

# CRYSTIC 3454.4T AC0.1

## Orthophthalic unsaturated polyester resin

### Introduction

CRYSTIC 3454.4T AC0.1 is a thixotropic, accelerated, orthophthalic unsaturated polyester resin. Due to its high HDT it can be considered as a rigid resin.

### Application

CRYSTIC 3454.4T AC0.1 has been designed for Filament Winding application, but can be also used by hand lay up or by spray techniques. Its medium to high reactivity allows a fast curing time even on thin laminates. This resin is suitable for the production of glass reinforced laminates when heat distortion resistance is required. Its high performance makes it particularly suitable for the production of oil tanks and pipes.

### Features and Benefits

Features	Benefits
Low viscosity.....	Rapid and easy impregnation
Rapid hardening.....	Fast mould turn-round
Medium/high reactivity.....	Rapid hardening even on thin laminates
High HDT.....	Resistance to temperature or sun exposure

### Approvals

CRYSTIC 3454.4T AC0.1 and its variants may be used in contact with foodstuffs and also have the SKZ approval for the production of oil tanks.

### Variants

CRYSTIC 3454.4T AC0.1 is also available with a higher accelerator level version under the reference CRYSTIC 3454.4T AC0.2, subject to a minimum order quantity.

### Formulation

The following cold curing formulation is recommended:

CRYSTIC 3454.4T Ac0.1	:	100 parts
Catalyst M	:	1 to 2 parts

Catalyst M is a MEKP at 50% such as the Butanox M 50 from AKZO, or equivalent.

## Gel time

The ambient temperature, the quantity and the type of catalyst and will control the gel time of the resin. The following table shows the gel time in minutes of 100 parts of **CRYSTIC 3454.4 TAc0.1**

Parts of cata. M	1	2
GT at 15°C	44	24
GT at 20°C	31	19
GT at 25°C	27	13

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

## Additives

Since certain pigments, fillers or extra styrene may affect properties of **CRYSTIC 3454.4 TAc0.1** 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	CRYSTIC 3454.4 TAc0.1	dPas	2.5 – 3.5
Rhéomat at 37,35 sec <sup>-1</sup>	CRYSTIC 3454.4 TAc0.2	dPas	2.0 – 2.5
Specific gravity at 25°C			1.10
Acid index		mg KOH/g	20 - 25
Volatil content		%	41 - 45
Aspect			Pink thixo
Stability in the dark at 20°C		month	3
Gel time at 20°C	CRYSTIC 3454.4 TAc0.1	min	20 – 24
for 100 g of resin	CRYSTIC 3454.4 TAc0.2	min	12 - 16
+ 1.5 g cata. M			

### On fully cured resin

Barcol hardness ( GYZJ 934-1)		*	45
Water absorption (24h à 23°C)	mg		15
Heat Deflection Temperature under load (1,8 MPa)	°C		86
Specific gravity at 20°C			1,2
Elongation at break	%		2
Tensile strength	MPa		70
Tensile modulus	MPa		3200

Test according to BS 2782 :1980

1MPa = 1MN/m<sup>2</sup> = 1N/mm<sup>2</sup> = 10,2 kgf/cm<sup>2</sup>

\* 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.

## 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 3454.4T Ac0.1** 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 3454.4T Ac0.1** is supplied in 225 kg or 1100 kg containers. Bulk supplies can be delivered by road tanker.

## Storage

**CRYSTIC 3454.4T Ac0.1** 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

See the specific MSDS

## 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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**A3454.4T Ac0.1 Eng**

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