

### TIN-FREE URETHANE ACRYLATE OLIGOMER

## INTRODUCTION

EBECRYL® 221 is a hexafunctional aromatic urethane acrylate oligomer which provides very fast cure response when exposed to ultraviolet light (UV) or electron beam (EB). Cured films of EBECRYL® 221 exhibit high hardness and solvent resistance.

## PERFORMANCE HIGHLIGHTS

EBECRYL® 221 is characterized by

- Light colour
- Excellent cure response

UV/EB cured products based on EBECRYL® 221 are characterized by the following performance properties:

- High hardness and scratch resistance
- High solvent resistance
- High gloss
- Fast cure speed

The actual properties of UV/EB cured products also depend on the selection of the other formulation components, such as reactive diluent(s), additives and photoinitiators.

## SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL® 221 may be applied by lithographic, screen, gravure, direct or reverse roll, and curtain coating methods.

EBECRYL® 221 is recommended for use in:

- Wood coatings and fillers
- Lithographic inks
- Scratch resistant coatings on plastic
- Improving cure speed, solvent resistance and gloss

## TYPICAL VALUES

Höppler viscosity at 25°C, mPa.s	28500
Colour, Gardner	max. 2

## PHYSICAL PROPERTIES

Density, g/cm <sup>3</sup>	1.22
Molecular weight, theoretical	1000
Functionality, theoretical	6

## TYPICAL CURED PROPERTIES

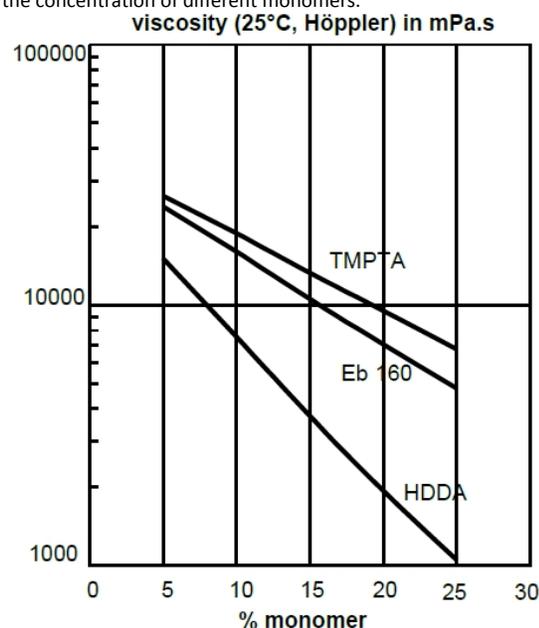
Tensile strength, MPa	31
Tensile elongation, %	1
Glass transition temperature, °C	49

## VISCOSITY REDUCTION

EBECRYL® 221 can be diluted with reactive monomers such as 1,6-hexanediol diacrylate HDDA<sup>(1)</sup>, trimethylolpropane triacrylate (TMPTA)<sup>(1)</sup> and trimethylolpropane ethoxy triacrylate (EBECRYL® 160)<sup>(1)</sup>. The specific reactive diluent(s) used will influence performance properties such as hardness and flexibility.

<sup>(1)</sup> product of allnex

The graph shows the viscosity reduction of EBECRYL® 221 as a function of the concentration of different monomers.



## STORAGE AND HANDLING

Care should be taken not to expose radiation curable products to temperatures exceeding 40°C for prolonged periods or to direct sunlight. This might cause uncontrollable polymerization of the product with generation of heat.

Storage and handling should be in stainless steel, amber glass, amber polyethylene or baked phenolic lined containers.

Do not store this material under an oxygen free atmosphere. Use dry air to displace material removed from the container. This material should not be stored for more than 2 years.

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## PRECAUTION

The following is a summary of the precautions to be taken when handling this product. Please refer to the Safety Data Sheet for further details.

The toxicological properties of this material have not been fully determined. Products of this type can be expected to be eye and skin irritant and have the potential to cause sensitization or other allergic responses. Appropriate precautions should be taken to avoid eye and skin contact and to avoid inhalation of the aerosols or vapours. Consult the relevant Safety Data Sheet for appropriate handling procedures and protective equipment prior to using this or any other material referred to in this bulletin.

See Safety Data Sheet for emergency and first aid procedures.

## STATUTORY LABELING

For Statutory Labeling information, please refer to Safety Data Sheet.