

Crystic® D3846SA

Isophthalic resin for pipe relining

Introduction

Crystic D3846SA is a thixotropic, non accelerated, isophthalic unsaturated polyester resin with low exotherm.

Application

Crystic D3846SA has been specially developed for the production of liners to be used in the pipe relining (CIPP or Cured-In-Place-Pipe) industry. Fully cured laminates offer high chemical resistance and mechanical properties, together with excellent long term property retention.

Features and Benefits

Features	Benefits
High HDT.....	Excellent mechanical properties
High molecular weight.....	Excellent resistance to water ingress
High elongation.....	Excellent impact resistance
Low exotherm.....	Prevents distortion of heat sensitive plastic liner

Variants

Crystic D3846SA is also available as a high viscosity version, Crystic D3846SAHV.

Chemical Resistance

Crystic D3846SA has equivalent chemical resistance to Crystic® 272 or Crystic® 491PA. These resins have been evaluated in contact with many commonly encountered chemical environments. Maximum safe exposure temperatures for these are given in Scott Bader's "Safe Chemical Containment" brochure. Alternatively, contact our technical service department.

Formulation

The following formulation is recommended for hot curing (80 – 85°C):

Crystic D3846SA	100 parts
Perkadox® 16 or equivalent (di-(4-tert-butyl-cyclohexyl)peroxydicarbonate)	0.5 parts
Trigonox® 42S or equivalent (tert-butylperoxyisobutanoate)	0.5 parts

The following formulation is recommended for cold curing (25°C) but can be used in conjunction with heat curing:

Crystic D3846SA	100 parts
BP75W or equivalent (75% dibenzoyl peroxide powder, water damped)	1-3 parts
Crystic Accelerator D (10% dimethylaniline in styrene)	1-3 parts

Perkadox and Trigonox are trademarks of AKZO Chemie.

Geltime

The ambient temperature, the quantity and the type of catalyst will control the gel time of the resin. The geltime of Crystic D3846SA with the formulation described above at 82°C is 30 to 60 seconds. Geltimes ranging from 10 minutes to 3hrs can be obtained by adjusting the amounts and ratios of BP75W to Crystic Accelerator D. Users are advised to carry out their own trials before use.

Additives

Since certain pigments, fillers or extra styrene may affect the properties of Crystic D3846SA their effect should be evaluated before addition to the formulation.

Typical Properties

Table 1: Typical properties of liquid Crystic D3846SA.

Property	Units	Nominal value	
		Crystic D3846SA	Crystic D3846SAHV
Variant		Crystic D3846SA	Crystic D3846SAHV
Appearance		Cloudy, pale green	
Viscosity @ 25°C Brookfield RVT @ 100rpm	centipoise	570	3400
Thixotropic index	ratio	2.8	3.2
Stability in the dark at 20°C	months	6	6
Geltime @ 25°C using 1% BP75W and 2% Crystic Accelerator D	minutes	45	45

Table 2: Typical properties of Crystic D3846SA fully cured* resin (unfilled casting)

Property	Units	Nominal value
Barcol Hardness (GYZJ 934-1)		45
Deflection Temperature under load † (1.80 MPa)	°C	75
Water Absorption 24hrs @ 23°C	mg	16
Volumetric shrinkage	%	7.5
Flexural strength	MPa	86
Flexural modulus	MPa	3600
Tensile Strength	MPa	75
Tensile Modulus	MPa	3500
Elongation at Break	%	3.8

*Curing schedule - 24hrs @ 20°C, 3hrs @ 80°C

†Curing schedule - 24hrs @ 20°C, 5hrs @ 80°C, 3hrs @ 120°C

Table 3: Mechanical properties of impregnated felt, thickness 3 mm using Crystic D3846SA

		Unfilled Resin	Filled resin 25% Martinal ON 310
Tensile strength	MPa	31	29
Tensile modulus	MPa	3750	4700
Flexural modulus	Mpa	64	54
Flexural modulus	Mpa	2850	3700

Storage

Crystic D3846SA should be stored in the dark in suitable, closed containers. It is recommended that the storage temperature should be less than 20°C where practical, but should not exceed 30°C. Ideally, containers should be opened only immediately prior to use. Where they have to be stored outside, it is recommended that drums be kept in a horizontal position to avoid the possible ingress of water. Wherever possible, containers should be stored under cover. Crystic D3846SA should be continuously stirred to avoid sedimentation during the storage period.

Packaging

Crystic D3846SA is supplied in 25kg kegs, 225kg drums, and 1125kg intermediate bulk containers. Bulk supplies can be delivered by road tanker.

Health and Safety

Please see the applicable Material Safety Data Sheets, depending on the curing system used.



Technical Leaflet No 102.22SA
August 2013

Before you use this information, kindly verify that this data sheet is the latest version.

All information is given in good faith but without warranty. We cannot accept responsibility or liability for any damage, loss or patent infringement resulting from the use of this information.

SCOTT BADER COMPANY LIMITED

Scott Bader (Pty) Ltd
Reg. No. 93/00466/07
1 Lubex Road,
Hammarisdale
P.O. Box 1539, Hillcrest,
3650. South Africa
Tel: +27 (0) 31 736 8500
Fax: +27 (0) 31 736 8511

Gauteng
Broadacres Business
Centre
Cnr Cedar Rd and 3rd
Ave
Broadacres, Sandton
Tel: (011) 064 5673

KwaZulu Natal
1 Lubex Road,
Hammarisdale
Tel: (031) 736 8500

Eastern Cape
Freightpak Building
Chevrolet St
Markman Industrial
Port Elizabeth
Tel: (041) 409 783

Western Cape
Unit 4B
Tyger Lake
Niagara Way
Tyger Valley
Cape Town
Tel: (021) 914 6011

