

CYMEL[®] 247-10 resin

PRODUCT DESCRIPTION

CYMEL 247-10 resin is a partially n-butylated melamine-formaldehyde crosslinking agent characterized by a superior degree of compatibility with most backbone polymers, as implied by its very high hydrocarbon tolerance value. CYMEL 247-10 resin is suitable for industrial baking enamels requiring good flow, high gloss and superior resistance properties. CYMEL 247-10 resin is also useful as a leveling agent in coil coating and metal decoration formulations to improve flow, wetting and gloss.

BENEFITS

- Wide resin compatibility
- Excellent resistance properties
- Very good in-can stability
- Excellent flow and leveling properties

APPLICATION AREAS

- Industrial baking enamels
- Coil coatings
- Automotive finishes

PHYSICAL PROPERTIES

| Property | Range | Method |
|---------------------|------------------|-------------------|
| Appearance | Clear Liquid | Visual |
| Non-volatile by wt. | 62-66% | Pan, 2 hrs/105°C |
| Viscosity, 25°C | 700 – 1600 mPa-s | Dynamic Viscosity |
| Free formaldehyde | < 3.5% | Sulfite Method |
| Color, Gardner | < 1 | |

SOLUBILITY

| | |
|------------------------|-----------|
| Alcohols | Complete |
| Esters | Complete |
| Ketones | Complete |
| Aromatic hydrocarbons | Complete |
| Aliphatic hydrocarbons | Complete |
| Water | Insoluble |

COMPATIBILITY

| | |
|------------------|--------|
| Acrylic resins | Medium |
| Alkyd resins | Good |
| Polyester resins | Good |

BACKBONE POLYMER SELECTION

CYMEL 247-10 resin contains a combination of butoxymethyl and methylol functionalities, making it a very effective crosslinking agent for backbone polymers such as alkyd and polyester resins containing hydroxyl, carboxyl or amide functionality. In addition to entering into crosslinking reactions, CYMEL 247-10 resin also has a strong tendency toward self-condensation. Therefore, its practical equivalent weight, on a solids basis, is in the range of 220-280. Typical use levels of CYMEL 247-10 resin are between 15% and 35% based on total resin solids. When used as a leveling agent, CYMEL 247-10 resin is typically added at between 2% and 5% based on total resin solids. Note that the appropriate use level in a particular formulation should always be determined experimentally.

CATALYSIS

CYMEL 247-10 resin usually does not require the addition of an acid catalyst to the formulation in order to obtain effective cure at common baking temperatures. In most instances, the acidity of other formulation components is sufficient to catalyze reaction. If catalyst addition is required, use of a weak inorganic acid catalyst such as CYCAT[®] 296-6 catalyst at a level of 1.0-2.0% based on weight of total binder solids is recommended for baking schedules of 125-150°C for 15-20 minutes.

FORMULATION STABILITY

The stability of formulated systems containing CYMEL 247-10 resin can be enhanced by the addition of alcohols, amines or a combination of these. Low molecular weight primary alcohols such as ethanol or n-butanol are generally most effective.

STORAGE STABILITY

CYMEL 247-10 resin has a shelf life of 4 years from date of manufacture when stored at temperatures between 5°C and 30°C. Although lower temperatures are not detrimental to stability, the viscosity of the product will increase, possibly making the resin difficult to pump or pour. Product viscosity can be returned to normal by gentle re-warming, however, care should be taken to avoid excessive localized heating which can result in an irreversible increase in viscosity.

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