

## COATING RESINS

### TECHNICAL DATA

### CRAYAMID 280X

#### SALES SPECIFICATION

Non-volatile content, % @ 150°C (ISO 3251)	73 - 77
Viscosity in CPS at 25°C	20-40
Colour, Gardner scale (ISO 4630)	≤ 11
Acid value, mg KOH/g (ISO 3682)	NA
Amine value, mg KOH/g ( HCL Method)	320 – 355

#### OTHER PROPERTIES

Volatile	Xylene
Flash point, °c (Iso3679 )	24 ( Typical)
Density at 20°c	0.97
Typical hydrogen Equivalent Weight	140

Note: Amine Value relative to solid resin

#### PRODUCT INFORMATION :

**CRAYAMID 280X** is an epoxy – polyamide adduct in which the polyamide is prereacted with a portion of the epoxy resin supplied at 75% solids. This gives the product several advantages over standard polyamides;

- No induction period is required
- Excellent compatibility with solid epoxy resins
- Fast cure rate
- Improved sensitivity to moisture

#### RECOMMENDATIONS FOR USE :

The selection of a particular grade of epoxy will depend upon the end use of the product. **CRAYAMID280X** is recommended to use with epoxy resins having an epoxide equivalent in excess of 425. Epoxy resins having lower molecular weight, compatibility is only achieved after prolonged induction period.

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 **CRAYAMID280X**. 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 **CRAYAMID280X** is typically 140 on solid resin. Considering that each epoxy reacts with one active hydrogen the mix ratio of **CRAYAMID280X** and an epoxy resin with epoxide equivalent approx. 500 (1) is calculated as follows;

esin	Mass of solid Resin	Mass of Resin Solution
<b>CRAYAMID280X</b>	140g	187g
% Epoxy resin (1)	500g	667g

The resulting epoxy:polyamide mix ratio in this case is approx. 80:20 based on solid resin. Excess polyamide in a coating will impart flexibility and adhesion at the expense of solvent resistance. In a similar manner the following ratios can be calculated again on solid resin.

Epoxide Equivalent	<b>CRAYAMID280X</b> : epoxy resin
850-1050 (2)	15 :85
1550 – 2000 (3)	10 :90

#### LOW TEMPERATURE CURE APPLICATION:

**CRAYAMID280X** has improved compatibility and low sensitivity to moisture. These combined advantages significantly reduce the possibility of film defects forming under low temperatures curing conditions.

#### CURE RATE:

Films applied at room temperatures develop full gloss even it applied immediately after mixing. **CRAYAMID280X** has a fast initial cure rate which is normally in the range of 6-8 hrs. at room temperature. 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 :

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

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storage , these solvents should only be incorporated into the epoxy resin component.

#### TOXICITY:

**CRAYAMID 280X** is approved as an epoxy curing agent for coatings on metallic, papers, and paperboard substrates provided it is used with other approved materials and in keeping with good manufacturing practice.

#### NOTES:

1. Epikote 1001 - Shell Chemical
2. Epikote 1004 - Shell Chemical
3. STET - Shell Chemical