CRYSTIC 406 COS

Unsaturated polyester resin for artificial marble

Introduction

CRYSTIC 406 COS is a non thixotropic, non accelerated, orthophtalic unsaturated polyester resin. It contains UV absorbers allowing a very good resistance to yellowing and to UV radiation.

Application

CRYSTIC 406 COS has been designed specially for the production of filled castings and polyester concrete.

Features and Benefits

Features	*Benefits*
Low viscosity……	High filler content
Low shrinkage……	Possibility to cast large mouldings
Fast curing …….……..	Fast mould turn round, high production rate

Formulation

The following cold curing formulation is recommended:

CRYSTIC 406 COS	:	100 parts
Catalyst M	:	1 to 2 parts
Accelerator E	:	4 parts

Catalyst M is a Méthyl Ethyl Kétone Peroxyde at 50% such as the Butanox M 50 from AKZO. Accelerator E is a cobalt octoate with 0,4% active cobalt. Catalyst and accelerator should not be mixed directly together, as they will react with explosive violence.

Gel time

The ambient temperature, the quantity and the type of catalyst will control the gel time of the resin.

Parts of catalyst M for 100 parts of resin accelerated with 4% acc. E	2
Gel time at 20°C in min.	
Gel time at 25°C in min.	5

Curing should not be carried out at temperature below 15°C.

Additives

Since certain pigments, fillers or extra styrene may the affect properties of **CRYSTIC 406 COS** 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

On liquid resin

Viscosity at 25°C Rhéomat at 37,35 sec^{-1}	406 COS	dPas	3.5 – 4.5
Specific gravity at 25°C	406 COS		1.10
Acid index	406 COS	mg KOH/g	19 to 23
Volatil content	406 COS	%	36 to 40
Aspect	406 COS		Clear
Stability in the dark at 20°C	406 COS	month	6
Gel time at 25°C for 100 g of resin + 2g cata. M + 4g acc. E	406 COS	min	4.5 – 5.5

On fully cured resin		*
Barcol hardness (GYZJ 934-1)		46
Water absorption (24h à 23°C)	mg	15
Heat Deflection Temperature under load (1,8 MPa)	°C	65
Specific gravity at 20°C		1,2
Elongation at break	%	2
Tensile strength	MPa	60
Tensile modulus	MPa	3800

Test according to BS 2782 :1980
1MPa = $1MN/m^2$ = $1N/mm^2$ = 10,2 kgf/cm^2
* cured 24 h at 20°C then 3 h à 80°C exept for the HDT where the schedule was 24 h at 20°C then 5 h at 80°C then 3h at 120°C.

Food contact

CRYSTIC ®406 COS is fully approved for being in contact with foodstuff as the global migration and specific migration are inside the limit of the European Directives (CEE n° 85/512 – CE n° 97/48 – CE n° 2002/72)

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Packaging

CRYSTIC ®406 COS is supplied in 225 kg or 1100 kg containers. Bulk supplies can be delivered by road tanker.

Storage

CRYSTIC 406 COS should be stored under cover in the dark in the container in which it is supplied. Storage temperatures 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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