

PRODUCT DESCRIPTION

CYMEL® 1123 resin is a highly methylated/ethylated benzoguanamine resin developed primarily for use as a crosslinking agent in electrocoating and conventional coatings requiring high detergent and chemical resistance. Its excellent balance between adhesion and film flexibility, especially after several cure cycles, makes CYMEL® 1123 resin particularly well suited for can coating applications. While CYMEL® 1123 resin is insoluble in water, it shows excellent compatibility with water soluble backbone polymers and provides very good stability in pH-buffered alkaline waterborne formulations. The poor light resistance properties of benzoguanamine makes CYMEL® 1123 resin unsuitable for exterior applications.

BENEFITS

- Chemical resistance
- Detergent resistance
- Film flexibility

APPLICATION AREAS

- Anodic electrodeposition
- Can and container coatings
- Coil coating finishes
- High solids primer formulations

PHYSICAL PROPERTIES

Property	Range	Method
Appearance	Clear Liquid	ASTM E284
Non-volatile by wt.	≥ 98%	DIN 55671 (Foil, 45 min/45°C)
Viscosity, 23°C	3800-10200 mPa.s	DIN EN ISO 3219
Free formaldehyde	< 0.2%	Sulfite Titration
Color, APHA	≤ 100	DIN EN ISO 6271

SOLUBILITY

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

COMPATIBILITY

Acrylic resins	Very good
Alkyd resins	Very good
Polyester resins	Very good
Epoxy resins	Very good

BACKBONE POLYMER SELECTION

CYMEL® 1123 resin contains mainly methoxymethyl and ethoxymethyl functional sites making it a very effective crosslinker for backbone polymer resins containing hydroxyl, amide or carboxyl functional groups, such as those found on alkyd, polyester or acrylic resins. The effective equivalent weight of CYMEL® 1123 resin typically ranges from 120 - 180, however, its optimum loading should be determined experimentally for each formulation with consideration of the performance properties to be optimized.

CATALYSIS

CYMEL® 1123 resin responds best to sulfonic acid catalysts, like CYCAT® 4040 catalyst, CYCAT® 600 catalyst, or CYCAT® 500 catalyst. Generally 0.5 to 1.0% catalyst solution on total binder solids of the formulation is sufficient to provide good cure at baking schedules of 20 minutes at 120°C to 160°C. Higher concentrations might be necessary if there are basic pigments or additives present in the formulation.

FORMULATION STABILITY

The stability of formulated systems containing CYMEL® 1123 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 DMEA or 2-AMP at a concentration of 0.5-1.0% on total resin solids. Package stability can also be enhanced by the use of a blocked acid catalyst such as CYCAT® 4045 catalyst. For waterborne systems, pH should be adjusted to 7.5 - 8.5 to achieve optimum stability.

STORAGE STABILITY

CYMEL® 1123 resin has a shelf life of 1440 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.