

CRYSTIC® 272E (G)

High Performance Isophthalic Resin for Tropical Climates

Introduction

Crystic® 272E (G) is an isophthalic resin specifically developed to have good stability and handling characteristics for use in tropical climates. Fully cured laminates made with Crystic® 272E (G) have excellent mechanical properties and outstanding strength retention in wet environments. The high performance of Crystic® 272E (G) make it ideal for applications such as pipes and tanks produced using filament winding, extrusion, pultrusion, or contact moulding methods. Crystic® 272E (G) is also suitable for use with carbon fibre and kevlar.

Approvals

Crystic® 272E (G) is approved by Lloyd's register of shipping for use in the construction of craft under their survey.

Crystic® 272E (G) is approved by Water Regulations Advisory Scheme (WRAS) for contact with potable water.

Product Characteristics

Formulation

Crystic® 272E (G) should be allowed to attain workshop temperature (20 – 25°C) before use. It requires the addition of a catalyst and an accelerator to start the curing reaction. The recommended accelerator is Crystic® Accelerator G which should be added to the resin at 1 – 2%. The recommended catalyst is Catalyst M (or Butanox M50), which should also be added at 1 – 2% into the resin. The catalyst and accelerator should be thoroughly incorporated into the resin one at a time, 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® 272E (G) 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® 272E (G) when tested in accordance with BS 2782.

Typical Liquid Resin Properties	Unit	Crystic® 272E (G)
Appearance	-	Clear, Pale
Viscosity, Brookfield SP3 at 60RPM, 25°C	mPa.s	500
Volatile Content	%	40
Acid Value	mg KOH/g	12.5
Geltime, 1.5% Accelerator G + 1.5% Butanox M50, 25°C	minutes	12
Stability from date of manufacture when stored in accordance with storage recommendations	months	9

Typical Cast Resin Properties*	Unit	Crystic® 272E (G)
Barcol Hardness	-	42
Water Absorption, 24 hours, 23°C	mg	18
Deflection Temperature under load † (1.80 MPa)	°C	80
Glass Transition Temperature	°C	90
Tensile Modulus	GPa	3.6
Tensile stress	MPa	79
Tensile Elongation at break	%	4.0
Flexural Modulus	GPa	3.6
Flexural stress	MPa	130

* Curing Schedule: 24 hours at 20°C + 3 hours at 80°C

† Curing Schedule: 24 hours at 20°C + 5 hours at 80°C + 3 hours at 120°C

Post Curing

Satisfactory laminates for many applications can be made from Crystic® 272E (G) by curing at workshop temperature (20°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.

Mouldings which are to be used in contact with foodstuffs must be post cured for 3 hours at 85°C. They must then be thoroughly wet steam cleaned for at least 1 hour before being put into use. If wet steam cleaning is not practical and the moulding is a vessel of suitable shape. It should be filled with hot water (60 – 80°C) containing a non-perfumed detergent and left to stand for 2 hours. It should then be emptied and thoroughly washed several times in successive batches of clean hot water. These precautions are essential to avoid tainting of foodstuffs.

Storage

Crystic® 272E (G) 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® 272E (G) is supplied in 225kg, 1000kg and bulk containers.

Health and Safety

Please see separate Material Safety Data Sheets

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