

CRYSTIC 4252.4 TEPA V01

High performance low exotherm polyester resin

Introduction

CRYSTIC 4252.4 TEPA V01 is an orthophthalic, pre-accelerated, low styrene emission (L S E) and thixotropic unsaturated polyester resin. It can be used by spray application or for contact moulding when fast mould turn-round or thick laminates are required.

Application

CRYSTIC 4252.4 TEPA V01 has been designed to provide rapid wet out, low exotherm temperature, fast hardening with adequate pot life for spray application and contact moulding. **CRYSTIC 4252.4 TEPA V01** fits particularly well when excellent mechanical performances are required, it can also be used for bonding on acrylic sheets for sanitary use.

Features and Benefits

<i>Features</i>	<i>Benefits</i>
Wetting agents.....	Fast and easy impregnation of the reinforcement
Rapid hardening.....	Fast mould turn – round
Low exotherm pic.....	Production of thick laminates wet on wet
High HDT.....	Very good heat resistance
Low Styrene Emission.....	Better comfort for the workers, lower smell for the neighbourhood

Variants

CRYSTIC 4252.4 TPA V01 is the non low styrene emission (L S E) version, it is available per minimum order of 3.5 tons.

Laminating Techniques

The low exotherm temperature build up of **CRYSTIC 4252.4 TEPA V01** is designed to allow several layers of resin and reinforcement to be applied consecutively, giving a faster production rate and a shorter overall mould turn-round time.

For application when only one a two layers of light weight (300 – 450 g/m²) reinforcement are applied in a working day and a comparatively low exotherm temperature is generated, the hardening rate will be adequate provided that the temperature is within the range 16 – 20°C.

Formulation

The following cold curing formulation is recommended:

CRYSTIC 4252.4 TEPA V01 :	100 parts
Catalyst M :	1 to 3 parts

Gel Time

The ambient temperature, the amount and type of catalyst control gel time of resin formulations. This can be approximately determined from the following table, which shows the gel time of 100 parts in weight of **CRYSTIC 4252.4 TEPA V01** containing 1 to 2 parts in weight of Catalyst M.

Parts of Cat. M for 100 parts of 4252.4 TEPA V01	1	2
Gel time at 20°C (min)	55	25
Gel time at 25°C (min)	35	15

Satisfactory laminate cannot be made from **CRYSTIC 4252.4 TEPA V01** by curing at workshop temperature below 15°C. When longer gel time is required a low reactivity catalyst (Butanox LPT) should be used instead of Catalyst M.

Additives

Since certain pigments, fillers or extra styrene may affect properties of **CRYSTIC 4252.4 TEPA V01** their effect should be evaluated before addition to the formulation.

Post-Curing

For most applications satisfactory result will be obtained by curing at room temperature (20°C). Some improvement in properties may be obtained by post-curing 16 hours at 40°C after release from the mould.

Typical Properties

<i>Liquid Resin :</i>		4252.4 TEPA V01
Viscosity at 25°C (Rhéomat 37,35 sec-1)	Poise	2.5 – 3.5
Specific gravity		1.10
Acid value	mg KOH/g	< 20
Volatil content	%	41 – 45
Aspect		Pink thixo
Stability in dark at 20°C	Months	3
Gel time at 20°C with 100 parts of 4252.4 TEPA V01 2 parts Catalyst M	Min	23 – 25

Cured resin :

Barcol Hardness (Model GYZJ 934-1)		40
Water absorption (24 H at 23°C)	Mg	15
Heat Deflection Temperature (1.80 MPa)	°C	80
Specific gravity		1.2
Tensile strength	Mpa	52
Tensile modulus	Mpa	4000
Volumic shrinkage	%	7

Food Contact

The results of the global and specific migration tests being below the maximum value set by the European Regulation (CEE n° 85/572, 90/128, 93/8) **CRYSTIC 4252.4 TEPA V01** may be used in contact with foodstuff.

Mouldings which are to be used with foodstuffs should be cured with catalyst O or Butanox LA. After release from the mould, laminates should be allowed to mature for 24 hours at workshop temperature (20°C). They should then be post cured for a minimum of 3 hours at 85°C.

The mouldings must be thoroughly wet steam cleaned for at least one hour before being put into service. If wet steam cleaning is not practical, and if the moulding is a vessel, it should be filled with hot water (60-80°C) containing a non perfumed detergent and left to stand for two hours. It should then be emptied thoroughly washed in several batches of clean hot water.

These precautions are essential to avoid the tainting of foodstuffs.

Packaging

CRYSTIC 4252.4 TEPA V01 is supplied in 225 kg or 1000 kg containers. Bulk supplies can be delivered by road tanker.

Storage

CRYSTIC 4252.4 TEPA V01 should be stored under cover in the dark in the container in which it is supplied. Storage temperature should not exceed 20°C.

Health and security

The most important protective measures to be taken with unsaturated resins and resin systems are:

- Correct storage
- Stock rotation
- Adequate workplace ventilation
- Local extraction where vapour
- 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 vapour concentrations
- Good housekeeping
- Systematic work routines
- Competent personnel
- Supervision, training and instruction
- Fire precautions
- Correct disposals

Points of Caution

Monomer and solvent vapour concentrations above certain levels can be hazardous to health and safety. The safety risks are associated essentially with the fire and possible explosions. The risks to health come mainly from the build up of vapours in the workplace in excess of certain limits and the limits applicable to the user's country should be determined.

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

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