

## PRODUCT DESCRIPTION

CYMEL® 1172 resin is an unalkylated glycoluril crosslinker supplied in water at 45% solids. It is designed to be used for crosslinking aqueous neutral or acidic hydroxyl or amide functional polymers and combines excellent stability at acidic pH (as low as 4) with excellent reactivity. CYMEL® 1172 resin cannot be used in amine-neutralized or basic coating systems because of the potential problems of demethylation of the compound and a significant decrease in cure response.

## BENEFITS

- Stable under acidic conditions
- Low cure possibilities
- Very low formaldehyde release during cure
- Excellent chemical resistance

## APPLICATION AREAS

- Acidic emulsions
- Foil and paper coatings
- Textile coatings

## PHYSICAL PROPERTIES

Property	Range	Method
Appearance	Clear Liquid	ASTM E284
Non-volatile by wt.	43-47%	DIN EN ISO 3251 (Pan, 2 hrs/105°C)
Viscosity	< 50 mPa.s	DIN EN ISO 3219
Free formaldehyde	< 1.0%	Hydroxylamine Hydrochloride Titration
Color, Gardner	< 3.5	DIN EN ISO 4630-1

## SOLUBILITY

Aromatic hydrocarbons	Insoluble
Aliphatic hydrocarbons	Insoluble
Water	Complete

## COMPATIBILITY

Polymer dispersions	Very good
Acid emulsions	Very good

## BACKBONE POLYMER SELECTION

CYMEL® 1172 resin contains mainly methylol functionalities making it a very effective crosslinker for backbone polymer resins containing hydroxyl, or carboxyl functional groups, such as found in acrylic emulsions. CYMEL® 1172 resin is not suited for solvent based formulations. Although the optimum level of CYMEL® 1172 resin in a given formulation should be determined experimentally, a good starting point is 20 to 30% based on total resin solids.

## CATALYSIS

CYMEL® 1172 resin will respond best to sulfonic acid catalysts, like CYCAT® 4040 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 100°C.

## FORMULATION STABILITY

The stability of formulated systems containing CYMEL® 1172 resin is excellent down to a pH as low as 4.0. CYMEL® 1172 resin has a high tendency for demethylation in basic environment (pH > 8), consequently it is not suitable for amine-stabilized waterborne coating formulations.

## STORAGE STABILITY

CYMEL® 1172 resin has a shelf life of 1080 days the date of manufacture when stored at temperatures between 5°C and 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. Beware of freezing.