

CYMEL[®] UI-38-I resin

PRODUCT DESCRIPTION

CYMEL UI-38-I resin is a partially iso-butylated urea crosslinker supplied in iso-butanol and intended for use in industrial stoving applications and especially systems applied by electrostatic spray. Because of the poor weathering resistance of urea resins, CYMEL UI-38-I is not recommended for exterior applications.

BENEFITS

- Excellent adhesion and intercoat adhesion properties
- Fast reaction speed

APPLICATION AREAS

- Industrial baking formulations
- Primer formulations
- Electrostatic spray applications

PHYSICAL PROPERTIES

Property	Range	Method
Appearance	Clear Liquid	Visual
Non-volatile by wt.	69 ± 2%	Pan, 1 hr/100°C
Viscosity, 23°C	12000-20000 mPa-s	Dynamic Viscosity
Free formaldehyde	< 1.4%	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	Medium
Alkyd resins	Good
Polyester resins	Good
Nitrocellulose	Good
Cellulose acetate butyrate	Good
Polyvinyl butyrate	Good

BACKBONE POLYMER SELECTION

CYMEL UI-38-I resin is a very effective crosslinking agent for backbone polymer resins containing hydroxyl and amide functional groups, such as alkyd, polyester or acrylic resins. CYMEL UI-38-I resin has a high tendency for self-condensation, providing films with excellent flow, hardness, adhesion and intercoat adhesion properties. Although the optimum level of CYMEL UI-38-I resin in a given formulation should be determined experimentally, ratios between 25% and 35% based on resin solids are typically most effective.

CATALYSIS

CYMEL UI-38-I resin does not need 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. If catalyst addition is required, then 0.5-1.0% of CYCAT[®] 4040 catalyst based on total binder solids is recommended for baking schedules of ~125°C for 15 minutes.

FORMULATION STABILITY

The stability of formulated systems containing CYMEL UI-38-I resin can be enhanced by the addition of alcohols, amines or combination of these. Low molecular weight primary alcohols such as methanol 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 UI-38-I resin has a shelf life of 2 years from date of manufacture when stored at temperatures between 5°C and 30°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 re-warming, however, care should be taken to avoid excessive localized heating as this can cause an irreversible increase in viscosity.