

EBECRYL® 8809

Aliphatic Urethane Diacrylate

May 2017



INTRODUCTION

EBECRYL 8809 is a difunctional aliphatic urethane acrylate that does not contain any intentionally added organic tin compounds, heavy metals*, hydroquinone (HQ) or methyl ether of hydroquinone (MEHQ). (Please note that quinones are present in many raw materials, so the overall quinone content is reduced, but not zero in EBECRYL 8809.) Films of EBECRYL 8809 cured by ultraviolet light (UV) or electron beam (EB) exhibit excellent exterior durability, toughness, and resistance to yellowing. EBECRYL LEO 10501 is present at 5% in this product.

PERFORMANCE HIGHLIGHTS

EBECRYL 8809 is characterized by:

- No intentionally added tin, heavy metals*, or quinones
- Light color
- No diluting monomers

UV/EB cured products containing EBECRYL 8809 are characterized by the following performance properties:

- Regulation friendly for tin, heavy metals*, and quinones
- Excellent exterior durability
- Excellent toughness
- 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 8809 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 8809 is recommended for use in:

- Applications that must meet regulations for tin, heavy metal*, and quinone content Screen inks and coatings on various substrates
- Non-yellowing, exterior durable coatings
- Coatings for wood and plastics

TYPICAL PROPERTIES

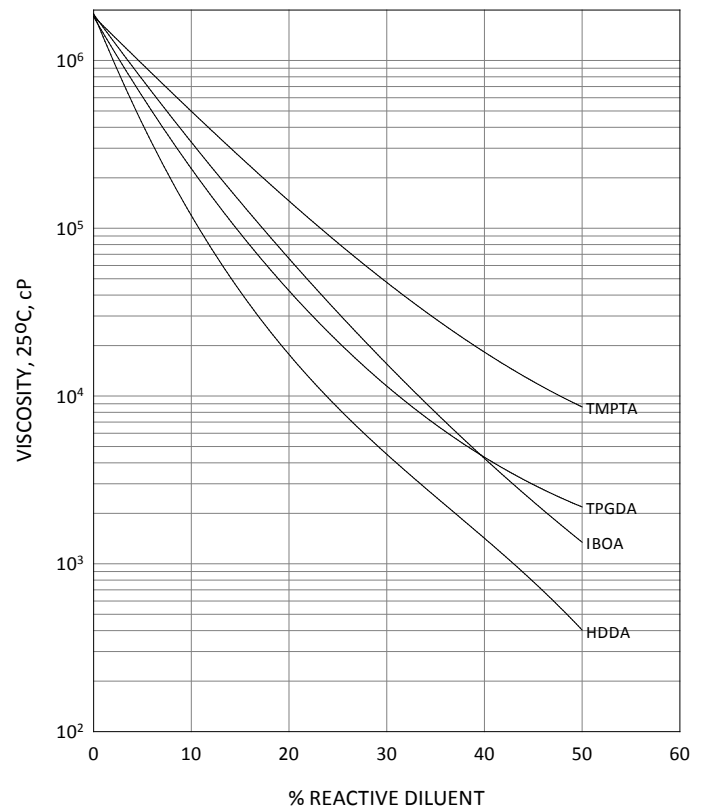
	VALUE
Appearance	Clear liquid
Color, Gardner scale	<1
Density, g/ml at 25°C	1.18
Functionality, theoretical ⁽¹⁾	2
HQ/MEHQ Content, ppm ⁽²⁾	<10/<10 ⁽³⁾
Oligomer, % by weight	95
NCO, %	≤0.2
Viscosity, 60°C, cP/mPa·s	16000

TYPICAL CURED PROPERTIES⁽⁴⁾

Tensile strength, psi (MPa)	5000 (35)
Elongation at break, %	24
Young's modulus, psi (MPa)	198400 (1368)
Glass transition temperature, °C ⁽⁵⁾	67

GRAPH I

EBECRYL 8809 - VISCOSITY REDUCTION WITH REACTIVE DILUENT



(1) Theoretical determination based on the undiluted oligomer.

(2) Typical property. Not measured.

(3) Amount detected via HPLC with a UV detector.

(4) UV cured 125 μ thick films.

(5) Determined by Dynamic Mechanical Analysis.

*As defined by C.O.N.E.G's Toxic in Packaging Legislation, the ASTM Standard Consumer Safety Specification on Toy Safety F 963 (ASTM F 963-08), or the EU Directive 94/62/EC (and amendments) on packaging and packaging waste.

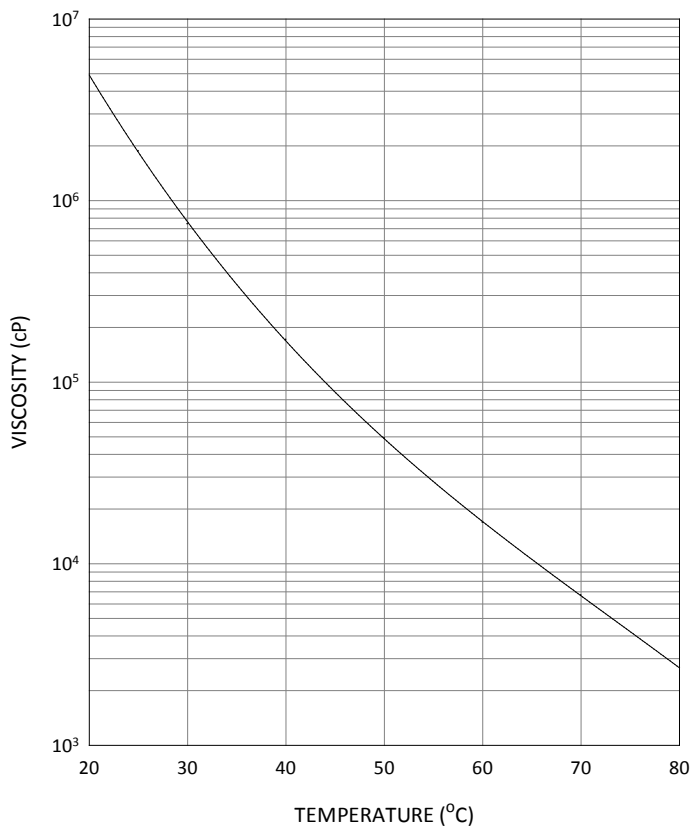
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 8809 with 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, tripropylene glycol diacrylate (TPGDA)⁽¹⁾ and trimethylolpropane triacrylate (TMPTA)⁽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 8809 with increasing temperature.

GRAPH II

EBECRYL 8809 - VISCOSITY VS. TEMPERATURE



(1) Product of allnex

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PRECAUTIONS

Before using EBECRYL 8809, 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 8809.

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