Product data

Synolite 5001-T-1

Chemical/physical nature
Synolite 5001-T-1 is a DCPD based, thixotropic, non-halogenated, non-pre-accelerated unsaturated polyester resin.

Major applications
Forms part of a filled fire retardant resin system suitable for use in hand lay-up, cold-press moulding, resin transfer moulding, centrifugal casting and pultrusion.

Principal properties
The system is highly fire retardant with low smoke emission. Finished parts have superior dimensional stability and electrical resistance properties. It is pigmentable in a full range of colours (including white & pastel shades).

Approvals
NFP-92-501 M1
NFF-16-101 F0
DIN 4102 B1 (3-4mm)
BS 476 Parts 6 and 7 Class 1/ 0
(all the above based on 5001-T-1 + 300 phr of alumina trihydrate).

Product specifications

Property	Range	Unit	TM
Gel time	23 – 31	minutes	2247
Appearance	sl.hazy	-	2265
Stability	75 minimum	minutes	2303B
Shear thinning index	3.0 – 4.0	-	2314
Viscosity, Brookfield	90 - 120	mPa.s	4505

Remarks
Viscosity measurement: 25°C, spindle 2, speed 60 rpm
Appearance: Amber resin, free from contamination
Shear thinning index: 25°C, spindle 2, speed 6/60
Gel time (TM 2247):
25°C, 1% 5002-M-2, 1.5% Butanox M50

Properties of the liquid resin (typical values)

Property	Value	Unit	TM
Density, 23°C	1080	kg/m³	2160
Flash point	12	°C	2800
Stability, no init., dark, 25°C	3	Month	-

Properties of glass reinforced resin (typical values)

Property	Value	Unit	TM
Tensile strength	51.3	MPa	ISO 527-2
Tensile E-modulus	19.2	GPa	ISO 527-2
Elongation at break	0.45	%	ISO 527-2
Compressive strength	166.9	MPa	ISO 604
Compressive strength at 90º to plane of reinforcement	162.8	MPa	ISO 604
Hardness	63	Barcol	2604
Limited Oxygen Index (LOI)	100	%	-
Temperature index	365	deg C	BS 6853
Three metre cube test, A1 (ON)	1.95		BS 6853
Three metre cube test, A0 (OFF)	2.66		BS 6853
NBS smoke chamber, max specific optical density, smouldering	45		BS 6401
NBS smoke chamber, max specific optical density, flaming	32		BS 6401
Comparative tracking index	600	V	BS 5901
Volume resistivity	2.0 e+14	Ohm.cm	BS 6233
Surface resistivity	8.6 e+13	Ohm.cm	BS 6233

Curing conditions
Filled system to glass ratio 8:1 by weight.
Filled system based on 300 phr of alumina trihydrate.

Properties of cast filled resin (typical values)

Property	Value	Unit	TM
Arc erosion	831	s	BS 4145

Typical starting formulation for 5001-T-1 filled system

Components	Weight
Synolite 5001-T-1	100.00
Synolite 5002-M-2	2.00
Byk-W995	2.50
Martinal ON-921	300.00
MEKP HA-2	2.00

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Processing
Density of filled system at 25ºC: 2080 kg/m3

Guidelines before use
Ensure that the 5001-T-1 is well mixed before using. Add the 5002-M-2 accelerator and Byk W-995 wetting and dispersing additive prior to adding alumina trihydrate.

Storage guidelines
Synolite 5001-T-1 should be stored in a cool well ventilated area away from direct sunlight and potential sources of ignition.
Synolite 5002-M-2 should be stored in a cool dry secure area away from peroxide initiators. It must never be allowed to mix directly with organic peroxide initiators.
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.
With DCPD resins there is a tendency for skin formation if exposed to air. Whilst products are formulated to reduce this characteristic, exposure to air and ventilation in bulk storage facilities should be minimised.

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.

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