CYMEL® 683

Technical Datasheet

PRODUCT DESCRIPTION

CYMEL 683 resin is a partially n-butylated melamine crosslinker supplied in a mixture of n-butanol and xylene. Its good outdoor durability and mar resistance combined with very good film appearance makes CYMEL 683 resin suitable for high quality medium solids general industrial baking applications, like automotive topcoat and clearcoat formulations.

BENEFITS

- Very good appearance
- Very good outdoor resistance properties
- Very good mar resistance

APPLICATION AREAS

- Automotive OEM coating formulations
- General industrial coatings

PHYSICAL PROPERTIES

Property	Range	Method
Appearance	Clear Liquid	ASTM E284
Non-volatile by wt.	73-77%	DIN EN ISO 3251 (Pan, 2 hr/120°C)
Viscosity, 25°C	3000 – 6000 mPa.s	DIN EN ISO 3219
Free formaldehyde	< 1.0%	Sulfite Titration
Color, APHA	≤ 15	DIN EN ISO 6271

SOLUBILITY

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

COMPATIBILITY

Acrylic resins	Good
Alkyd resins	Very good
Polyester resins	Very good

BACKBONE POLYMER SELECTION

CYMEL 683 resin is an effective crosslinker for backbone polymer resins containing hydroxyl, carboxyl, and amide functional groups, such as those found on alkyd, polyester or acrylic resins. CYMEL 683 resin has a high tendency to self-condense resulting in films with exceptional hardness, but limited flexibility. Although the optimum level of CYMEL 683 resin should be determined experimentally, ratios of 25 to 35% based on resin solids are typically most effective.

CATALYSIS

CYMEL 683 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® 296-9 catalyst based on total resin solids is recommended.

FORMULATION STABILITY

The stability of solvent-borne systems containing CYMEL 683 resin can be enhanced by the addition of primary alcohols, tertiary amines, or a combination of these. Low molecular weight primary alcohols such as ethanol and 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 683 resin has a shelf life of 1080 days from the date of manufacture when stored at temperatures below 32°C. Although low 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. The expiration date may be extended and COA updated after QC testing of retained samples, only for material in allnex possession.

SAFETY AND HANDLING

Please consult the Safety Data Sheet (SDS) for safety, health, and environmental data available from allnex.