

EBECRYL® 1258

Aliphatic Urethane Triacrylate

INTRODUCTION

EBECRYL 1258 is a trifunctional aliphatic urethane acrylate diluted 20% by weight with hydroxypropylmethacrylate (HPMA) 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 1258.) Films of EBECRYL 1258 cured by ultraviolet light (UV) or electron beam (EB) combine abrasion resistance, flexibility, and adhesion with resistance to yellowing.

PERFORMANCE HIGHLIGHTS

EBECRYL 1258 is characterized by:

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

UV/EB cured products containing EBECRYL 1258 are characterized by the following performance properties:

- Regulation friendly for tin, heavy metals*, and quinones
- Excellent abrasion resistance and stain resistance
- Good flexibility and toughness
- Good adhesion
- 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 1258 may be applied via brush, roller, 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 1258 is recommended for use:

- In applications that must meet regulations for tin, heavy metal*, and quinone content
- On hard to adhere to substrates
- In metal coatings
- In plastic coatings
- In exterior durable coatings

*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 European Standard on Safety of Toys EN 71 Part 3 : 1994 + A1:2000 + A1/AC:2000 + AC:2002.

(1) Test methods available upon request.

(2) Typical property. Not measured.

(3) Amount detected via HPLC with a UV detector (nd = none detected).

(4) Theoretical determination based on the undiluted oligomer.

(5) UV cured 125 μ thick films.

(6) Determined by Dynamic Mechanical Analysis.

SPECIFICATIONS⁽¹⁾

	VALUE
Appearance	Clear liquid

TYPICAL PHYSICAL PROPERTIES

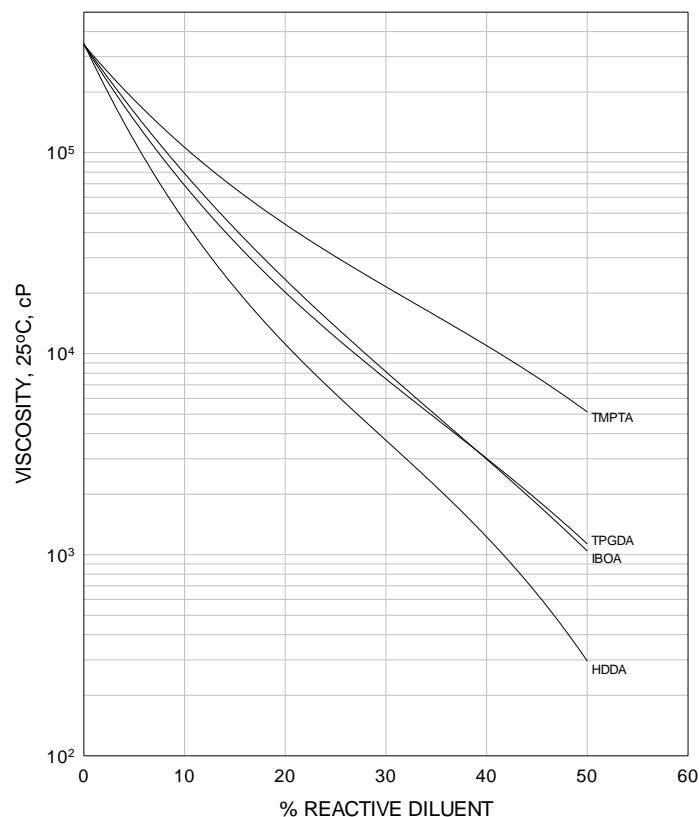
Color, Gardner scale	1
Viscosity, 60°C, cP/mPa·s	7100
HQ/MEHQ Content, ppm ⁽²⁾	nd/nd ⁽³⁾
Density, g/ml at 25°C ⁽²⁾	1.08
Functionality, theoretical ⁽⁴⁾	3
Oligomer, % by weight	80
HPMA, % by weight	20

TYPICAL CURED PROPERTIES⁽⁵⁾

Tensile strength, psi (MPa)	4590 (31.6)
Elongation at break, %	41
Young's Modulus, psi (MPa)	146,840 (1012)
Glass transition temperature, °C ⁽⁶⁾	79

GRAPH I

EBECRYL 1258 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



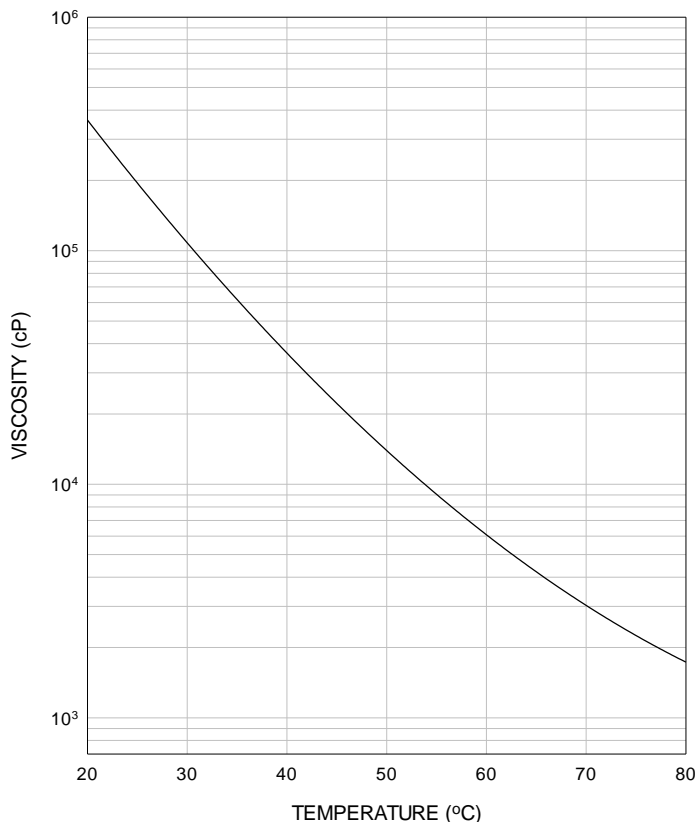
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 1258 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 1258 with increasing temperature.

GRAPH II

EBECRYL 1258 - VISCOSITY VS. TEMPERATURE



(1) Product of Allnex

STORAGE AND HANDLING

Before using EBECRYL 1258, consult the **Safety Data Sheet** for additional information on safety and handling procedures, and recommended personal protective equipment.

The recommended storage temperature range for EBECRYL 1258 is 4°C to 40°C (39°F to 104°F). 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.

PRECAUTIONS

Avoid contact with eyes and skin. Direct contact with this material may cause moderate eye and skin irritation. Contact with skin may cause a cross-allergic reaction in persons already sensitized to acrylate materials. Wash thoroughly after handling. Keep container tightly closed. Use with adequate ventilation.

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

• Worldwide Contact Info: www.allnex.com •

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