

EBECRYL® 230

Aliphatic Urethane Diacrylate

March 2017



INTRODUCTION

EBECRYL 230 is an aliphatic urethane diacrylate characterized by its light color and low viscosity. Films of EBECRYL 230 cured via exposure to ultraviolet light (UV) or electron beam (EB) are soft and flexible, and are resistant to yellowing. EBECRYL 230 is often used as a modifier to improve the flexibility of finished formulations.

PERFORMANCE HIGHLIGHTS

EBECRYL 230 is characterized by:

- Light color
- Low viscosity

UV/EB cured products containing EBECRYL 230 are characterized by the following performance properties:

- Improved flexibility
- Non-yellowing

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

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL 230 may be applied via direct or reverse roll, offset gravure, metering rod, slot die, knife over roll, air knife, curtain, immersion and spin coating methods, as well as offset and screen printing. EBECRYL 230 is recommended for:

- Increasing flexibility of UV/EB cured coatings and inks
- Laminating adhesives
- Coatings for plastic and metal
- Lithographic and screen inks

SPECIFICATIONS

	VALUE
Appearance	Clear liquid
Color, Pt-Co scale ⁽¹⁾ , max.	50
Viscosity, 25°C, cP/mPa·s	30000-60000

TYPICAL PHYSICAL PROPERTIES

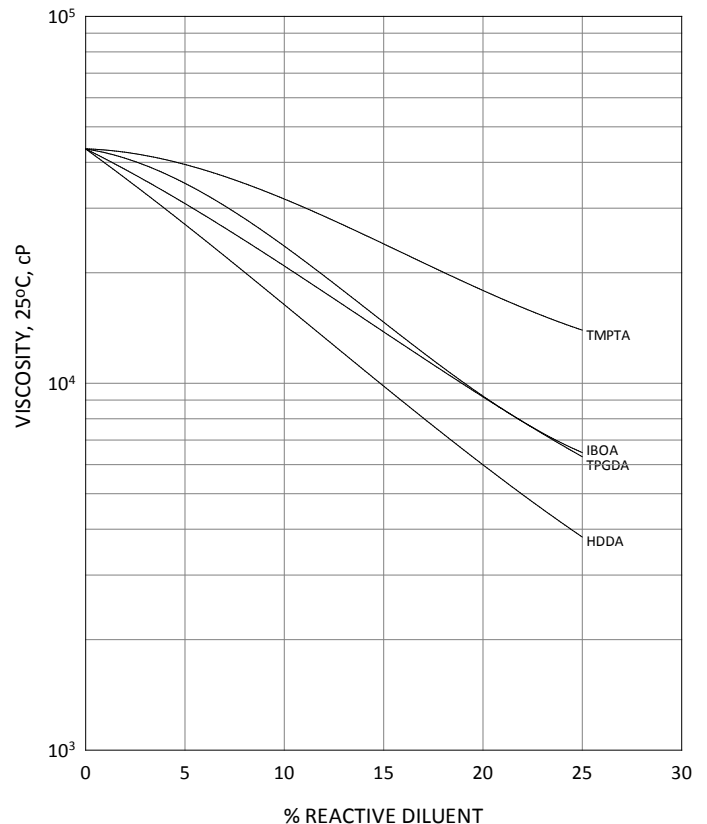
Density, g/ml at 25°C	1.08
Functionality, theoretical ⁽²⁾	2
Oligomer, % by weight	100

TYPICAL CURED PROPERTIES⁽³⁾

Tensile strength, psi (MPa)	150 (1.0)
Elongation at break, %	83
Glass transition temperature, °C ⁽⁴⁾	-48

GRAPH I

EBECRYL 230 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



(1) Also referred to as APHA color.

(2) Theoretical determination based on the undiluted oligomer.

(3) UV cured 125 μ thick films.

(4) Determined by Dynamic Mechanical Analysis.

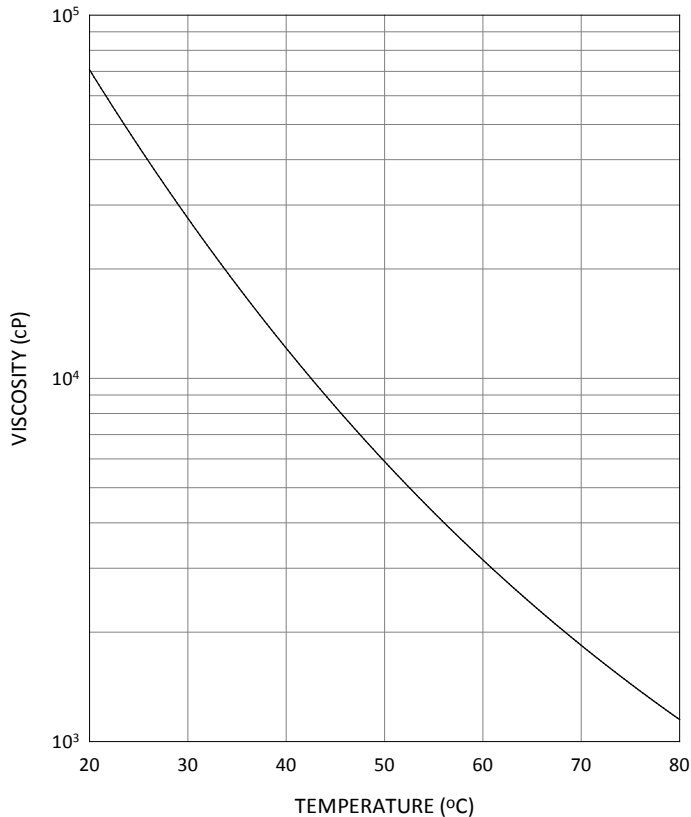
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 230 with 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, trimethylolpropane triacrylate (TMPTA)⁽¹⁾, and tripropylene glycol diacrylate (TPGDA)⁽¹⁾. Although viscosity reduction can be achieved with non-reactive solvents, reactive diluents are preferred because they are essentially 100 percent converted during UV/EB exposure to form a part of the coating or ink, thus reducing solvent emissions. The specific reactive diluents used will influence performance properties such as hardness and flexibility.

Graph II illustrates the change in viscosity of EBECRYL 230 with increasing temperature.

GRAPH II

EBECRYL 230 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 230, see the Safety Data Sheet (SDS) for information on the identified hazards of the material and the recommended personal protective equipment and procedures.

STORAGE AND HANDLING

Care should be taken not to expose the product to high temperature conditions, direct sunlight, ignition sources, oxidizing agents, alkalis or acids. This might cause uncontrollable polymerization of the product with the generation of heat. Storage and handling should be in stainless steel, amber glass, amber polyethylene or baked phenolic lined containers. Procedures that remove or displace oxygen from the material should be avoided. Do not store this material under an oxygen free atmosphere. Dry air is recommended to displace material removed from the container. Wash thoroughly after handling. Keep container tightly closed. Use with adequate ventilation.

See the SDS for the recommended storage temperature range for EBECRYL 230.

Please refer to the allnex Guide to Safety and Handling of Acrylate Oligomers and Monomers for additional information on the safe handling of acrylates.

(1) Product of allnex

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