

CYMEL[®] 250 resin

September 2017



PRODUCT DESCRIPTION

CYMEL 250 resin is a new type of mixalkylated methylated and n-butylated melamine formaldehyde resin with high imino functions. It is designed specifically for automotive coating system and does not require a strong acid catalyst for fast cure response. CYMEL 250 resin is similar reactivity to conventional n-butylated melamine resin. A formulation by using CYMEL 250 resin can achieve lower VOC, compared to a formulation by using conventional n-butylated melamine formaldehyde resin.

BENEFITS

- Fast low temperature cure response
- Superior humidity and water resistance
- Lower VOC than conventional butylated melamine resins

APPLICATION AREAS

- Automotive primer/surfacers
- Automotive basecoat

PHYSICAL PROPERTIES

| Property | Range | Method |
|---------------------|--------------|-----------------------|
| Appearance | Clear Liquid | Visual |
| Non-volatile by wt. | 70.5± 2% | Pan, 180 min/105 °C |
| Viscosity, 25°C | V-Z1 | Gardner Holdtz Method |
| Free formaldehyde | <1.0% | ISO 11402 |
| Color, Gardner | ≤ 1 | ISO 4630-2 |
| Solvent | n-butanol | |

SOLUBILITY

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

COMPATIBILITY

| | |
|------------------|-----------|
| Acrylic resins | Very good |
| Alkyd resins | Very good |
| Epoxy resins | Very good |
| Polyester resins | Very good |

BACKBONE POLYMER SELECTION

CYMEL 250 resin is an efficient cross-linking agent for hydroxyl, amide, carboxyl, functional polymers or resins. Similar to other melamine resins with reactive functions, it is not only crosslinks with the above functionalities, but also self-condenses readily.

CATALYSIS

CYMEL 250 resin responds to catalysis by weak acids. At baking temperatures above 120°C, the carboxyl functionality of the other resins in a formulation would be an adequate catalyst. If catalyst is necessary, any soluble acid would be effective. Normally, phosphate esters such as CYCAT 296-9 are recommended. The acid concentration would have been determined for each system.

FORMULATION STABILITY

The stability of solvent-borne systems containing CYMEL 250 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.

STORAGE STABILITY

CYMEL 250 resin has a shelf life of 1 year from the date of manufacture when stored at temperatures between 5°C and 30°C packed in unopened original containers. CYMEL 250 resin must be kept indoors and avoided the direct sunlight exposure.

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.

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