

INTRODUCTION

Acrylated dipentaerythritol (DPHA) is a multifunctional reactive diluent that polymerizes when exposed to sources of free radicals. DPHA is particularly useful in ultraviolet light (UV) and electron beam (EB) curable coatings and inks where improved cure response, hardness and scratch/abrasion resistance are desired. DPHA is composed predominately of the penta- and hexa-acrylate esters of dipentaerythritol, with the overall composition represented by the included chemical structure.

PERFORMANCE HIGHLIGHTS

DPHA is characterized by:

- High acrylate functionality
- Hydroxyl functionality
- Very low vapor pressure

UV/EB curable formulated products containing DPHA are characterized by:

- Rapid cure response
- High cross-link density
- Improved scratch and abrasion resistance
- Excellent hardness
- Good chemical resistance

The actual properties of UV/EB cured products also depend on the selection of other formulation components such as oligomers, additives and photoinitiators.

SUGGESTED APPLICATIONS

DPHA is recommended as a reactive diluent for UV/EB curable inks and coatings where fast cure response and high cross-link density are desired, including;

- Scratch resistant coatings for plastics
- Lithographic and screen inks

SPECIFICATIONS

	VALUE
Acid value, mg KOH/g, max.	10
Appearance	Clear liquid
Color, Gardner scale, max.	3
Viscosity, 25°C, cP/mPa-s	12000-20000

TYPICAL PHYSICAL PROPERTIES

Density, g/ml at 25°C	1.17
Flash Point, Setaflash, °C	>100
Formula weight	524
Functionality	≥5
Residual solvent, wt. %	<0.1

CHEMICAL ABSTRACT SERVICE NUMBER

60506-81-2

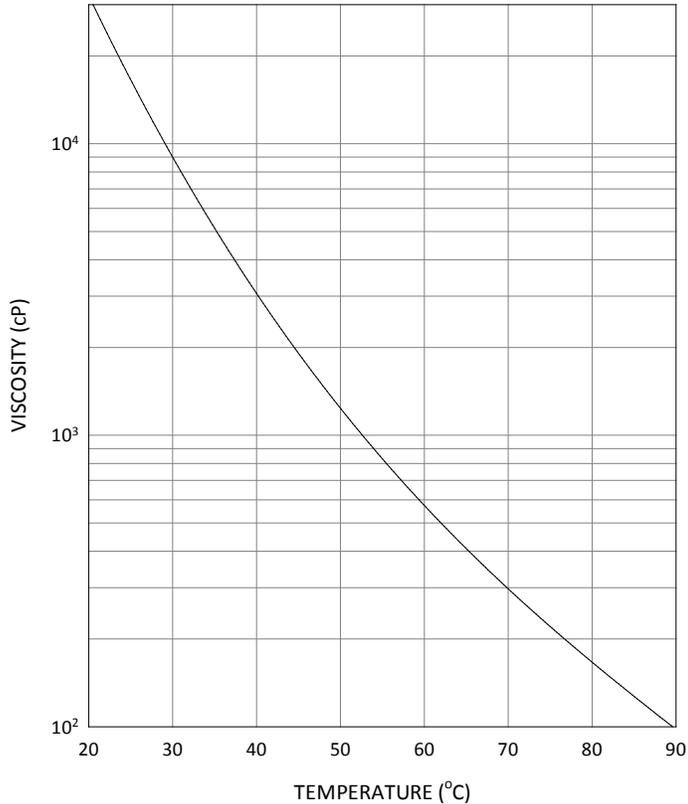
2-Propenoic acid,1,1'-[2-[[3-hydroxy-2,2-bis[[[(1-oxo-2-propen-1-yl)oxy]methyl]propoxy]methyl]-2-[[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl]ester

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2-Propenoic acid,1,1'-[2-[[3-[[[(1-oxo-2-propen-1-yl)oxy]-2,2-bis[[[(1-oxo-2-propen-1-yl)oxy]methyl]propoxy]methyl]-2-[[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl]ester

GRAPH I

DPHA - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using DPHA, 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 DPHA.

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

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