Technical Information

NCS
217 PA 30

NDS019/504

WAX FREE
GENERAL-PURPOSE
POLYESTER RESIN

DESCRIPTION

NCS 217 PA 30 is a rigid, medium reactivity, thixotropic, orthophthalic, unsaturated polyester resin. The resin is preaccelerated and of medium cure rate and does not contain wax.

NCS 217 PA 30 is designed for hand lay-up and spray applications. This resin is ideal for use in marine applications, automotive components and general industrial mouldings.

FEATURES	BENEFITS
Low viscosity	Excellent glassfibre wet-out
Thixotropic	Minimal drainage
Air-inhibited	Excellent interlaminar adhesion
Specially promoted	Predictable geltime and cure rate
Heat distortion temperature above 80°C	Good heat resistance
Good colour	Readily pigmentable

RELATED RESINS

NCS 217 PA	Short geltime version
NCS 901PA	Non air-inhibited version

TYPICAL LIQUID PROPERTIES

PROPERTY	SPECIFICATION	NCS TEST METHOD
Relative density 25°C/25°C	1,09 - 1,11	14
Viscosity @ 25°C, mPa.s	550 - 650	5.2
Thixotropic index, ratio	2.2 – 3.0	
Acid value, mg KOH/g	19.5 – 24.5	13
Volatile content, %	43 - 46	7
Geltime @ 25°C, 2 phr* BUTANOX M50, minutes	28 - 32	8
Liquid appearance	Slightly Pink	2
Stability in the dark @ 25°C, months	6 minimum	4.1
*phr = parts per hundred resin, by mass		

CURING CHARACTERISTICS

NCS 217 PA 30 needs only 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 catalyst is therefore added and thoroughly stirred into the resin shortly before use.

The ambient temperature and the amount of 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 217 PA 30, containing 1 to 2 phr BUTANOX M50

Parts of BUTANOX M50 to 100 Parts NCS 217 PA 30	Geltime @ 25°C Minutes
1,0	75
1,5	45
2,0	30

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

NCS 217 PA, cures very rapidly and the surface may become tack-free after a few hours. The resin does NOT contain any wax and if left overnight, a simple styrene wipe is all that is required to ensure good secondary bonding and interlaminar adhesion.

POST-CURING

Many satisfactory laminates can be made from NCS 217 PA 30 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.

After release from the mould, laminates should be allowed to mature for 24 hours at workshop temperature (23°C). They should then be post-cured for 3 hours at 80°C, although a longer period at a lower temperature will give almost the same result. The post-cure is most effective if it is carried out immediately after the 24 hour maturing period.

PIGMENTS AND FILLERS

NCS 217 PA 30 can be pigmented by the addition of up to 5% NCS POLYCHROME PIGMENT PASTE, but lower quantities consistent with achieving adequate hiding power are preferred if the physical properties of the cured laminate are to be maintained.

The addition of fillers to NCS 217 PA 30 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.

TYPICAL PHYSICAL PROPERTIES

Typical Properties of Cured NCS 217 PA 30(unfilled casting)
Prepared, post-cured and tested in accordance with SABS 713-1974, as amended**

Temperature of deflection - under load (1,80 MPa), °C	90
Water absorption:	
a) Increase in mass after 28 days immersion, mg	100
b) Loss in mass after drying, mg	45
Barcol (GYZJ 934-1) hardness	45
Tensile strength, MPa	76
Flexural strength, MPa	84
Flexural modulus, MPa	3 930
Compressive strength, MPa	152

Typical Properties of Cured NCS 217 PA 30 Standard Glass Cloth Laminate Prepared, post-cured and tested in accordance with SABS 713-1974 ,as amended**

Glass content, % m/m	60-65
Flexural strength:	
a) At 23°C - original, MPa	600
b) At temperature of deflection - after ageing, MPa	500

** Reference to SABS test methods is not intended to imply that the product carries the SABS mark, or that samples have been tested and approved by the South African Bureau of Standards.

STORAGE AND 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.

STANDARD PACKAGE

Non-returnable metal drums.
Bulk supplies can be delivered by road tanker.

MATERIAL SAFETY DATA SHEET

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

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

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!

NCS RESINS BRANCHES AT:

JOHANNESBURG / DURBAN / CAPE TOWN / PORT ELIZABETH