



TECHNICAL DATA SHEET

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HIGH PERFORMANCE LLOYDS APPROVED LAMINATING POLYESTER RESIN

DESCRIPTION

The new NCS range of PET (polyethylene terephthalate) products is based on INNOVATIVE hybrid green technology and designed to offer better VALUE.

NCS 103 is a PET based resin and this eco-friendly technology contributes to sustainable development to conserve our environment. NCS 103 is a product under the Earthkind platform.

NCS 103 is a rigid, medium reactivity, non-accelerated, thixotropic, unsaturated polyester resin. The product is the premium PET resin with good liquid colour consistency.

APPLICATION

NCS 103 is designed for hand lay-up and spray applications. This resin is ideal for use in marine applications, automotive components and general industrial mouldings. Each user must determine the suitability of this product to their particular mode of operation and intended end use application.

FEATURES & BENEFITS

- Low viscosity
- Thixotropic
- Non-air-inhibited
- Non-accelerated
- High heat Distortion Temperature
- Excellent glass fibre wet-out
- Minimal drainage
- Cures to a tack-free finish
- Allows for a variation in gel times by altering accelerator levels according to temperature.
- Good heat resistance

OTHER VERSIONS

NCS 102 PA
NCS 103 PA

Coloured pre-accelerated version
Clear pre-accelerated

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TYPICAL PROPERTIES

LIQUID PROPERTIES AT 25°C

PROPERTY	UNIT	SPECIFICATION
Relative density		1.10 – 1.12
Viscosity	mPa.s	400 – 600
Acid value	Mg KOH/g	< 27
Volatile content	%	43 – 46
Geltime: 1phr ACA34 + 1 phr* BUTANOX M50	minutes	40 – 50
Liquid appearance	visual	Opaque
Stability in the dark	months	6 minimum
*phr = parts per hundred resin, by mass		

PHYSICAL PROPERTIES

NON-REINFORCED RESIN PROPERTIES (unfilled castings)

Prepared, post-cured and tested in accordance with SABS 713-1974, as amended

PROPERTY	UNIT	SPECIFICATION
Temperature of deflection - under load (1,80 MPa)	°C	85 ± 5
Barcol (GYZJ 934-1) hardness	BHU	35 ± 5
Tensile strength	MPa	45 ± 5
Tensile modulus	MPa	3500 ± 10%
Flexural strength	MPa	62 ± 10
Flexural modulus	MPa	2400 ± 10%

CURING CHARACTERISTICS

NCS 103 needs the addition of Accelerator NCS Ultracure ACA34 prior to the addition of catalyst, to start the curing reaction. The resin must be allowed to attain workshop temperature (23°C) before being formulated for use. The correct amount of accelerator is therefore added and thoroughly stirred into the resin and then catalyst is added shortly before use.

Ensure that the catalyst is thoroughly dispersed into the well mixed homogenous product to prevent uneven or undercured areas which may lead to product failure.

The ambient temperature and the amount of accelerator & catalyst control the geltime of the resin formulation. This can be approximately determined from the table below which shows the geltime of 100 parts by mass of NCS 103 and the required level of NCS Ultracure ACA34, containing 1phr Butanox M50.

Curing should not be carried out at temperatures below 15°C. Ideally, the catalyst level should range between 1 and 2 phr.

GELTIME TABLE

Temperature (°C)	NCS Ultracure ACA34 (phr)	Catalyst: Butanox M50 (phr)	Gel time (minutes)
15	2	1	44.2
20	1.5	1	43.5
25	1	1	45.2
30	0.8	1	46.4
35	0.6	1	47.8

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PIGMENTS & FILLERS

NCS 103 can be pigmented by the addition of up to 5% NCS POLYCHROME PIGMENT PASTE, but lower quantities are preferred if the physical properties of the cured laminate are to be maintained. Customers need to test and verify that the final colour is acceptable prior to use.

The addition of fillers to NCS 103 is likely to change the hardening characteristics of the resin and will affect the properties of the laminate. Fillers should be accurately checked for moisture content and effect on geltime and cure rate before use.

Many satisfactory laminates can be made from NCS 103 by curing at ambient temperature (but not less than 15°C). When optimum properties and long-term performance are required however, the laminate should be post-cured.

STORAGE & HANDLING

To ensure maximum stability and maintain optimum properties, polyester resin should be stored in closed containers, maintained below 25°C and away from heat sources and sunlight. All storage should conform to local fire and building codes. Drum stock should be kept to a reasonable minimum with first-in, first-out stock rotation.

Where bung-in-head containers are stored outside, it is recommended that these be stored in a horizontal position to avoid the ingress of water.

PRODUCT SAFETY

A Safety Data Sheet is available from your NCS representative. Make certain that you obtain a copy of this guide to the safe handling of unsaturated polyester resins and resin systems.

Warning: Care must be taken to avoid direct mixing of any organic peroxide (catalyst) with metal soaps, amine or any other polymerisation accelerator or promoter, as violent decomposition will result!

PLEASE READ AND UNDERSTAND THE SAFETY DATA SHEET BEFORE WORKING WITH THIS PRODUCT

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