

# CYMEL<sup>®</sup> U-1052-8 resin

## PRODUCT DESCRIPTION

CYMEL U-1052-8 resin is an n-butylated urea-formaldehyde crosslinking agent supplied in a mixture of n-butanol and xylene. CYMEL U-1052-8 resin has excellent compatibility with epoxy resins and is particularly suitable for interior can coatings where it contributes to good adhesion and pasteurization resistance. CYMEL U-1052-8 resin is not recommended for topcoats requiring exterior durability.

## BENEFITS

- Excellent compatibility with epoxy resins
- Excellent adhesion and intercoat adhesion properties
- Rapid hardness development

## APPLICATION AREAS

- Can coatings
- Industrial enamels
- Primers

## PHYSICAL PROPERTIES

Property	Range	Method
Appearance	Clear Liquid	Visual
Non-volatile	54-58%	Pan, 2 hrs/105°C
Viscosity, 25°C	R-U	Gardner-Holdt
Free formaldehyde	≤ 2.5%	Sulfite Method
Color, APHA	< 50	ISO 6271

## SOLUBILITY

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

## COMPATIBILITY

Acrylic resins	Good
Alkyd resins	Good
Polyester resins	Good
Epoxy resins	Good

## BACKBONE POLYMER SELECTION

CYMEL U-1052-8 resin contains a combination of butoxymethyl and methylol functionalities, making it a very effective crosslinking agent for backbone polymers such as epoxy and alkyd resins that contain hydroxyl functionality. In addition to entering into crosslinking reactions, CYMEL U-1052-8 resin also has a strong tendency toward self-condensation. Therefore, its practical equivalent weight, on a solids basis, is in the range of 200-280. Increasing the level of CYMEL U-1052-8 resin in a coating formulation will generally increase the hardness and chemical resistance of the cured film, although higher levels may also increase brittleness. The optimum level in a particular formulation should always be determined experimentally.

## CATALYSIS

CYMEL U-1052-8 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, then the use of either CYCAT<sup>®</sup> 4040 catalyst or CYCAT 296-9 catalyst at a level of 0.5-1.0% based on total resin solids is recommended for normal baking schedules (15-20 minutes at 120-150°C).

## FORMULATION STABILITY

The stability of formulated systems containing CYMEL U-1052-8 resin can be enhanced by the addition of alcohols, amines or a combination of these. For acid-cured systems, low molecular weight primary alcohols such as ethanol or n-butanol are most effective. Recommended amines are either triethylamine or dimethyl ethanolamine at a concentration of 0.5-1.0% on total binder solids.

## STORAGE STABILITY

CYMEL U-1052-resin has a shelf life of 3 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 rewarming, however, care should be taken to avoid excessive localized heating which can result in an irreversible increase in viscosity.

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