EBECRYL® 3605

Epoxy acrylate oligomer

INTRODUCTION

Ebecryl®3605 is a partially acrylated ester of a bisphenol A type epoxy resin. It contains both acrylate and epoxy functionalities. This resin may be cured by exposure to either ultraviolet light (UV) or electron beam (EB) in conjunction with conventional epoxy curing. It may also be cured with UV radiation using a mixed photoinitiator system consisting of free radical and cationic photoinitiators. Ebecryl®3605 has been developed for applications requiring improved coating performance properties over those obtainable with conventional UV/EB curing alone.

PERFORMANCE HIGHLIGHTS

Ebecryl®3605 is characterized by :

- ✓ Both epoxy and acrylate functionalities
- ✓ Good cure response

UV/EB cured products based on Ebecryl®3605 are characterized by the following performance properties :

- ✓ High gloss finish
- ✓ Good solvent resistance
- ✓ Good adhesion to metals and other non-porous substrates
- ✓ Improved flexibility over other epoxy acrylates

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 photo-initiators.

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing Ebecryl®3605 may be applied by lithographic, screen, gravure, direct or reverse roll, and curtain coating methods.

Ebecryl®3605 is recommended for use in :

- ✓ Coatings and inks for metal substrates including aluminium
- ✓ Applications where portions of the curable material are in "shadow" areas
- ✓ Applications where thermal post-curing will enhance coating properties

2-component curing systems

(1) Measured on a 125µ UV cured film

TYPICAL VALUES

Höppler viscosity at 60°C, mPa.s	± 1100
Colour, Gardner	5 max.
Acid value, mg KOH/g	1 max.

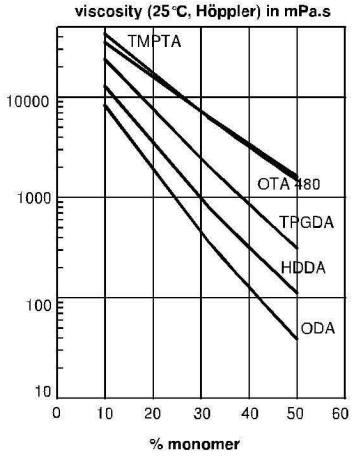
PHYSICAL PROPERTIES

Density, g/cm^3	1.12
Molecular weight, theoretical	450
Acrylate functionality, theoretical	1
Weight per epoxide	450
Polymer solids, % by weight	100

TYPICAL CURED PROPERTIES

Tensile strength, MP[(1)]	26
Tensile elongation, %[(1)]	35
Glass transition temperature, °C	43

The graph shows the viscosity reduction of Ebecryl®3605 as a function of the concentration of different monomers.



VISCOSITY REDUCTION

Ebecryl®3605 can be diluted with reactive monomers such as 1,6 hexanediol diacrylate (HDDA)[(2)], trimethylolpropane triacrylate (TMPTA)[(2)], tripropyleneglycol diacrylate (TPGDA)[(2)], oligotriacrylate (OTA 480)[(2)] and octyl/decyl acrylate (ODA)[(2)]. The specific reactive diluent(s) used will influence performance properties such as hardness and flexibility.

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.

PRECAUTIONS

The following is a summary of the precautions to be taken when handling this product. Please refer to the Material 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 irritants 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 Material Safety Data Sheet for appropriate handling procedures and protective equipment prior to using this or any other material referred to in this bulletin.

See Material Safety Data Sheet for emergency and first aid procedures.

(2) HDDA, TMPTA, TPGDA, OTA 480 and ODA are produced by Allnex.

STATUTORY LABELLING

Please refer to Safety Data Sheet.