CRYSTIC 197M (F)

High Performance Pipe Grade Resin

Introduction

Crystic 197M (F) is an unsaturated polyester resin with very high mechanical properties.

Applications

Crystic 197M (F) was developed for high performance applications such as pipes, tanks and ducting. It is a versatile resin suitable for making pipes by filament winding, centrifugal moulding or contact moulding processes.

Features & Benefits

The resin is designed to have faster cure characteristics to facilitate quicker production line speeds while making pipes by using continuous filament winding.

Crystic 197M has outstanding wetting characteristics with a range of reinforcements and is particularly suitable for use with continuous rovings. Fully cured mouldings made with **Crystic 197M (F)** have high mechanical strength and excellent toughness.

Approvals

Crystic 197M is approved by Water Regulation Advisory Scheme (WRAS) for continuous contact with potable water up.

Product Characteristics

These resins require the addition of accelerator and catalyst to start the curing reaction. The accelerator must first be thoroughly dispersed in the resin. Shortly before use, the correct amount of catalyst should be added and thoroughly stirred into the accelerated resin. When catalyst is added to resin, which has been accelerated for several days, the gel time may be longer than that of freshly accelerated resin.

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

POST CURING

Satisfactory laminates for many applications can be made with **Crystic 197M (F)** by curing at workshop temperature (25°C). However, for optimum water and heat resistant properties, heat assisted and cold cured laminates must be post cured before being put into service. Mouldings should be allowed to cure for 24 hours at 25°C and then be oven cured for 3 hours at 80°C. Post curing is not normally necessary for heat cured laminates provided that the moulding cycle is adequate.

TYPICAL PROPERTIES

The following tables give typical properties of **Crystic 197M (F)** when tested in accordance with BS 2782.

Name	Meas U/M	Range value
APPEARANCE	_	CLEAR, PALE STRAW BIT FREE
GT:100g Resin+1 gm Co(1%)+1.1 gm M50	Minutes	13 – 18
REACTIVITY PEAK EXOTHERM (CUP)	°C	170 - 200
CURE TIME (CUP)	Minutes	20 - 27
SOLIDS 1HOUR @ 150°C	%	55 - 60
VISC-BF-LVT SP3 , 60RPM @ 25C	mPa.s	300 - 350
AV- ON RESIN AS SUPPLIED	mgKOH/g	< 20

Property		Fully Cured* Resin (unfilled casting)
Barcol hardness (Model GYZJ 934 -1)		42
Deflection temperature under Load † (1.80 Mpa)	°C	82
Tensile strength	MPa	81
Tensile modulus	MPa	3880
Elongation at break	%	3.5

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

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

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Storage

Crystic 197M (F) should be stored in the dark in suitable closed containers. It is recommended that the storage temperature should be less than 25°C where practical, but should not exceed 30°C. Ideally, containers should be opened only immediately prior to use. The storage shelf life of the product is 6 months from the date of manufacture provided the resin is stored below 25 deg C in dark, cool and well-ventilated place.

Packaging

Crystic 197M (F) is supplied in 225kg steel containers. For transportation purposes, Crystic 197M (F) is Class 3.0 in the IMCO code and UN No1866; ADR No 31 (c). Packing Group 3, Tremcard No 30G35.

Health & Safety

Unsaturated Polyester Resins and Resin Systems

The most important protective measures are :

Correct storage

Stock rotation

Proper workplace ventilation

Local extraction where vapor concentrations may build up or are high

Use of fresh air masks in confined spaces or spray applications

Outside of spray booths

Work place monitoring of vapor concentrations

Good housekeeping

Systematic work routines

Competent personnel

Supervision, training and instruction

Fire precautions

Correct disposal

Points of Precaution

Above certain levels monomer and solvent vapors can be hazardous to health and safety. The safety risks are associated mainly with fire and possible explosions. The risks to health come essentially from the build up of vapors in the

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workplace in excess of certain limits and the limits applicable to the users' country should be determined. In the UK these are known as Occupational Exposure Standard (O.E.S.) and reference should be made to the Guidance Note EH40 from the Health and safety Executive, currently in force and available from HMSO.

The Symptoms

The symptoms of the more common vapors are similar, i.e. dry irritating throat, coughing, drowsiness, headache. Both liquids and vapors may cause skin irritation and dermatitis to susceptible personnel.

What you must do

Correct storage, stock rotation and handling will reduce safety risks. Sensible workshop lay out and systems of work and good general and local ventilation sufficient to control the concentration of vapor below the O.E.S.'s will severely limit or remove the health risks. Both health and safely risks can be substantially reduced by good housekeeping.

Proper procedures and equipment are important regarding respiratory matters especially when spraying is involved. Reference should be made to BS 4275 1974 and BS 4667 Part 3 1974 for guidance in the selection of suitable respiratory protection or to standards appropriate to the user's country.

Contact with the skin must be avoided. Solvent resistant gloves and suitable protective clothing should be worn when handling resin solutions; the solvents have a defatting action that leaves the skin prone to irritation and dermatitis.

General Comment

The products in this leaflet have been used safely for many years where the products have been handled correctly by taking adequate notice of the limiting factors which are presented in more detail in the current edition of our material safety data sheet.

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.

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