CYMEL® 304

Technical Datasheet

be ECOWISE™

PRODUCT DESCRIPTION

CYMEL® 304 resin is a specially alkylated, high solids melamine crosslinking agent designed specifically for industrial wood coating applications. Systems formulated with CYMEL® 304 resin exhibit excellent catalyzed stability and films develop excellent early hardness, resistance properties, appearance and cold check resistance. Conversion varnishes crosslinked with CYMEL® 304 have superior hydrolytic stability relative to conventional urea-based formulas.

BENEFITS

- Fast cure response in both ambient and forced cure applications
- Extended catalyzed coating stability
- Superior hydrolytic stability of the coating
- Very low free formaldehyde

APPLICATION AREAS

- Industrial wood coatings

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	6000 – 12000 mPa.s	DIN EN ISO 3219
Free formaldehyde	< 0.1%	BS-EN-1243-2011
Color, APHA	≤ 70	DIN EN ISO 6271

TYPICAL PROPERTIES

Property	Range	Method
Specific gravity	± 1.19 g/cm³	ASTM D1475-13

SOLUBILITY

Alcohols	Complete
Esters	Complete
Ketones	Complete
Aromatic hydrocarbons	Complete
Water	Insoluble

COMPATIBILITY

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

BACKBONE POLYMER SELECTION

CYMEL® 304 has excellent compatibility with a wide variety of polyols, such as alkyd, acrylic, and polyester resins. Polyols with primary hydroxyl functionality are preferred for fast cure at ambient conditions. The equivalent weight of CYMEL® 304 resin is approximately 75 g/eq, however, its optimum loading should be determined experimentally for each formulation with consideration of the performance properties to be optimized.

CATALYSIS

CYMEL® 304 resin requires the addition of a sulfonic acid catalyst, such as CYCAT® 4040 catalyst, at levels of 6 - 10% on total resin solids in order to obtain effective cure for both ambient and heat cured applications. For pre-catalyzed urea-rich systems, 2.0% PAP based on weight of total binder solids is recommended.

FORMULATION STABILITY

The stability of formulated systems containing CYMEL® 304 resin can be enhanced by the addition of primary alcohols, such as methanol, ethanol, and butanol. Higher concentrations will improve catalyzed pot life. Faster evaporating alcohols will improve speed of dry.

STORAGE STABILITY

CYMEL® 304 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.