

ALIPHATIC URETHANE DIACRYLATE

INTRODUCTION

EBECRYL® 244 is an aliphatic urethane diacrylate diluted 10% by weight with the reactive diluent 1,6-hexanediol diacrylate (HDDA). EBECRYL® 244 exhibits light color and good cure response. Films of EBECRYL® 244 cured by ultraviolet light (UV) or an electron beam (EB) demonstrate good flexibility, toughness, abrasion and water resistance, and are resistant to yellowing.

PERFORMANCE HIGHLIGHTS

EBECRYL® 244 is characterized by:

- Light color
- Crystalline viscous liquid

UV/EB cured products based on EBECRYL® 244 are characterized by the following performance properties:

- Good flexibility and toughness
- Excellent abrasion resistance
- Good water, thermal and electrical resistance
- 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 photo initiators.

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL® 244 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 screen printing. EBECRYL® 244 is recommended for use in:

- Flexible screen inks and coatings
- Light stable coatings
- Electrical insulation coatings
- Coatings where a minimum of water absorption is desired (absorbs less than 1% water/24 hr. immersion)

SPECIFICATIONS

Appearance, 50°C	Clear liquid
Color, Gardner	max. 2
Viscosity at 60°C, mPa.s	7000 - 9000

TYPICAL PHYSICAL PROPERTIES

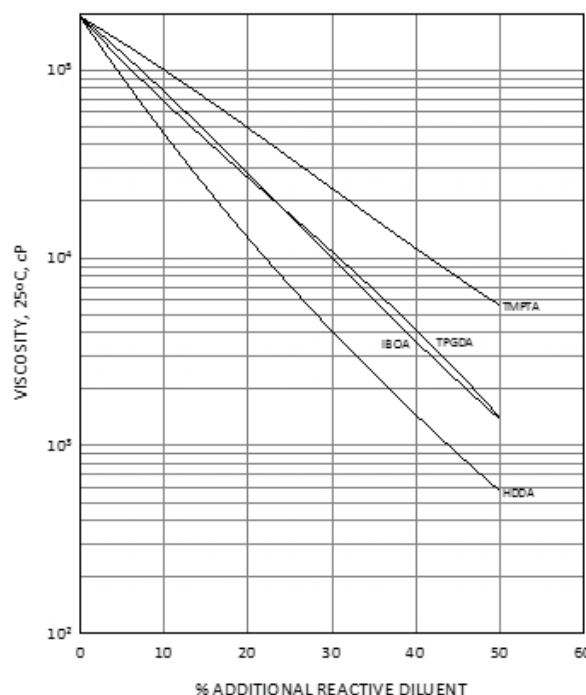
Density, g/cm ³ at 25°C	1.12
Functionality, theoretical	2
Oligomer, % by weight	90
HDDA, % by weight	10

TYPICAL CURED PROPERTIES

Tensile strength, psi (MPa)	3700 (26)
Elongation at break, %	60

GRAPH I

EBECRYL® 244 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



VISCOSITY REDUCTION

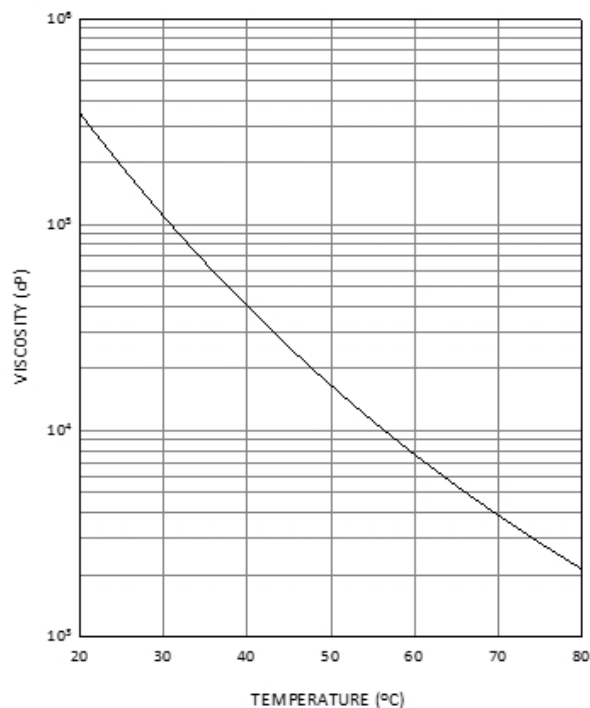
Graph I shows the viscosity reduction of EBECRYL® 244 with 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, trimethylolpropane triacrylate (TMPTA)⁽¹⁾, and tripropylene glycol diacrylate (TPGDA)⁽¹⁾. Although viscosity reduction can be achieved with non-reactive solvents, reactive diluents are preferred because they are essentially 100 percent converted during UV/EB exposure to form a part of the coating, thus reducing solvent emissions. The specific reactive diluents used will influence performance properties such as hardness and flexibility.

⁽¹⁾ product of allnex

Graph II illustrates the change in viscosity of EBECRYL 244 with increasing temperature.

GRAPH II

EBECRYL® 244 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL® 244, 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® 244.