

# CYMEL® 683 resin

## 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	Visual
Non-volatile	75 ± 2%	Pan, 2 hrs/120°C
Viscosity, 25°C	3000 – 6000 mPa-s	Dynamic Viscosity
Free formaldehyde	~1.2%	Sulfite Method
Color, APHA	< 15	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

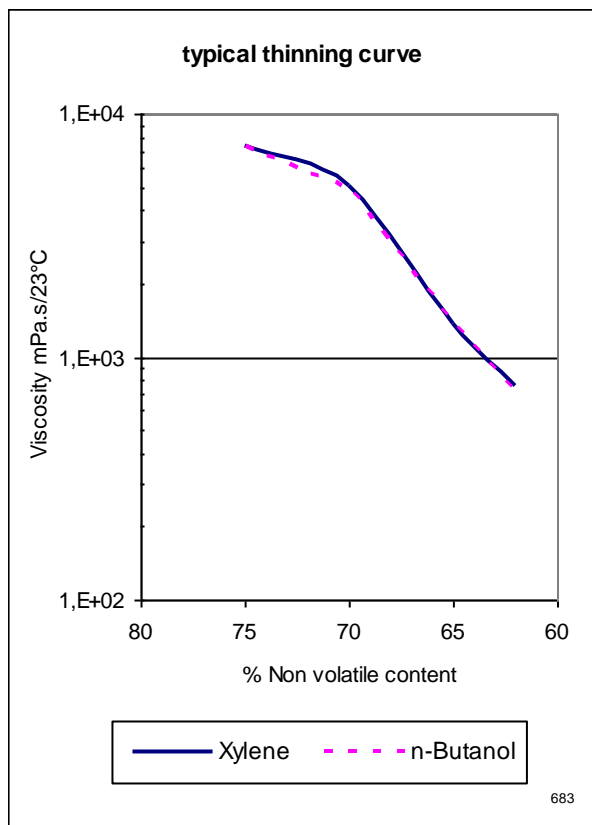
CYMEL 683 resin may not require the addition of an acid catalyst to the formulation to obtain effective cure. In many instances, the acidity of the backbone polymer in the formulation is sufficient to catalyze the reaction under normal baking conditions (15-20 minutes at 120-150°C). If catalyst addition 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, amines, or a combination of these. Low molecular weight primary alcohols such as ethanol 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 683 resin has a shelf life of 3 years from the date of manufacture when stored at temperatures between 5°C and 30°C. 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.



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