

CYMEL[®] U-1054 resin

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PRODUCT DESCRIPTION

CYMEL U-1054 resin is a partially n-butylated urea crosslinking agent supplied in a mixture of n-butanol and ethanol. CYMEL U-1054 resin is suitable for industrial heat cured primer formulations because of the excellent adhesion, water and corrosion resistance properties. In can coating formulations, CYMEL U-1054 provides an excellent balance between adhesion and film flexibility, especially after several cure cycles.

BENEFITS

- Excellent adhesion and intercoat adhesion properties
- Excellent compatibility with epoxy resins
- Fast cure response

APPLICATION AREAS

- Can coatings
- Coil coating primers
- General industrial heat cured coatings

PHYSICAL PROPERTIES

Property	Range	Method
Appearance	Clear Liquid	ASTM E284
Non-volatile by wt.	58-62%	DIN EN ISO 3251 (Pan, 2 hr/105°C)
Viscosity, 25°C	1000 - 2700	DIN EN ISO 3219
Free formaldehyde	< 1.0%	Sulfite Titration
Color, APHA	≤ 40	DIN EN ISO 6271
Acid Number (on solids)	5-7 mg KOH/g	DIN EN ISO 2114

TYPICAL PROPERTIES (NOT CONTINUALLY DETERMINED)

Property	Value	Method
Density, 25°C	~1.05 g/ml	DIN 51757

SOLUBILITY

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

COMPATIBILITY

Acrylic resins	Medium
Alkyd resins	Very good
Polyester resins	Good
Epoxy resins	Very good
Nitrocellulose	Very good

BACKBONE POLYMER SELECTION

CYMEL U-1054 resin is a very effective crosslinking agent for backbone polymer resins containing hydroxyl, carboxyl, and amide functional groups, such as those found on alkyd, polyester or acrylic resins. It has good compatibility over a broad range of polymer backbone resins providing films with very good flow, gloss, film hardness, and adhesion properties on metal substrates. Although the optimum level of CYMEL U-1054 resin in a given formulation should be determined experimentally, ratios between 25% and 35%, based on resin solids, are typically most effective.

CATALYSIS

CYMEL U-1054 resin may not require the addition of an acid catalyst to the formulation to obtain effective cure. In many instances, the acidity of the backbone polymer in the formulation is sufficient to catalyze the reaction under normal baking conditions (15-20 minutes at 120-150°C). If catalyst addition is required, then 0.5-1.0% of CYCAT[®] 4040 catalyst or CYCAT 296-9 catalyst based on total resin solids is recommended.

FORMULATION STABILITY

The stability of formulated systems containing CYMEL U-1054 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 most effective. Recommended amines are TEA or DMEA at a concentration of 0.5-1.0% on total binder solids.

STORAGE STABILITY

CYMEL U-1054 resin has a shelf life of 365 days from date of manufacture when stored at temperatures below 32°C. Although low temperatures are not detrimental to stability, the viscosity of the product will increase making the resin more difficult to pump or pour. Product viscosity can be returned to normal by gentle warming, however, care should be taken to avoid excessive localized heating as this can cause irreversible viscosity increase.

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