

# CRAY VALLEY

## COATING RESINS

### TECHNICAL DATA

### SYNOLAC 140

#### SALES SPECIFICATION

Non-volatile content, % @ 150°C (ISO 3251)	94 - 100
Viscosity in CPS at 40°C	3500 - 4000
Colour, Gardner scale (ISO 4630)	≤ 11
Acid value, mg KOH/g (ISO 3682)	NA
Amine value, mg KOH/g ( Perchloric Method)	350 - 400

#### OTHER PROPERTIES

Density at 20°C	0.97
Typical hydrogen Equivalent Weight	95

#### PRODUCT INFORMATION :

**CRAYAMID 140** is a medium viscosity liquid amino polyamide resin used in conjunction with epoxy resins to produce high build coatings and structural and laminating adhesives. It is used where the prime requirement are fast cure and flexibility. It is compatible with many synthetic resins, varnishes , oils and other media.

#### RECOMMENDATIONS FOR USE :

The selection of a particular grade of epoxy will depend upon the end use of the product. It is recommended that for high build coating it is always recommended to use low molecular weight epoxy. In solvent based coatings medium molecular weight and unmodified liquid epoxy resins may be used , while for adhesive applications either the unmodified or modified liquid epoxy resins are recommended. While the mixing ratio using **CRAYAMID** polyamides is not critical, optimum performance of the coating is achieved by stoichiometric mixing of the epoxy resin and **CRAYAMID 140**. The mix ratio is calculated on the basis of one Active Hydrogen Equivalent weight of the polyamide resin, will react with each epoxy group in the base resin. The AHEW of the polyamide resin **CRAYAMID140** is typically 95 on solid resin. Considering that each epoxy reacts with one active hydrogen the mix ratio of **CRAYAMID140** and an epoxy resin 1 with epoxide equivalent approx. 500 is calculated as follows;

Resin	Mass of solid Resin	Mass of Resin Solution
<b>CRAYAMID140</b>	95g	95g
75% Epoxy resin 1	200g	267g

The resulting epoxy:polyamide mix ratio in this case is

approx. 70:30 based on solid resin. Each epoxy reacts with one active hydrogen , the mix ratio of **CRAYAMID140** and an epoxy resin with epoxide equivalent approx. 200 (1) is crayamid 160 : Epoxy Resin = 95g : 200g

The resulting epoxy: polyamide ratio in this case is approx. 65:35 on solid resin. Excess polyamide in a coating will impart flexibility and adhesion at the expense of solvent resistance.

#### CURE RATE:

A 70:30 epoxy resin 2 :**CRAYAMID140 blend** on solid resin will reach a tack free time in 210 mins. At 25°C. Film will obviously dry more rapidly if higher molecular weight epoxy resins are used. An induction period to ensure complete compatibility is recommended. Cure of epoxy::polyamide can be accelerated by the addition of catalysts and in particularly Tris ( dimethylaminomethyl) phenol types which are recommended for use at a level of 1 – 5 % ( calculated by weight on total resin). It should be noted, that when catalysts are employed pot life will be reduced and there may be an adverse effect on flexibility and colour.

#### POTLIFE :

Reaction between the epoxy resin and **CRAYMID 140** will commence as soon as the reactants are mixed . A 70:30 epoxy: **CRAYAMID140** mixture on solid resin will have a limited pot life. Solvents will have a considerable effect on pot life e.g. alcohols tend to reduce it's pot life where as esters and ketones tend to extend it. Since ketones and esters form complexes with amino polyamides on storage , these solvents should only be incorporated into the epoxy resin component.

#### ADHESIVES:

**CRAYAMID 140** : epoxy resin systems demonstrate excellent

adhesion to a wide variety of surfaces , such as glass , wood , ceramics, masonry, leather and plastic substrates. The pot life of a **CRAYAMID 140** : epoxy resin adhesives will cure at ambient temperature but cure time can be reduced by heating to elevated temperature.

NOTES:

1. Araldite GY260 (75%) - Cieba Geigy
2. Unmodified epoxy resin epoxide equivalent 200 Epikote 828 (75%) - shell Chemicals.
3. Epoxy resins epoxide equivalent approx. 500 Araldite 6100 - Cieba Geigy limited.