TECHNICAL DATASHEET

EBECRYL® UV/EB Energy Curable Resins

EBECRYL® 8800-20R

Aliphatic Urethane Acrylate

March 2017

INTRODUCTION

EBECRYL 8800-20R is an aliphatic urethane acrylate diluted with the reactive diluents tripropylene glycol diacrylate (TPGDA)[1] and ethoxyethoxyethyl acrylate (EOEOEA)[2]. Films of EBECRYL 8800-20R cured by ultraviolet light (UV) or electron beam (EB) exhibit toughness, flexibility, good exterior durability and resistance to yellowing.

PERFORMANCE HIGHLIGHTS

EBECRYL 8800-20R is characterized by:

- Light color
- Crystalline semi-solid
- Low odor

UV/EB cured products containing EBECRYL 8800-20R are characterized by the following performance properties:

- Excellent abrasion resistance
- Toughness
- Exterior durability
- Flexibility
- Chemical 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 photoinitiators.

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL 8800-20R 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. EBECRYL 8800-20R is recommended for use in:

- Wood and vinyl floor coatings
- Coatings requiring exterior durability
- Coatings for wood and plastic

SPECIFICATIONS

SPECIFICATIONS	VALUE
Appearance, molten	Clear
Color, 65.5°C, Gardner scale, max.	2
NCO, %, max.	0.16
Viscosity, 65.5°C, cP/mPa·s	1000-3000

TYPICAL PHYSICAL PROPERTIES

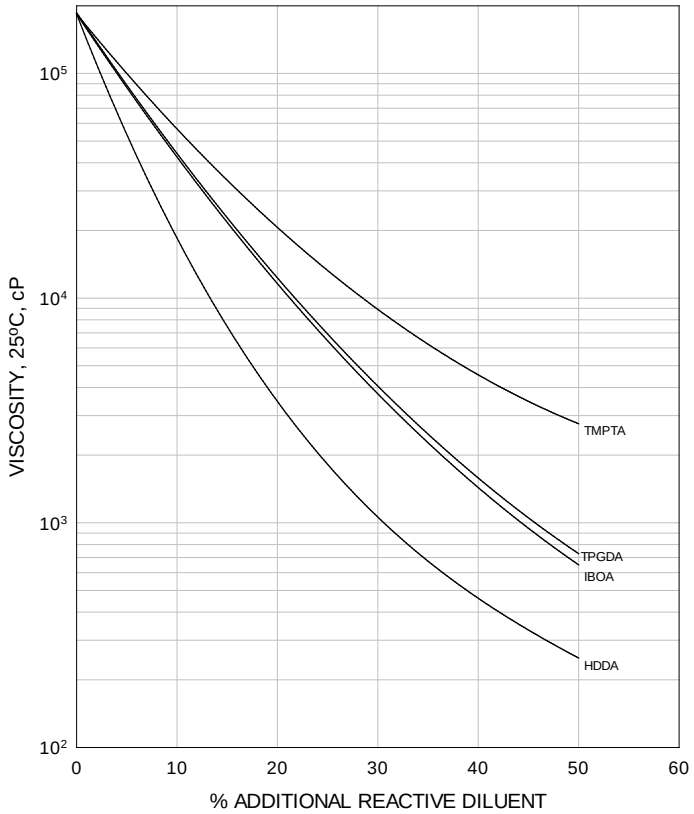
Density, g/ml at 25°C.	1.01
Functionality, theoretical[3]	2.5
Oligomer, % by weight	72
TPGDA, % by weight	20
EOEOEA, % by weight	8

TYPICAL CURED PROPERTIES[4]

Tensile strength, psi (MPa)	3400 (23)
Elongation at break, %	45
Glass transition temperature, °C[5]	59

GRAPH I

EBECRYL 8800-20R - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



(1) Product of allnex
(2) Product of Sartomer Company
(3) Theoretical determination based on the undiluted oligomer.
(4) UV cured 125 µ thick films.
(5) Determined by Dynamic Mechanical Analysis.

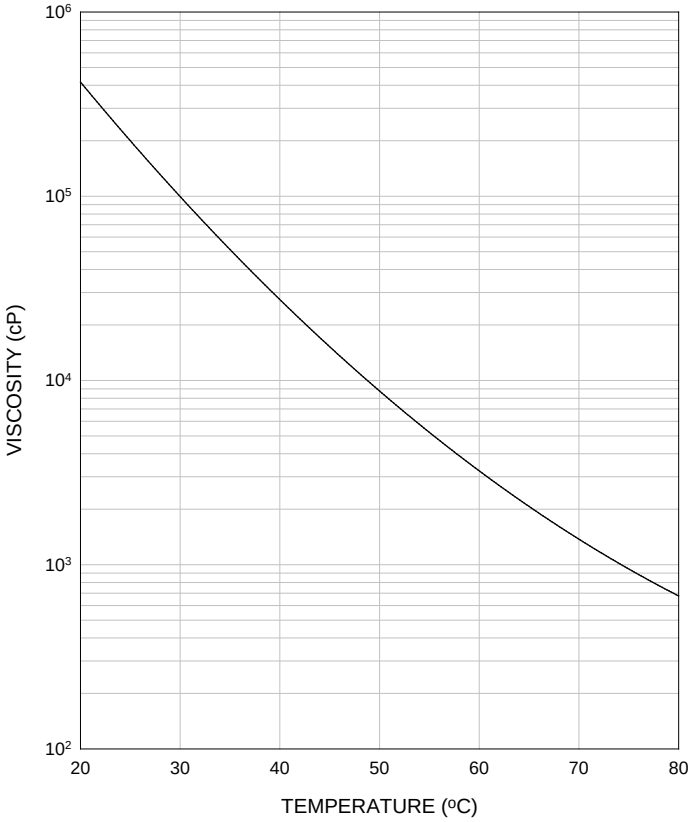
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 8800-20R with 1,6-hexanediol diacrylate (HDDA)(1), isobornyl acrylate (IBOA)(1), trimethylolpropane triacrylate (TMPTA)(1), and tripropylene glycol diacrylate (TPGDA). 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 8800-20R with increasing temperature.

GRAPH II

EBECRYL 8800-20R - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 8800-20R, 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.

Upon storage, EBECRYL 8800-20R may show signs of crystallization. This crystallization can be removed by heating containers of EBECRYL 8800-20R to a uniform temperature of 60°C. Ovens or hotboxes are recommended methods of heating. Heating tapes should not be used. In typical formulations, EBECRYL 8800-20R does not exhibit signs of crystallization.

See the SDS for the recommended storage temperature range for EBECRYL 8800-20R.

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

www.allnex.com