All About Resins

TECHNICAL DATA SHEET

Crosslinkers

CYMEL® 327 resin

PRODUCT DESCRIPTION

CYMEL 327 resin is a methylated high imino melamine crosslinker supplied in iso-butanol. CYMEL 327 resin is very reactive and has a tendency towards self-condensation at normal baking temperatures, providing films with very good hardness, gloss, chemical resistance and outdoor durability. Its major advantage relative to other high imino resins is its potential to lower VOCs in high solids formulations.

BENEFITS

- High solids
- Fast cure response
- Low formaldehyde release

APPLICATION AREAS

- High solids coatings
- Waterborne coatings
- Coil coatings and metal decorating
- Automotive coatings

PHYSICAL PROPERTIES

Property	Range	Method
Appearance	Clear Liquid	Visual
Non-volatile by wt.	90% ± 2%	Foil, 45 min/45°C
Viscosity, 23°C	5100-16000 mPa-s	Dynamic Viscosity
Free formaldehyde	< 0.8 %	Sulfite Method
Color, APHA	< 70	ISO 6271

SOLUBILITY

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

COMPATIBILITY

Acrylic resins	Very good
Alkyd resins	Very good
Epoxy resins	Very good
Polyester resins	Very good

BACKBONE POLYMER SELECTION

CYMEL 327 resin is an effective crosslinker for backbone polymer resins containing hydroxyl, carboxyl, and amide functional groups, such as those found on alkyd, polyester or acrylic resins. Although the optimum level of CYMEL 327 resin should be determined experimentally, ratios of 25 to 35% based on resin solids are typically most effective.

CATALYSIS

CYMEL 327 resin 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 (15-20 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

The stability of solvent-borne systems containing CYMEL 327 resin can be enhanced by the addition of primary alcohols, amines, or a combination of these. Low molecular weight primary alcohols such as ethanol and n-butanol are most effective. Recommended amines are TEA, DMEA or 2-AMP at a concentration of 0.5-1.0% on total binder solids. For best stability in waterborne systems, a pH between 7.5-8.5 should be maintained using tertiary amines only.

STORAGE STABILITY

CYMEL 327 resin has a shelf life of 2 years 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.