

CRYSTIC[®] 2-446PA – 45

Low Styrene Emission Polyester Resin

Introduction

Crystic 2-446PA – 45 is a pre-accelerated, thixotropic, orthophthalic resin with low styrene emission. It's viscosity profile makes it particularly suited to both spray up and hand lay up processes. It has been extra stabilised for use in tropical climates. Crystic 2-446PA – 45 exhibits a low exotherm and fast hardening rate which makes it ideal for applications which require a fast mould turn around. During application and cure, Crystic 2-446PA – 45 emits considerably less styrene compared to standard polyester resins. This reduction in styrene emission is achieved with no loss of interlaminar adhesion. Crystic 2-446PA – 45 is recommended for marine, transport, industrial and general purpose applications.

A longer open time variant of Crystic 2-446PA – 45 is also available called Crystic 2-446PA – 70, which has all the same benefits. The information in this data sheet applies to both variants.

Approvals

Crystic 2-446PA is approved by Lloyd's register of shipping for use in the construction of craft under their survey.

Product Characteristics

Formulation

Crystic 2-446PA – 45 should be allowed to attain workshop temperature (18°C - 25°C) before use. It requires only the addition of a catalyst to start the curing reaction. The recommended catalyst is MEKP (50%), which should be added at 1% - 2% into the resin. The catalyst should be thoroughly incorporated into the resin, using a low shear mechanical stirrer where possible.

N.B Catalyst and accelerator must not be mixed directly together since they can react with explosive violence.

Additives

Crystic 2-446PA – 45 may be pigmented by the addition of up to 5% of Crystic Pigment Paste. The addition of certain pigments, fillers or extra styrene may adversely affect the food taint, toxicity and chemical resistant properties of laminates so, for critical applications, customers should satisfy themselves that any additions made will give the performance required.

Typical Properties

The following table gives typical properties of Crystic 2-446PA when tested in accordance with BS 2782.

Typical Liquid Resin Properties	Unit	2-446PA - 45	2-446PA - 70
Appearance	-	Bluish	Bluish
Viscosity, ICI Cone & Plate, 25°C	poise	2.3	2.3
Viscosity, Brookfield SP3 at 60RPM, 25°C	mPa.s	850	850
Specific Gravity	-	1.10	1.10
Volatile Content	%	42	42
Acid Value	mg KOH/g	19	19
Geltime, 1.5% Butanox M50, 25°C	minutes	35	70
Geltime, 1.5% Butanox M50, 35°C	minutes		27
Stability from date of manufacture when stored in accordance with storage recommendations	months	6	6

Typical Cast Resin Properties*	Unit	2-446PA – 45	2-446PA – 70
Barcol Hardness	-	45	45
Water Absorption	mg	14	14
Deflection Temperature under load † (1.80 MPa)	°C	62	62
Tensile Modulus	GPa	3.7	3.7
Tensile Strength	MPa	54	54
Tensile Elongation at break	%	1.7	1.7

* Curing schedule – 24 hrs at 20°C + 3 hrs at 80°C

† Curing schedule – 24 hrs at 20°C + 5 hrs at 80°C + 3 hrs at 120°C

Post Curing

Satisfactory laminates for many applications can be made from Crystic 2-446PA - 45 by curing at workshop temperature (18-25°C). For optimum properties and long-term performance, however, laminates should be post cured before being put into service. The laminate should be allowed to cure for 24 hours at 20°C, and then be oven cured for 3 hours at 80°C, or 16 hours at 40°C.

Storage

Crystic 2-446PA – 45 should be stored between 5°C and 25°C in the original, unopened container in a dry, well-ventilated place. Protect from freezing and direct sunlight. Avoid contact with oxidising agents. If stored outside of these recommendations, shelf life will be significantly reduced.

Packaging

Crystic 2-446PA – 45 are supplied in packaged containers and bulk.

Health and Safety

Please see separate Material Safety Data Sheets

Version: Crystic_2-446PA – 45_resin_EN_May22
Group tech class: R20510

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