All About Resins

TECHNICAL DATA SHEET

Crosslinkers

CYMEL® 328 resin

PRODUCT DESCRIPTION

CYMEL 328 resin is a methylated high imino melamine crosslinker supplied in water. Its high reactivity and low formaldehyde release during cure makes CYMEL 328 resin suitable for a wide range of fast-curing waterborne industrial coating formulations, such as can and coil coatings, OEM and foil coating applications.

BENEFITS

- Fast cure response
- Low formaldehyde release

APPLICATION AREAS

- Can and container coatings
- Waterborne coatings
- Automotive coatings

PHYSICAL PROPERTIES

Property	Range	Method
Appearance	Clear Liquid	Visual
Non-volatile by wt.	85 ± 2%	Foil, 45 min/45°C
Viscosity, 23°C	1000 – 3000 mPa-s	Dynamic Viscosity
Free formaldehyde	< 0.5%	Sulfite Method
Color, APHA	< 70	ISO 6271

SOLUBILITY

Alcohols	Partial
Esters	Insoluble
Ketones	Partial
Aromatic hydrocarbons	Insoluble
Aliphatic hydrocarbons	Insoluble
Water	Complete

COMPATIBILITY

Water reducible polymers	Very good
Polymer dispersions	Very good
Emulsions	Very good

BACKBONE POLYMER SELECTION

CYMEL 328 resin contains a combination of methoxymethyl, methylol and imino functionalities making it a very effective crosslinker for backbone polymer resins containing hydroxyl, amide and carboxyl functional groups, such as alkyd, polyester or acrylic resins. CYMEL 328 resin is very reactive and has a tendency to self-condense at normal baking temperatures, providing films with very good hardness, flexibility, gloss, chemical resistance and outdoor durability. CYMEL 328 resin is very good compatible and stable with a wide range of waterborne polymer systems. Although the optimum level of CYMEL 328 resin should be determined experimentally, ratios of 25 to 35% based on resin solids are typically most effective.

CATALYSIS

CYMEL 328 resin may not require the addition of an acid catalyst to the formulation to obtain effective cure. In many instances, the acidity of the backbone polymer in the formulation is sufficient to catalyze the reaction under normal baking conditions (15 minutes at 120-150°C). If catalyst addition is required, then 0.5-1.0% of CYCAT® 296-9 catalyst based on total resin solids is recommended.

FORMULATION STABILITY

It is essential that a tertiary amine, such as dimethylethanolamine or triethylamine, be used for neutralization and pH adjustment. For optimum stability, a pH of 7.5-8.5 should be maintained.

STORAGE STABILITY

CYMEL 328 resin has a shelf life of 6 months from the date of manufacture when stored at temperatures between 5°C and 30°C. Although lower temperatures are not detrimental to stability, its viscosity will increase, possibly making the resin difficult to pump or pour. The viscosity will reduce again on warming, but care should be taken to avoid excessive local heat as this can cause an irreversible increase in viscosity. Beware of freezing.