

CRYSTIC 272

High performance isophthalic resin

Introduction

Crystic 272 is isophthalic polyester resin. The outstanding wetting characteristics of the resin make it particularly suitable for use with continuous roving, carbon fibre and Kevlar.

Applications

Crystic 272 is recommended for use in high performance applications using filament winding, pultrusion, centrifugal, or contact moulding methods.

Features and Benefits

Fully cured laminates made with Crystic 272 have high mechanical strength and excellent strength retention in wet environments, at temperatures up to 60°C.

Approvals

Crystic 272 is approved by Lloyd's Register of Shipping for use in the construction of craft under its survey. It also has approval from the Water Regulation Advisory Scheme for use in contact with potable water.

Formulation

Crystic 272 can be used in hot, heat-assisted and cold curing formulations by using the following, recommended catalyst systems.

- Catalyst Powder B (or Lucidol CH50) for hot curing.
- Catalyst Powder B (or Lucidol CH50) and Cumene Hydroperoxide (80%) for heat- assisted curing.
- Catalyst M (or Butanox M50), or Catalyst O (or Interlox SA3) for cold curing.

Hot Curing

Catalyst Powder B should be added at 2% and thoroughly dispersed in the resin. The catalysed mix will remain usable for approximately 5 days at workshop temperature (18°C-20°C). Cure will take place between 80°C and 140°C, but for most applications, 120°C will be satisfactory. Approximate setting times are shown in the table below.

Temperature	Setting Time in Minutes
80°C	8
100°C	4
120°C	2

Heat-Assisted Curing

Catalyst Powder B and Cumene Hydroperoxide should be added at 1% and thoroughly dispersed in the resin. Shortly before use, the correct amount (1% - 4%) of Accelerator E should be stirred into the resin. This mix will remain usable at workshop temperature (18°C -20°C) for 6 to 24 hours. Gelation will take place at 60°C and above, making this formulation particularly suitable for winding and drawing applications, which require a long pot life.

Cold Curing

Crystic 272 should be allowed to attain workshop temperature (18°C - 25°C) before use. It requires the addition of a catalyst and an accelerator to start the curing reaction. The recommended catalyst is Catalyst M (or Butanox M50), which should be added at 2% into the resin. The catalyst must be thoroughly dispersed and the resin mix will remain usable for approximately 8 hours at workshop temperature (18°C - 20°C). Shortly before use, the correct amount of Accelerator E should be stirred into the catalysed resin.

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

The geltime of Crystic 272 can be approximately determined from the table below.

Pot Life

Parts of Accelerator E to 100 Parts Resin Catalysed with 2% Catalyst M (or Butanox M50)	1.0	2.0	3.0	4.0
Pot life in Minutes at 15°C	35	21	15	12
Pot life in Minutes at 20°C	25	16	12	9
Pot life in Minutes at 25°C	14	12	10	8

The resin and the workshop should be at, or above, 15°C before curing is carried out.

Additives

Crystic 272 may be pigmented by the addition of up to 5% Crystic Pigment Paste. The addition of certain pigments, fillers or extra styrene may adversely affect the food taint, toxicity and chemical resistant properties of Crystic 272. Customers should therefore satisfy themselves that any additions made would give the performance required.

Chemical Resistance

Performance figures for fully cured Crystic 272 laminates, in more than 200 chemical environments, are shown in the current edition, of the Scott Bader "Safe Chemical Containment" brochure.

Typical Properties

The following tables give typical properties of Crystic 272 when tested in accordance with appropriate EN, BS EN, or BS EN ISO test methods.

Appearance		Clear yellowish
Viscosity at 25°C: 37.35 sec-1	poise	3.5
Specific Gravity at 25°C		1.10
Volatile Content	%	41
Acid Value	mg KOH/g	18
Stability at 20°C	months	6
Geltime at 25°C	minutes	8

100g resin + 4% Accelerator E + 2% MEKP 50%

Storage

Crystic 272 TPA 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 272 TPA is supplied in 225 kg drums, 1100 kg containers or in bulk by road tanker.

Health and Safety

Please see separate Safety Data Sheet.

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SCOTT BADER d.o.o.

CROATIA , 10000 ZAGREB, Radnička cesta 173i

tel.: +385 1 2406-440

fax: +385 1 2404-573; +385 1 2404-926

e-mail: info@scottbader.hr

