - 14.0	minutes	2625
Peak temperature	120 - 135	°C	2625

Remarks
The curing characteristics are obtained using 2 wt% BPO-50% Lucidol CH50L (AKZO Nobel).

Properties of the liquid resin (typical values)

Property	Value	Unit	TM
Flash point	33	°C	2800
Stability, no init., dark, 25°C	min. 6	months	-

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

Properties of cast unfilled resin (typical values)

Property	Value	Unit	TM
Tensile strength	80	MPa	ISO 527-2
Tensile E-modulus	3.6	GPa	ISO 527-2
Elongation at break	4.2	%	ISO 527-2
Flexural strength	150	MPa	ISO 178
Flexural E-Modulus	4.0	GPa	ISO 178
Heat Deflection Temp. (HDT)	85	°C	ISO 75-A
Impact res. - unnotched sp.	15	kJ/m²	ISO 179
Hardness	47	Barcol	2604

Remarks
Casting (4 mm) cured with 2 wt% BPO-50% Lucidol CH50L (AKZO Nobel). Postcure 24h 60°C, 24h 80°C.

Formulation
Suitable extenders are talc, dolomite/calcite, crystalline chalk and barytes with a low iron content. Talc is applied as the main component because it improves sanding properties, and the adhesion to the substrate. In addition, the more spherical extenders such as dolomite, chalk and barites ensure dense packing.

Processing
This pre-accelerated unsaturated polyester resin cures by the addition of benzoyl peroxide (BPO), without the application of external heat. For a two-pot system, Palatal P 51-01 can be applied as a BPO-carrier:

Synolite 2503-U-1	50 parts by weight
Palatal P 51-01 + BPO-50%	50 parts by weight

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.

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. 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 for the product is available on request.

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Head office: DSM Resins bv - P.O. Box 615 - 8000 AP Zwolle - The Netherlands
Tel. (+31) (0)38 - 4569569 - Fax. (+31) (0)38 - 4569500 - Internet site: www.dsmresins.nl