



PHOTOMER® 6010

Aliphatic Urethane Acrylate

Product Data Sheet

General Information

PHOTOMER® 6010 is a proprietary, non-yellowing aliphatic urethane developed for radiation curable systems. This premium oligomer of low viscosity eliminates the need to melt the oligomer prior to use. An excellent film former, it exhibits excellent light stability and weatherability for outdoor applications and outstanding haze, scratch and abrasion resistance.

Specification

Appearance	Visual	Clear viscous liquid
Viscosity @ 60 °C	Brookfield, ISO 2555	5,300 - 6,300 mPa.s
Colour (Gardner)	ISO 4630	≤ 1
Isocyanate content (NCO)		≤ 0.1 %

Additional Data

Specific Gravity @ 25 °C	1.080 g/cm ³
Weight/Gallon @ 25 °C	9.0 lbs
Draize Value	Mild
Molecular Weight	1500 g/mol

Application

PHOTOMER® 6010 is recommended for clear and pigmented systems where good weatherability characteristics are required. It exhibits excellent physical properties on a variety of substrates including plastic, metal and wood. PHOTOMER® 6010 imparts flexibility to paper coatings, and is an excellent base resin for thermoformable and embossable coating and ink formulations. PHOTOMER® 6010 forms tough, durable films with good solvent resistance, high surface hardness and good flexibility.

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Film Studies	Aluminum
Scuff Resistance	Good
Gloss, 60°	100
Pencil Hardness	F
Solvent Resistance (MEK Double Rubs)	Fair
Conical Mandrel	< 0.25"
Cure Conditions:	RDS Rod #3; 0.27 mils wet film thickness; 4 % PHOTOMER® 51; 100 ft/min; one 300 watt/inch UV lamp.

Homopolymer Characteristics of PHOTOMER® 6010

- 3,200 psi Tensile Strength
- 25 % Elongation
- 0.44 % Shrinkage on Cure

Formulation Suggestions for PHOTOMER® 6010

Formulated UV/EB curable products containing PHOTOMER® 6010 may be applied by a variety of methods including roll coat, curtain, lithographic and screen printing presses. Coatings based on this low viscosity urethane acrylate oligomer provide high gloss, high build and protection to printed surfaces. The following coating formulations illustrate the variety of applications in which this versatile oligomer can be effectively utilized.

Formula Components	Polycarbonate	Paper	Vinyl Tile
PHOTOMER® 4028	---	19.0	---
PHOTOMER® 4039	---	---	20.0
PHOTOMER® 4127	10.0	20.0	22.0
PHOTOMER® 4149	38.0	25.0	14.0
N-vinyl-2-pyrrolidone	15.0	---	---
PHOTOMER® 6010	30.0	25.0	40.0
Omnirad® BP	2.0	6.0	---
Omnirad® 73	4.0	3.0	4.0
Triethanolamine	1.0	2.0	---

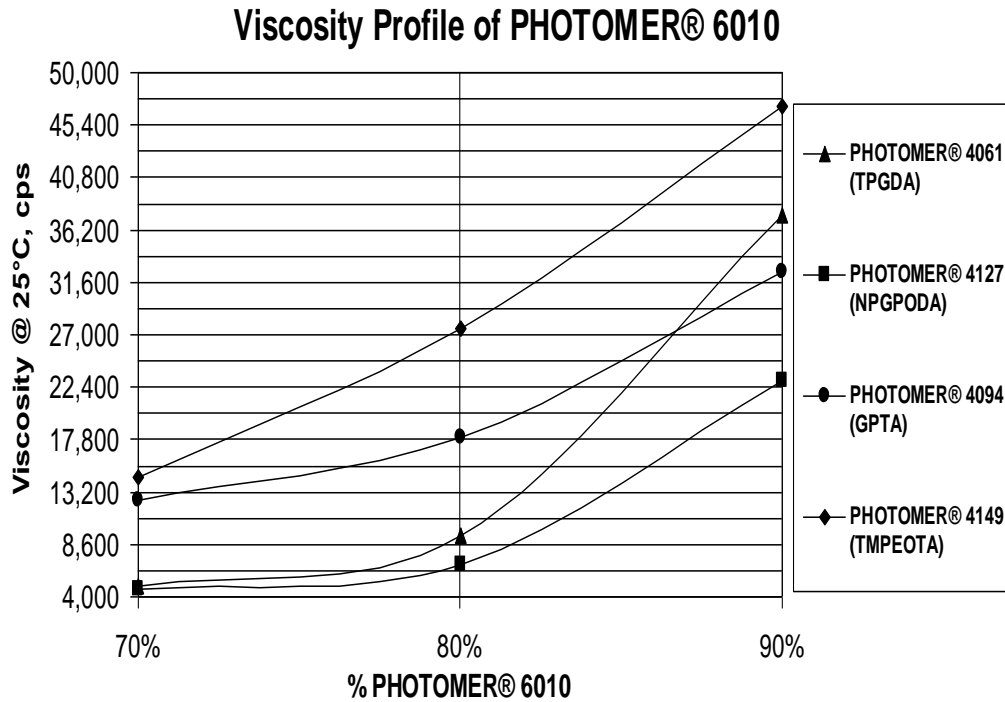
Properties

Viscosity @ 25 °C, cps	360	420	530
Cure Speed, ft/min	50	100	50
Gloss, 60°	Good	Good	Good
Scuff Resistance	Good	Good	Good
Pencil Hardness	6H	5H	6H
Solvent Resistance (MEK Double Rubs)	90	30	55
Adhesion (#600 Cellotape)	100 %	100 %	100 %

Cure Conditions: RDS Rod #3;
0.27 mils wet film thickness;
one 300 watt/inch UV lamp.

Viscosity Reduction Profile

Viscosity reduction studies with various monomers as depicted in the following graph demonstrate the relative ease diluting PHOTOMER® 6010 oligomer. Second generation PHOTOMER® monomers and conventional monomers representing a broad spectrum of multifunctional reactive diluents were found to be very compatible with PHOTOMER® 6010 over a wide range of dilution.



Regulatory Status

TSCA, NDSL, AICS, ECL, ENCS/MITI, IECSC, EU

Miscellaneous

PACKAGING, STORAGE AND HANDLING

PHOTOMER® 6010 is available in 55 gallon (200 liter) lined openhead steel drums. PHOTOMER® 6010 may solidify and crystallize if subjected to cold or freezing conditions. Allow to warm to 50 °C until a uniform product is obtained, mix on a drum roller if necessary. Storage must be in a cool, shaded, well ventilated and dry area away from sources of direct heat and sunlight.

Additional handling information is contained within the material safety data sheet which is available upon request.

FREIGHT CLASSIFICATION

PHOTOMER® 6010 is classified as: Synthetic Resins NOIBN (Resin or Resin Compounds).

Subject to appropriate storage under the usual storage and temperature conditions, our products are durable for at least 24 months.

Suggestions of processing and using our products are given with best knowledge and information but without obligation. IGM Resins, B.V. does not accept any guarantee to the suitability of a product for the user's specific purpose. Further on the user himself assumes a liability to follow all legal regulations by using our products. The user can only pass on our sample to third parties with previous assent of IGM Resins, B.V.