

EPOXY NOVOLAC ACRYLATE

INTRODUCTION

EBECRYL® 629 is an acrylated epoxy novolac diluted with the reactive diluents trimethylolpropane triacrylate (TMPTA) and hydroxyethyl methacrylate (HEMA). When cured via ultraviolet light (UV) or electron beam (EB), EBECRYL® 629 exhibits high surface hardness, good heat resistance, low shrinkage, and good adhesion to metal, particularly copper. This resin was specifically designed for UV cure solder resist applications.

PERFORMANCE HIGHLIGHTS

EBECRYL® 629 is characterized by:

- Moderate viscosity
- Light color

UV/EB cured properties based on EBECRYL® 629 are characterized by the following performance properties:

- High surface hardness
- Good heat resistance
- Good adhesion to metal, particularly copper

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL® 629 may be applied via screen, direct or reverse roll, and curtain coating methods.

EBECRYL® 629 is recommended for use in:

- Solder resists
- Marking inks
- Adhesion to metallized substrates
- Heat resistant applications

SPECIFICATIONS

Acid value, mgKOH/g	max. 6
Appearance	Clear liquid
Color, Gardner	max. 4
Epoxide, %	max. 0.5
Viscosity at 25°C, mPa.s	7000 - 13000

TYPICAL PHYSICAL PROPERTIES

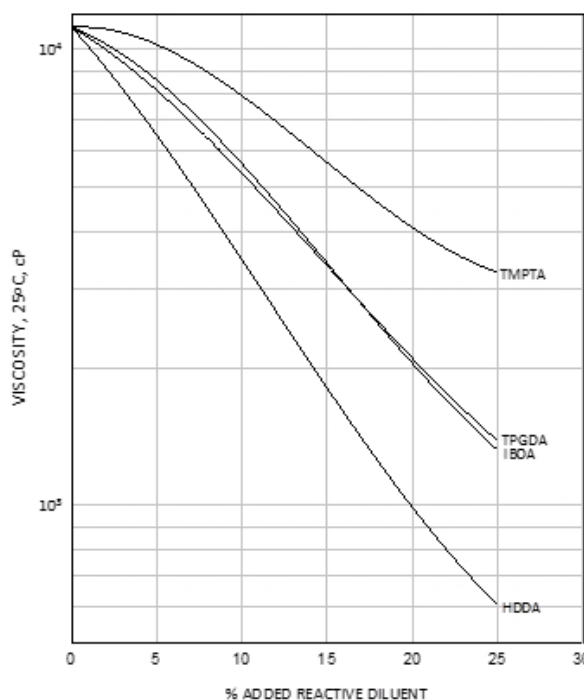
Density, g/cm <sup>3</sup> at 25°C	1.18
Functionality, theoretical	2.3
Oligomer, % by weight	≅66
TMPTA, % by weight	≅28
HEMA, % by weight	≅6

TYPICAL CURED PROPERTIES

Tensile strength, psi (MPa)	12600 (87)
Elongation at break, %	3
Glass transition temperature, °C	49

GRAPH I

EBECRYL® 629 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



VISCOSITY REDUCTION

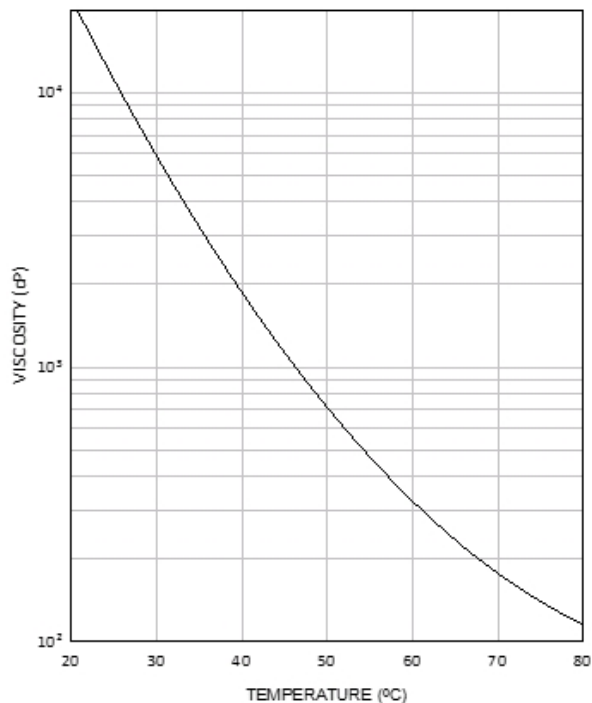
Graph I shows the viscosity reduction of EBECRYL® 629 with 1,6-hexanediol diacrylate (HDDA)<sup>(1)</sup>, isobornyl acrylate (IBOA)<sup>(1)</sup>, trimethylolpropane triacrylate (TMPTA)<sup>(1)</sup> and tripropylene glycol diacrylate (TPGDA)<sup>(1)</sup>. Although viscosity reduction can be achieved 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 avoiding solvent emissions. The specific reactive diluents used will influence performance properties such as hardness and flexibility.

<sup>(1)</sup> product of allnex

Graph II illustrates the change in viscosity of EBECRYL® 629 with increasing temperature.

**GRAPH II**

EBECRYL® 629 - VISCOSITY VS. TEMPERATURE



**PRECAUTIONS**

Before using EBECRYL® 629, 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® 629.