

# CRAY VALLEY

## COATING RESINS

### TECHNICAL DATA

### CRAYAMID 160

#### SALES SPECIFICATION

|   |           |
|---|-----------|
| Non-volatile content, % @ 150°C<br>(ISO 3251) | 94 - 100  |
| Viscosity in CPS at 25°C                      | 300 - 600 |
| Colour, Gardner scale<br>(ISO 4630)           | ≤ 12      |
| Acid value, mg KOH/g<br>(ISO 3682)            | NA        |
| Amine value, mg KOH/g<br>(HCL Method)         | 350 - 380 |

#### OTHER PROPERTIES

|                                    |                |
|------------------------------------|----------------|
| Density at 20°C                    | 0.95           |
| Flash Point, °c ( Iso 3679)        | 122 ( Typical) |
| Typical hydrogen Equivalent Weight | 95             |

#### PRODUCT INFORMATION :

**CRAYAMID 160** is a low viscosity liquid amino polyamide resin used as a curing agent for epoxy resins. Notable feature of this resins are as follows:

- Very Low Viscosity
- Long Pot life
- Low Shrinkage
- Low exotherm
- Excellent mechanical and electrical properties.
- Excellent self levelling properties.

#### APPLICATION:

**CRAYAMID160** is specifically designed for use with unmodified liquid epoxy resins with an epoxide equivalent of approx.200 (1) in casting, potting, impregnation, adhesives, and solventless coatings. The low viscosity of **CRAYAMID160** helps to prevent air entrapment in coatings and assists impregnation with minimum application of heat or vacuum.

The electrical properties obtained from a **CRAYAMID160**: epoxy resin are outstanding especially with respect to power factor which is very tolerant to temperature variation.

#### RECOMMENDATIONS FOR USE :

While the mixing ratio using **CRAYAMID** polyamides is not critical, optimum performance of the coating is achieved by stoichiometric

Each epoxy reacts with one active hydrogen , the mix ratio of **CRAYAMID160** 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.

|                                      |       |       |       |       |
|--------------------------------------|-------|-------|-------|-------|
| Epoxy : <b>CRAYAMID 160</b><br>ratio | 70:30 | 65:35 | 60:40 | 55:45 |
| Viscosity in CPS at 25°C             | 1800  | 1350  | 1000  | 800   |

#### CURING SCHEDULE:

A 65:35 epoxy resin (1) : **CRAYAMID160** blend on solid resin will cure at ambient temperature, although force drying at up to 50°C is possible. It should be emphasised that curing speed is greatly influenced by the mass of resin involved and the speed with which heat is conducted away. Pot life is similarly affected by temperature and product mass.

#### ACCELERATION OF CURE:

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. More rapid cure may also be obtained by heating at elevated temperatures.

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mixing of the epoxy resin and **CRAYAMID 160**. 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 **CRAYAMID160** is typically 95 on solid resin. Considering that

CRAYAMID160 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.

NOTES: As **CRAYAMID160** is hygroscopic in nature, containers should be kept sealed when not in use.

1. Unmodified epoxy resin epoxide equivalent 200  
Epikote 828 (75%) - shell Chemicals.
2. Araldite GY260 (75%) - Cieba Geigy