

## PRODUCT DESCRIPTION

CYMEL® 232 resin is a highly alkylated methoxy butoxy melamine-formaldehyde resin.

Its high degree of alkylation and high monomer content, it is especially recommended for low VOC systems, those applications requiring high film flexibility, and those systems where recoat adhesion must be optimized.

As CYMEL® 232 is more hydrophobic than CYMEL® 285-100, high glossy finish, and good water and humidity resistance film can be achieved for electro deposition coatings.

## BENEFITS

- Good Salt-Spray Resistance
- Good flow and leveling properties
- Good recoat adhesion
- Low Free Formaldehyde
- Good flexibility properties

## APPLICATION AREAS

- AED Coating for glossy finish
- General Metal Finishes

## PHYSICAL PROPERTIES

| Property            | Range        | Method                |
|---------------------|--------------|-----------------------|
| Appearance          | Clear Liquid | Visual                |
| Non-volatile by wt. | min. 97%     | Pan, 180 min/105°C    |
| Viscosity, 25°C     | R – W        | Gardner Holdtz Method |
| Free formaldehyde   | ≤ 0.1%       | Sulfite Method        |
| Color, Gardner      | ≤ 1          | ISO 4630-2            |

## SOLUBILITY

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

## COMPATIBILITY

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

## BACKBONE POLYMER SELECTION

CYMEL® 232 resin is a versatile crosslinking agent for a wide range of polymeric materials containing carboxyl, hydroxyl or amide functionalities such as acrylic, alkyd, polyester and epoxy resins.

### In water borne system

Due to its hydrophobic nature, CYMEL® 232 resin has to be dissolved initially in the organic phase of the water reducible backbone polymer.

## CATALYSIS

CYMEL® 232 is an efficient cross-linking agent for hydroxyl, carboxyl, amine or amide functional polymers. The cross-linking reaction follows the reaction pathway for specific acid catalysis and requires strong acid catalyst such as CYCAT® 4040 catalyst, CYCAT® 600 catalyst and CYCAT® 500 catalyst. Usually 0.2% to 0.4% strong acid on binder solids is recommended for a 15 - 20 minute bake schedule at 120°C to 150°C.

## FORMULATION STABILITY

In a formulated system, stability can be improved by the use of a blocked acid catalyst, or by the addition of a stabilizing alcohol to the formulation. Good stability has been obtained in high-solids systems by using 25% of the added solvent as primary alcohol and blocking the acid catalyst with 110% of the stoichiometric equivalent of an amine.

## STORAGE STABILITY

CYMEL® 232 resin has a shelf life of 540 days from the date of manufacture when stored at temperatures between 5°C and 30°C packed in unopened original containers. CYMEL® 232 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.