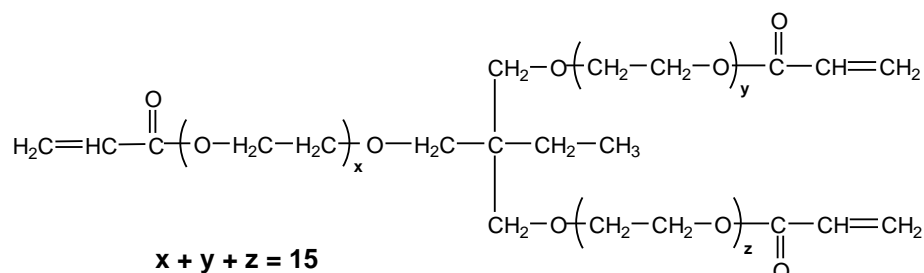


Product Data Sheet

General Information

PHOTOMER[®] 4158 is a high molecular weight analogue of ethoxylated TMPTA (PHOTOMER[®] 4149). Because of its increased ethoxylate content, PHOTOMER[®] 4158 exhibits greater hydrophilic characteristics than unmodified acrylate polyols and will provide an excellent starting point for developing water dispersible UV/EB curable inks and coatings.

Chemical Data



Chemical Name	: Trimethylolpropane [15 EO] triacrylate (TMP15EOTA)
Molecular weight	: 956 g/mol
CAS No.	: 28961-43-5
EINECS No.	: 500-066-5

Specification

Appearance	Visual	Clear pale yellow liquid
Viscosity @ 25 °C	Brookfield, ISO 2555	140 - 200 mPa.s
Colour (APHA)	ISO 6271	≤ 150 APHA
Acid Value	ISO 660	≤ 1 mg KOH/g
Moisture content	Karl Fischer, ISO 4317	≤ 0.4 %
Solvent content	GC Analysis	≤ 0.5 %

Additional Typical Properties

PHOTOMER[®] 4158 has a Tg of -32 °C

Application

PHOTOMER® 4158 is an excellent film former when cured by UV/EB as compared to other multifunctional acrylates. In spite of its reduced acrylate concentration (i.e. moles/liter), PHOTOMER® 4158 exhibits excellent crosslinking reactivity. PHOTOMER® 4158 imparts hardness without the brittleness characteristic of cured polymers with high crosslink densities. It is recommended for use in UV/EB curable coatings and varnishes for a variety of industrial applications where water dispersibility is required, such as with solvent/aqueous developable photopolymers.

It is also recommended for screen printing inks, lithographic inks and paper/paperboard coatings in a variety of graphic arts applications.

Formulated product properties will depend on the actual reactive monomers, oligomers and additives utilized.

Features & Benefits

Homopolymer Film Properties of PHOTOMER® 4158 cured with 6% Omnirad BP Flakes and 2 % tertiary amine.

- 280 psi tensile strength
- 8.0 % elongation
- 11-15 % shrinkage on cure

Curing conditions: Applied by RDS Rod #3; 6.8 µm wet film thickness; cured with one 300 watt/inch UV lamp

	Paper	Aluminum	Tin
Nr of passes to cure	4	4	4
Scuff Resistance	Good	Good	Good
Gloss, 60°	100	100	100
Adhesion (# 600 cello tape)	Excellent	Fair	Fair
Pencil Hardness	5H	5H	5H
Conical Mandrel	< 0.25"	< 0.25"	< 0.25"

Formulation Suggestions for PHOTOMER® 4158

The excellent reactivity, viscosity reduction and low skin irritancy properties of PHOTOMER® 4158 make it an effective crosslinking replacement monomer for first generation trifunctionals. PHOTOMER® 4158 contributes to the demanding performance requirements of coatings. The following are suggested starting formulas for paper/paperboard, plastic and metals:

	Paper	Aluminium	Polycarbonate
PHOTOMER® 3016	23		
PHOTOMER® 5429		29	29
PHOTOMER® 4028		10	10
PHOTOMER® 4039		20	20
PHOTOMER® 4061	45		
PHOTOMER® 4158	23	33	33
PHOTOMER® 4967	5	5	5
Omnirad BP	3	2	3
Omnirad BDK	1	1	1

Properties

<i>Viscosity @ 25 °C</i>	<i>172 mPa.s</i>	<i>195 mPa.s</i>	<i>195 mPa.s</i>
<i>Scuff Resistance</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>
<i>Gloss 60°</i>	<i>100</i>	<i>100</i>	<i>100</i>
<i>Adhesion (#600 Cellotape)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>
<i>Conical Mandrel</i>	<i>< 0.25"</i>	<i>< 0.25"</i>	<i>< 0.25"</i>

Curing conditions: Applied by RDS Rod #3; 6.8 µm wet film thickness; Speed 100 ft/min, cured with one 300 watt/inch UV lamp

Storage & Handling

Storage must be in a cool, shaded, well ventilated and dry area away from direct sources of heat and sunlight. PHOTOMER® 4158 may crystallize or stratify if subjected to cold or freezing conditions. Allow to warm to room temperature and mix well before using.

Subject to appropriate storage under the usual storage and temperature conditions, our products are durable for at least 12 months.

PHOTOMER® 4158 should be handled in accordance with good industrial practice. Further information is provided in the material safety data sheet which is available on request.

Regulatory Status

TSCA (USA), EU (Europe), IECSC (China), DSL (Canada), PICCS (Philippines), AICS (Australia), NZIoC (new Zealand), ECL (Korea), Taiwan

Packaging

PHOTOMER® 4158 is available in 200 kg steel drums

Disclaimer

The information presented in this data sheet is given in good faith and is based on the material available to us at the time of writing. The information is not to be taken as a warranty or representation for which we assume legal responsibility, nor as permission or recommendation to practice any patented invention without a license. It is offered solely for consideration, investigation and verification.