

CYMEL® 3745N resin

PRODUCT DESCRIPTION

CYMEL 3745N resin is a highly methylated melamine crosslinker designed for use in both solvent-borne and waterborne industrial finishes. Its high functionality and low tendency to self-condense promotes excellent formulated stability and results in films with very good hardness development, flexibility, formability, and resistance properties making it suitable for a wide range of coating applications, like can and container coatings, foil coatings, automotive coatings and waterborne formulations.

BENEFITS

- Very high solids contents
- Excellent deformation and film flexibility
- Good film appearance.

APPLICATION AREAS

- Can and container coatings
- Foil and paper coatings
- High solids and waterborne coatings

PHYSICAL PROPERTIES

Property	Range	Method
Appearance	Clear Liquid	Visual
Non-volatile by wt.	≥ 98%	Foil, 45 min/45°C
Viscosity, 23°C	3100 - 6600 mPa-s	Dynamic (Cone & Plate)
Free formaldehyde	< 0.25%	Sulfite
Color, APHA	≤ 70	ISO 6271

SOLUBILITY

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

COMPATIBILITY

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

BACKBONE POLYMER SELECTION

CYMEL 3745N resin contains mainly methoxymethyl functionalities 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. CYMEL 3745N resin is very compatible with a wide range of backbone polymers and provides films with very good hardness, flexibility, formability, adhesion and resistance properties. Although the optimum level of CYMEL 3745N resin in a given formulation should be determined experimentally, its effective equivalent weight will be typically in the range of 130-190.

CATALYSIS

CYMEL 3745N resin reacts according to the specific acid catalysis mechanism, consequently it will respond best to sulfonic acid catalysts, like CYCAT[®] 4040 or the blocked version CYCAT 4045 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. Water-borne systems generally require temperatures of 150°C or higher to effect cure. Higher concentrations of catalyst might be necessary if there are basic pigments or additives present in the formulation.

FORMULATION STABILITY

The stability of formulated systems containing CYMEL 3745N 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 between 7.5-8.5 to achieve optimum stability.

STORAGE STABILITY

CYMEL 3745N 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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