

CYMEL[®] 243-3 resin

PRODUCT DESCRIPTION

CYMEL 243-3 resin is a partially n-butylated melamine-formaldehyde crosslinking agent supplied in high flash aromatic solvent. It has excellent compatibility and is recommended for thermosetting acrylic and alkyd topcoat finishes and metal decorating systems. Its high resistivity provides wide latitude in formulating electrostatic spray finishes.

BENEFITS

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

APPLICATION AREAS

- Industrial baking enamels
- Automotive finishes
- Electrostatic spray finishes

PHYSICAL PROPERTIES

Property	Range	Method
Appearance	Clear Liquid	Visual
Non-volatile by wt.	60-64%	Pan, 2 hrs/105°C
Viscosity, 25°C	V-Y	Gardner-Holdt
Free formaldehyde	≤ 0.5%	Sulfite
Color	≤ 1	Gardner

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 243-3 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 243-3 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 243-3 resin are between 15% and 35% based on total resin solids. When used as a leveling agent, CYMEL 243-3 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 243-3 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 243-3 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 243-3 resin has a shelf life of 1440 days from date of manufacture when stored at temperatures between 5°C and 32°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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