

CRYSTIC 115 NT

General purpose unsaturated polyester resin

Introduction

CRYSTIC 115 NT is a non thixotropic, non accelerated, orthophtalic unsaturated polyester resin.

Application

CRYSTIC 115 NT can be used for the production of filled castings or for reinforced laminates on flat moulds.

Features and Benefits

Features

Low viscosity.....

Rapid hardening.....

Non accelerated.....

Benefits

High filler content

Fast mould turn-round

Total control of the gel time in the workshop

Variants

CRYSTIC 115 is a thixotropic and non accelerated version. Variants are available with a minimum quantity of order.

Formulation

The following cold curing formulation is recommended:

CRYSTIC 115 NT	:	100 parts
Catalyst M	:	1 to 2 parts
Accelerator E	:	1 to 4 parts

Catalyst M is a Méthyl Ethyl Kétoxyde 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 (or 0.27% of a 6% cobalt solution)	1	2
Gel time at 15°C in min.	74	28
Gel time at 20°C in min.	48	19
Gel time at 25°C in min.	30	10

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

Additives

Since certain pigments, fillers or extra styrene may affect properties of **CRYSTIC 115 NT** 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	115	dPas	4 - 5
Rhéomat at 37,35 sec ⁻¹	115 NT		3,3 - 3,9
Specific gravity at 25°C	115 / 115 NT		1.10
Acid index	115 / 115 NT	mg KOH/g	16 - 22
Volatil content	115 115 NT	%	40 - 43 38 - 42
Aspect	115 115NT		thixo clear
Shelf life**	115 / 115 NT	month	9
Gel time at 25°C for 100 g of resin + 2g cata. M + 4g acc. E	115 / 115 NT	min	9 - 11

***From date of manufacture when stored in accordance with recommended storage conditions.*

<i>On fully cured resin</i>		*
Barcol hardness (GYZJ 934-1)		50
Water absorption (24h à 23°C)	mg	14
Heat Deflection Temperature under load (1,8 MPa)	°C	65
Specific gravity at 20°C		1,2
Elongation at break	%	2
Tensile strength	MPa	62
Tensile modulus	MPa	3800

Test according to BS 2782 :1980

1MPa = 1MN/m² = 1N/mm² = 10,2 kgf/cm²

* cured 24 h at 20°C then 3 h à 80°C except for the HDT where the schedule was 24 h at 20°C then 5 h at 80°C then 3h at 120°C.

Packaging

CRYSTIC[®] 115 NT is supplied in 225 kg or 1100 kg containers. Bulk supplies can be delivered by road tanker.

Storage

CRYSTIC[®] 115 NT 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.

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, and headache. Both liquids and vapours may cause skin irritation and dermatitis to susceptible personnel.

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