

EBECRYL® 5129

Aliphatic Urethane Hexaacrylate

March 2017



INTRODUCTION

EBECRYL 5129 is a hexafunctional aliphatic urethane acrylate that provides extremely fast cure response when exposed to ultraviolet light (UV) or electron beam (EB). Cured films of EBECRYL 5129 exhibit high hardness and resistance to yellowing plus outstanding scratch, abrasion and chemical resistance combined with a degree of flexibility not found in similar high functionality acrylates.

PERFORMANCE HIGHLIGHTS

EBECRYL 5129 is characterized by:

- Fast cure response
- Light color

UV/EB cured products containing EBECRYL 5129 are characterized by the following performance properties:

- Scratch and abrasion resistance
- Good flexibility
- High surface hardness
- Chemical resistance
- High gloss
- 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 5129 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 5129 is recommended for use in:

- Clear and pigmented coatings for paper, paperboard, wood, and rigid and flexible plastics
- Scratch and abrasion resistant coatings
- Modifier to improve cure speed, solvent resistance, and abrasion resistance

SPECIFICATIONS

	VALUE
Appearance	Clear liquid
Color, Gardner scale, max.	1
Viscosity, 60°C, cP/mPa·s	550-850

TYPICAL PHYSICAL PROPERTIES

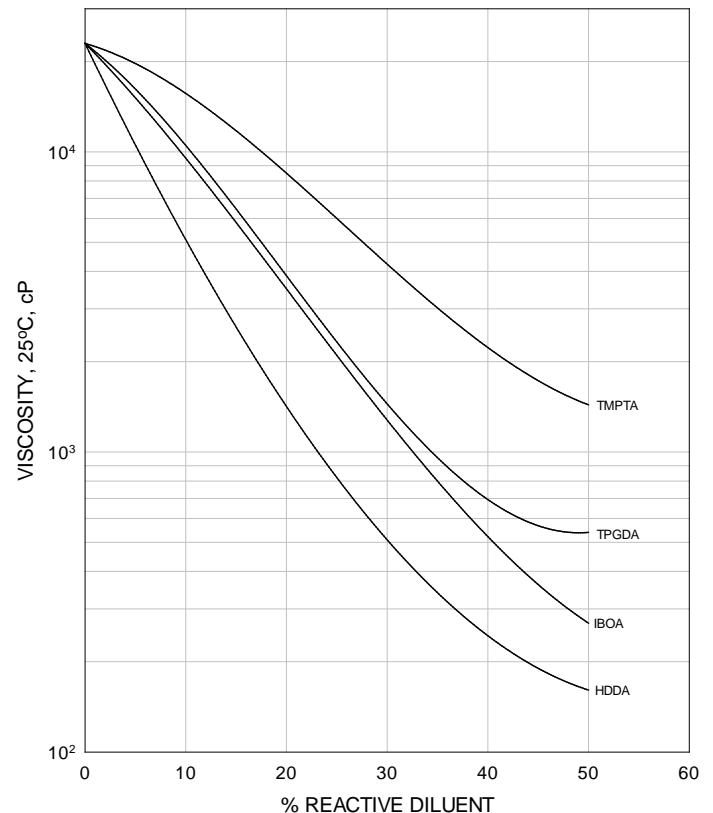
Density, g/ml at 25°C	1.18
Functionality, theoretical ⁽¹⁾	6

TYPICAL CURED PROPERTIES⁽²⁾

Tensile strength, psi (MPa)	9100 (63)
Elongation at break, %	4
Young's modulus, psi (MPa)	300000 (2069)
Glass transition temperature, °C ⁽³⁾	30

GRAPH I

EBECRYL 5129 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



(1) Theoretical determination based on the undiluted oligomer.

(2) UV cured 125 μ thick films.

(3) Determined by Dynamic Mechanical Analysis.

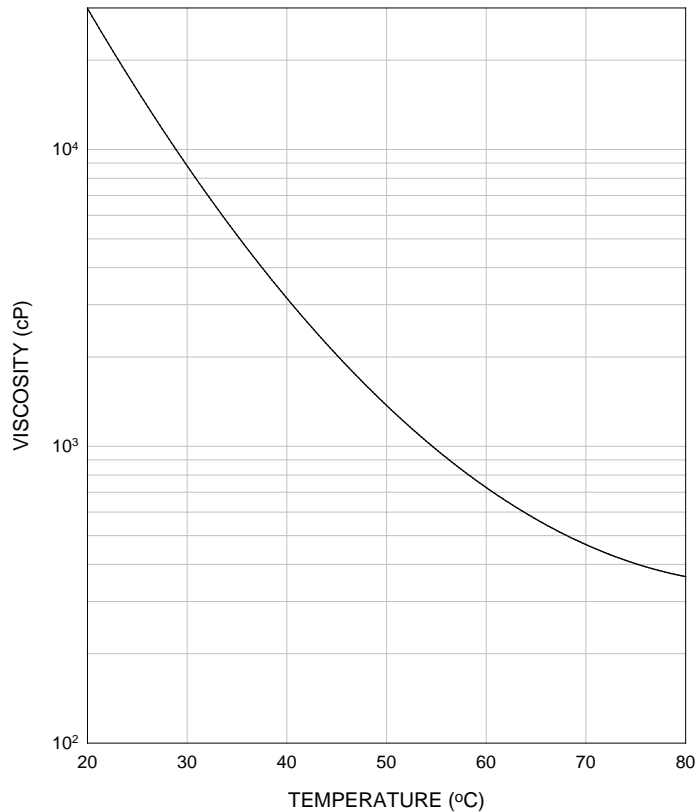
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 5129 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 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 5129 with increasing temperature.

GRAPH II

EBECRYL 5129 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 5129, 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 5129.

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

Disclaimer: allnex Group companies ("allnex") decline any liability with respect to the use made by anyone of the information contained herein. The information contained herein represents allnex's best knowledge thereon without constituting any express or implied guarantee or warranty of any kind (including, but not limited to, regarding the accuracy, the completeness or relevance of the data set out herein). Nothing contained herein shall be construed as conferring any license or right under any patent or other intellectual property rights of allnex or of any third party. The information relating to the products is given for information purposes only. No guarantee or warranty is provided that the product and/or information is adapted for any specific use, performance or result and that product and/or information do not infringe any allnex and/or third party intellectual property rights. The user should perform his/her own tests to determine the suitability for a particular purpose. The final choice of use of a product and/or information as well as the investigation of any possible violation of intellectual property rights of allnex and/or third parties remains the sole responsibility of the user.

Notice: Trademarks indicated with ®, ™ or * as well as the allnex name and logo are registered, unregistered or pending trademarks of Allnex IP s.à.r.l. or its directly or indirectly affiliated allnex Group companies.