CRAYAMID®

TECHNICAL DATA SHEET

CRAYAMID® 115

Reactive polyamide

PRODUCT APPLICATION DETAILS

CRAYAMID® 115 is a viscous general purpose amino polyamide resin. It can be used in conjunction with suitable epoxy resins to produce both top coats and primers as well as thermosetting adhesives for a wide variety of substrates.
CRAYAMID® 115 is particularly useful as a general purpose resin combining excellent resistance properties and good exterior durability, it is compatible with many synthetic resins, varnishes, oils and other media.

SALES SPECIFICATIONS

	CHARACTERISTICS	METHODS
Viscosity (Brookfield SC4-21/13R, 0.6 s-1) (@ 40°C)	50000 - 60000 mPa.s	ISO 3219
Color	11 max Gardner	ISO 4630
Amine value (Perchloric Method)	230 - 260 mg KOH/g	CVI 069

OTHER CHARACTERISTICS[1]

	CHARACTERISTICS	METHODS
Density (@ 20°C)	0.97 g/ml	ISO 2811
Active Hydrogen Equivalent Weight	240	

[1] The data provided for these properties are typical values, intended only as guides, and should not be construed as sales specifications

MARKETS & APPLICATIONS

COATINGS & INKS

- INDUSTRIAL COATING
  - GENERAL INDUSTRY
  - PROTECTIVE COATING
  - PROTECTIVE AND MARINE COATING
  - RIGID PACKAGING METAL (CAN & OTHERS)

PERFORMANCE BENEFITS

- Excellent Resistance Property
- Good Exterior durability
- Excellent Adesion to a wide variety of surfaces

CRAYAMID® 115

FORMULATION GUIDELINES

RECOMMENDATIONS FOR USE

The selection of a particular grade of epoxy resin will depend on many factors but essentially in most solvent based coatings the medium molecular weight epoxy resins are used, i.e. epoxide equivalent approx. 500 [1].
Whilst the mix ratio when using CRAYAMID® 115 polyamides is not critical, optimum performance of a coating is achieved by stoichiometric mixing of the epoxy and CRAYAMID® 115.
The mix ratio is calculated from the active hydrogen equivalent weight (AHEW) since each epoxy group in the base resin will react with one active hydrogen present in the polyamide. The AHEW of CRAYAMID® 115 is typically 240.
Considering that each epoxy reacts with one reactive hydrogen, the mix ratio of CRAYAMID® 115 and an epoxy resin with epoxide equivalent approx. 500 [1] is calculated as follows:
-Mass of solid resin (g): CRAYAMID® 115 / 75% epoxy resin [1] = 380/191
-Mass of resin solution (g): CRAYAMID® 115 / 75% epoxy resin [1] = 240/667
The resulting epoxy : polyamide mix ratio in this case is approx. 65:35 based on solid resin. Excess polyamide in a coating will impart flexibility and adhesion at the expense of solvent resistance.

CURE RATE

A 65:35 epoxy resin [1] : CRAYAMID® 115 (on solid resin) blend will reach a tack free time of 30 minutes at 25°C.
Films will touch dry more rapidly if higher molecular weight epoxy resins are used. An induction period to ensure complete compatibility is recommended. Cure of epoxy:polyamide systems can be accelerated by a range of catalysts, and in particular Tris(dimethylaminomethyl) phenol types [2] 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.

POT LIFE

Reaction between the epoxy resin and CRAYAMID® 115 will commence as soon as the reactants are mixed.
A 65:35 epoxy [1] : CRAYAMID® 115 mixture on solid resin will have a pot life of approx. 10 hours (where pot life is determined as the time taken for a 200g mass of resin at 25°C to double its initial viscosity). Solvents have a considerable effect on pot life, e.g. alcohols tend to reduce pot life, whereas 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.

ADHESION

CRAYAMID® 115 : epoxy resin systems show excellent adhesion to a wide variety of surfaces. In formulating adhesives for flexible substrates, a higher proportion of polyamide is required to ensure the necessary flexibility (in bonding rigid plastics, e.g. P.V.C., the adhesive bond is normally stronger than the plastic).

Notes: [1] Epoxy resins have an epoxide equivalent of approx 500: Araldite® 6100 (Hunstman), Epikote™ 1001 (Momentive), [2] Ancamine® K54 (Air Products)

PRODUCT SAFETY

Please refer to the corresponding Safety Data Sheet.

STORAGE AND HANDLING

CRAYAMID® 115 should be stored indoors in the original, unopened and undamaged container, in a dry place at a temperature not exceeding 30°C. Exposure to direct sunlight should be avoided. In the above mentioned storage conditions the shelf life of the resin will be from the date of manufacturing.
Shelf Life (Months): 12

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