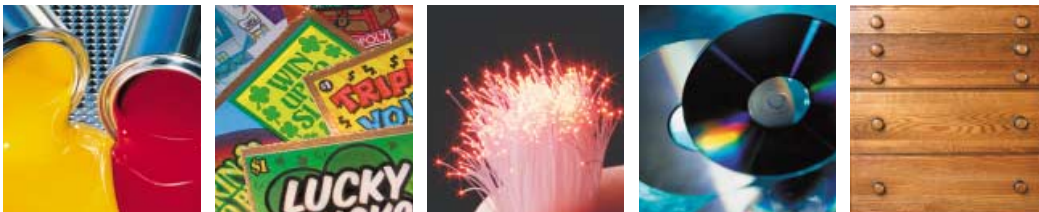


PHOTOMER® products for UV/EB curing

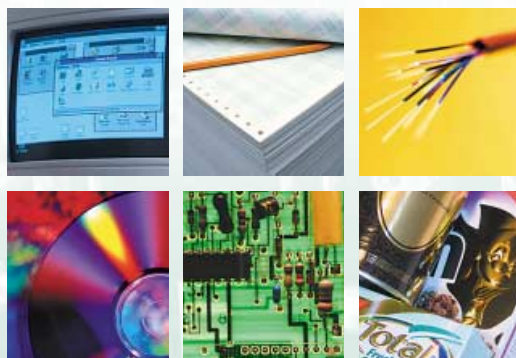


Spot UV curing process on the cover was done using Cognis PHOTOMER® acrylates.

cognis
we know how

PHOTOMER® Products

PHOTOMER® products and additives provide unique benefits to every UV/EB application. Whether you need excellent color development and fast curing inks, high abrasion, solvent and yellowing resistant coatings or high bond strength adhesives, there is a PHOTOMER® solution to improve your products.



Products

Full portfolio of PHOTOMER® monomers, oligomers & adhesion promoters

- Acrylated epoxy oligomers
- Acrylated monomers
- Acrylated polyester oligomers
- Acrylated urethane oligomers
- Specialty polyols
- Low surface tension methoxyether acrylates
- Solvent free UV/EB monomers

A range of UV additives

- Defoamers
- Slip agents
- Flow agents
- Leveling agents
- Dispersing agents

Formulation Range

- Near zero VOC, 100% solids coatings
- Low odor, low extractable laminating adhesives
- Optimum rheology high pigment loading inks
- Matte effect and water resistant coatings
- Water reducible inks and coatings

Who is Cognis

We are a world leader in specialty chemical solutions. We use sustainably sourced materials to deliver many biodegradable and/or environmentally sound products. We conduct business in over 100 countries and have production or service centers in nearly fifty countries on five continents.

We combine our broad line of naturally sourced high value-added products, keen market orientation and decades of formulation experience to create, improve and deliver innovative products for existing and emerging market needs.

PHOTOMER® 4000 Series - Monofunctional Monomers

Product	Chemical Description	Typical Viscosity (mPa.s) (@ 25°C)	Color APHA or Gardner	Acid Value mg KOH/g, max	Specific gravity @ 25 °C	Surface tension @ 25 °C (m n/m)	Regulatory Status	Product Attributes	Applications
4003	Nonyl Phenol (4) ethoxylate acrylate	113	3	0.5	1.12	34.5	TSCA, IECSC, AICS EINECS, ECL ENCS, PICCS	Adhesion Flow & Leveling High MW Resin Compatibilizer	Adhesives* Optical Coatings Composites
4035	2-Phenoxyethyl acrylate	13	150	1.0	1.10	39.5	TSCA, AICS EINECS, DSL ENCS	Adhesion Coating Hardness High MW Resin Compatibilizer	Adhesives* Graphic Arts* Composites
4039	Phenol (2.5) ethoxylate acrylate	20	150	0.5	1.12	40.7	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS	Adhesion Coating Hardness High MW Resin Compatibilizer	Adhesives* Graphic Arts* Composites
4810	Isodecyl acrylate	8	200	1.0	0.88	28.7	TSCA, IECSC, AICS EINECS, ECL ENCS, PICCS	Flexibility Pigment Wetting Substrate wetting	Coatings* Graphic Arts* Inkjet Inks
4812	Lauryl acrylate	8	250	0.5	0.88	29.8	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Low Viscosity Flexibility High MW Resin Compatibilizer	Coatings* Graphic Arts* Composites
4814	Myristyl acrylate	8.5	1	0.5	0.86	30.3	TSCA EINECS ENCS	Flexibility Low Skin Irritation High MW Resin Compatibilizer	Coatings* Graphic Arts* Composites
4816	Hexadecyl acrylate	10	3	0.5	0.86	31.0	TSCA, IECSC EINECS, ECL ENCS, PICCS	Flexibility Low Skin Irritation High MW Resin Compatibilizer	Coatings* Graphic Arts* Composites

PHOTOMER® 4000 Series - Monofunctional Monomers Continued

Product	Chemical Description	Typical Viscosity (mpa.s) (@ 25 °C)	Color APHA or Gardner	Acid Value, mg KOH/g, max	Specific gravity @ 25 °C	Surface tension @ 25 °C (m n/m)	Regulatory Status	Product Attributes	Applications
4818	Stearyl acrylate	Solid	250	0.5	0.85 @ 60 °C	---	TSCA, IECSC, AICS EINECS, ECL ENCS, PICCS	Flexibility Low Skin Irritation High MW Resin Compatibilizer	Coatings* Graphic Arts* Composites
4822	Behenyl acrylate	Solid	250	0.5	0.85 @ 60 °C	---	TSCA, IECSC, AICS EINECS, ECL ENCS, PICCS	Flexibility Low Skin Irritation High MW Resin Compatibilizer	Coatings* Graphic Arts* Composites
4960	Nonyl phenol (2.5) propoxylate acrylate	125	250	1.0	1.12	32.7	TSCA EINECS ENCS	Adhesion Flow & Leveling High MW Resin Compatibilizer	Adhesives* Optical Coatings Composites

PHOTOMER® 4000 Series - Difunctional Monomers

4011	1,6-Hexanediol (3) ethoxylate diacrylate	20	200	0.5	1.06	38.4	TSCA EINECS ENCS	Low Viscosity Pigment Wetting Flow & Leveling	Inkjet Inks Flexographic Inks Lithographic Inks
4017	1,6-Hexanediol diacrylate	9	100	1.0	1.02	35.2	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Low viscosity Adhesion Chemical Resistance	Coatings* Graphic Arts* Adhesives*
4025	Bisphenol-A (8) ethoxylated diacrylate	750	3	1.0	1.15	45.8	TSCA, AICS EINECS, DSL ENCS	Low Viscosity Gloss Low Shrinkage	Wood Coatings OPV Photoresist

PHOTOMER® 4000 Series - Difunctional Monomers Continued

Product	Chemical Description	Typical Viscosity (mpa.s) (@ 25 °C)	Color APHA or Gardner	Acid Value, mg KOH/g, max	Specific gravity @ 25 °C	Surface tension @ 25 °C (m n/m)	Regulatory Status	Product Attributes	Applications
4028	Bisphenol-A (4) ethoxylated diacrylate	1200	150	0.5	1.14	45.5	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Low Viscosity Gloss Low Shrinkage	Wood Coatings OPV Photoresist
4050	Polyethylene glycol 200 diacrylate	23	250	0.5	1.11	39.5	TSCA, AICS EINECS, DSL ENCS	Flexibility Flow & Leveling Water soluble	OPV Graphic Arts* Wood Coatings
4061	Tripropylene glycol diacrylate	15	250	0.5	1.03	33.0	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	High Reactivity Low Skin Irritation Film Former	Coatings* Graphic Arts* Adhesives*
4102	Decanediol diacrylate	12	200	1.0	1	36.4	TSCA EINECS ENCS	Flexibility Low Viscosity	Graphic Arts* Coatings*
4127	Neopentyl glycol (2) propoxylate diacrylate	15	200	0.5	1.01	31.5	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS	Dispersive Properties Pigment Wetting Flow & Leveling	Coatings* Graphic Arts* Adhesives*
4160	Neopentyl glycol (2) ethoxylate diacrylate	15	250	1.0	1.04	33.5	TSCA EINECS ENCS	Dispersive Properties Pigment Wetting Flow & Leveling	Coatings* Graphic Arts* Adhesives*
4226	Dipropylene glycol diacrylate	10	250	0.5	1.07	32.8	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS	Low Viscosity Pigment Wetting High Reactivity	Flexographic Inks Inkjet Inks Lithographic Inks

PHOTOMER® 4000 Series - Difunctional Monomers Continued

Product	Chemical Description	Typical Viscosity (mpa.s) (@ 25°C)	Color APHA or Gardner	Acid Value, mg KOH/g, max	Specific gravity @ 25 °C	Surface tension (m n/m) @ 25 °C	Regulatory Status	Product Attributes	Applications
4361	1,6-Hexanediol (2) ethoxylate diacrylate	15	250	0.1	1.02	37.5	TSCA ENCS	Low Viscosity Pigment Wetting Flow & Leveling	Inkjet Inks Flexographic Inks Lithographic Inks
4362	1,6-Hexanediol (2) propoxylate diacrylate	20	160	0.1	1.02	34.4	TSCA ENCS	Low Viscosity Pigment Wetting Flow & Leveling	Inkjet Inks Flexographic Inks Lithographic Inks

PHOTOMER® 4000 Series - Trifunctional & Higher Monomers

4006	Trimethylolpropane triacrylate	100	250	0.7	1.11	36.8	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	High Reactivity Coating Hardness Chemical Resistance	Coatings* Graphic Arts* Adhesives*
4072	Trimethylolpropane (3) propoxylate triacrylate	100	250	1.0	1.06	33.0	TSCA, IECSC, AICS EINECS, DSL ENCS	High Reactivity Flexibility Chemical Resistance	Coatings* Graphic Arts* Adhesives*
4094	Glyceryl (4) propoxylate triacrylate	90	250	0.5	1.06	35.2	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Pigment Wetting Flexibility Impact Resistance	Coatings* Graphic Arts* Adhesives*
4095	Glyceryl (4) propoxylate triacrylate (high purity)	80	250	---	1.06	35.1	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Pigment Wetting Flexibility Impact Resistance	Coatings* Graphic Arts* Adhesives*

PHOTOMER® 4000 Series - Trifunctional & Higher Monomers Continued

Product	Chemical Description	Typical Viscosity (mpa.s) (@ 25°C)	Color APHA or Gardner	Acid Value, mg KOH/g, max	Specific gravity @ 25 °C	Surface tension (m n/m) @ 25 °C	Regulatory Status	Product Attributes	Applications
4149	Trimethylolpropane (3) ethoxylate triacrylate	73	200	0.5	1.1	38.1	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	High Reactivity Coating Hardness Tensile Strength	Coatings* Graphic Arts* Adhesives*
4155	Trimethylolpropane (7) ethoxylate triacrylate	70	250	1.0	1.1	40.1	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Flexibility Impact Resistance Abrasion Resistance	Coatings* Graphic Arts* Adhesives*
4158	Trimethylolpropane (14) ethoxylate triacrylate	150	3	1.0	1.11	39.3	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Flexibility Impact Resistance Abrasion Resistance	Coatings* Graphic Arts* Adhesives*
4171	Pentaerythritol (4) propoxylate triacrylate	200	250	1.0	1.01	35	TSCA EINECS ENCS	High Reactivity Dispersive Properties Flexibility	Offset Inks Lithographic Inks Wood Coatings
4172	Pentaerythritol (5) ethoxylate tetraacrylate	130	100	0.7	1.01	39.9	IECSC, AICS EINECS, ECL ENCS	High Reactivity Dispersive Properties Flexibility	Offset Inks Lithographic Inks Wood Coatings
4399	Dipentaerythritol pentaacrylate	7000	3	2.0	1.13	44.1	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Coating Hardness Cure Speed Chemical Resistance	Coatings* Graphic Arts* Adhesives*

PHOTOMER® 3000 Series - Epoxy Acrylates

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Product	Chemical Description	Typical Viscosity, (mpa.s) (@ 25 °C)	Color Gardner	Acid Value, mg KOH/g, max	Specific gravity @ 25 °C	Tensile Strength (psi)	Elongation (%)	Glass Transition Temp. Tg (°C)	Regulatory Status	Product Attributes	Applications
3005	Acrylated epoxy soya oil	16,500	6	5	1.04	1150	16	8	TSCA, IECSC, AICS EINECS, DSL ENCS, PICCS	Low Viscosity Flexibility Pigment Wetting	Laminating Adhesives OPV Lithographic Inks
3015	Bisphenol A epoxy diacrylate	85,000	2	3	1.17	7500	6	39	TSCA EINECS ENCS	Low Viscosity Gloss Flexibility	OPV Optical Coatings Lithographic Inks
3016	Bisphenol A epoxy diacrylate	4000 (60)	2	5	1.17	4150	3	43	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Gloss Chemical Resistance Coating Hardness	Wood Coatings Composites Automotive Coatings
3016-20R	Epoxy acrylate/monomer blend/ (20% TPGDA)	15,000	2	5	1.14	---	---	---	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Gloss Chemical Resistance Flexibility	Coatings* Graphic Arts* Adhesives*
3016-20T	Epoxy acrylate/monomer blend/ (20% TMPA)	55,000	2	2	1.14	---	---	38	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Cure Speed Chemical Resistance Coating Hardness	Coatings* Graphic Arts* Adhesives*
3016-25R	Epoxy acrylate/monomer blend/ (25% TPGDA)	13,000	2	5	1.14	7800	5	45	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Low Viscosity Gloss Tensile Strength	Coatings* Graphic Arts* Adhesives*

PHOTOMER® 3000 Series - Epoxy Acrylates Continued

Product	Chemical Description	Typical Viscosity, (mpa.s) (@ 25 °C)	Color Gardner	Acid Value, mg KOH/g, max	Specific gravity @ 25 °C	Tensile Strength (psi)	Elongation (%)	Glass Transition Temp. Tg (°C)	Regulatory Status	Product Attributes	Applications
3016-40G	Epoxy acrylate/monomer blend/ (40% GPTA)	10000	2	2	1.14	---	---	---	TSCA, AICS EINECS, DSL ENCS	Low Viscosity Flexibility Tensile Strength	Coatings* Graphic Arts* Adhesives*
3016-40R	Epoxy acrylate/monomer blend/ (40% TPGDA)	2000	2	4	1.14	---	---	45	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS, PICCS	Low Viscosity Flexibility Tensile Strength	Coatings* Graphic Arts* Adhesives*
3016-40T	Epoxy acrylate/monomer blend/(40% TMPA)	7500	2	4	1.14	---	---	53	TSCA, AICS EINECS, DSL ENCS	Low Viscosity Chemical Resistance Cure Speed	Coatings* Graphic Arts* Adhesives*
3072	Epoxy acrylate oligomer	5000 (60)	3	5	1.14	4270	5	40	TSCA, AICS EINECS, ECL, DSL ENCS	Low Viscosity Dispersive Properties Gloss	OPV Lithographic Inks Adhesive binders
3082	Acrylated epoxy linseed oil	100,000	6	5	1.14	1350	11	17	TSCA, IECSC EINECS, ECL, DSL	Pigment Wetting Adhesion Flexibility	Lithographic Inks Offset Inks Screen Inks
3215	Epoxy acrylate oligomer	15,000	1	5	1.17	3830	4	43	TSCA ENCS, DSL	Low Viscosity High Reactivity Gloss	OPV Graphic Arts* Adhesives*

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PHOTOMER® 5000 Polyester Acrylates

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Product	Chemical Description	Typical Viscosity (mPa.s) (@ 25 °C)	Color Gardner	Acid Value, mg KOH/g, max	Specific gravity @ 25 °C	Tensile Strength (psi)	Elongation (%)	Glass Transition Temp. Tg (°C)	Regulatory Status	Product Attributes	Applications
5010	Polyester acrylate	3000	4	4	1.08	---	---	---	EINECS	Self-matting Low-Gloss Flexibility	Wood Coatings Industrial Coating Screen Inks
5429	Tetrafunctional oligomer	300	1	20	1.09	1870	10	45	TSCA, IECSC, AICS EINECS, ECL, DSL ENCS	Low Viscosity Tensile Strength Cure Speed	Graphic Arts* Pipe Coatings Wood Coatings
5430	Tetrafunctional oligomer	2500	1	25	1.02	854	14	-20	TSCA EINECS ENCS	Pigment Wetting Flexibility High Reactivity	Lithographic Inks Offset Inks Screen Inks
5432	Tetrafunctional oligomer	4500 (60)	3	20	1.11	3260	10	47	TSCA EINECS	Tensile Strength Chemical Resistance Non-yellowing	Wood Coatings Graphic Arts* Metal Coatings
5662	Modified polyether/ester-acrylate	3000	1	1	1.14	---	---	---	EINECS	Adhesion Flexibility Coating Hardness	Wood Coatings Parquet Coatings
5806	Tetrafunctional oligomer	Gel Consistency	---	5	1.14	---	---	45	TSCA	Pigment Wetting Misting Reduction High Reactivity	Lithographic Inks Offset Inks Screen Inks
5930	Modified polyether/ester-acrylate	500	1	1	1.15	---	---	---	EINECS	Pigment Wetting High Reactivity Chemical Resistance	Graphic Arts* Wood Coatings Screen Inks

PHOTOMER® 6000 Series - Aliphatic Urethane Acrylates

Product	Chemical Description	Typical Viscosity (mPa.s) (@ 60 °C)	Color Gardner	Specific gravity @ 25 °C	Refractive Index @ 20 °C	Tensile Strength (psi)	Elongation (%)	Glass Transition Temp. Tg (°C)	Regulatory Status	Product Attributes	Applications
6008	Aliphatic urethane triacrylate	16,000	1	1.20	1.4900	6820	8	47	TSCA EINECS ENCS, AICS	Coating Hardness Tensile Strength Non-yellowing	Optical Coatings Wood Coatings Automotive Coatings
6010	Aliphatic urethane diacrylate	5900	1	1.08	1.4900	2060	45	-7	TSCA, IECSC, AICS EINECS, ECL ENCS	Scratch Resistant Abrasion Resistance Flexibility	Automotive Coatings Plastic Coatings Optical Coatings
6019	Aliphatic urethane triacrylate	3300	1	1.08	1.4900	8180	8	51	TSCA EINECS ENCS, AICS	Low Viscosity Coating Hardness Tensile Strength	Optical Coatings Wood Coatings Automotive Coatings
6184	Aliphatic urethane triacrylate	60,000 (25)	1	1.10	1.4900	5380	7	53	TSCA EINECS ENCS, AICS	Ease of Handling Coating Hardness Tensile Strength	Coatings* Graphic Arts* Composites
6210	Aliphatic urethane diacrylate	12,000 (25)	1	1.13	1.4900	1400	40	32	TSCA, AICS EINECS, ECL ENCS	Scratch Resistant Flexibility Impact Resistance	Automotive Coatings Glass Coatings Metal Coatings
6217	Aliphatic urethane diacrylate	3500	1	1.05	1.4900	3260	27	35	TSCA EINECS ENCS	Tensile Strength Flexibility	Plastic Coatings Metal Coatings
6230	Aliphatic urethane diacrylate	3500	1	1.08	1.4754	1050	69	2	TSCA EINECS, AICS	Abrasion Resistance Non-yellowing Impact Resistance	Wood Coatings Metal Coatings Adhesives*

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Polyester Acrylates
Urethane Acrylates

PHOTOMER® 6000 Series - Aliphatic Urethane Acrylates Continued

Product	Chemical Description	Typical Viscosity (mPa.s) (@ 60 °C)	Color Gardner	Specific gravity @ 25 °C	Refractive index @ 20 °C	Tensile Strength (psi)	Elongation (%)	Glass Transition Temp. Tg (°C)	Regulatory Status	Product Attributes	Applications
6891	Aliphatic urethane diacrylate	8000 (25)	1	1.08	1.4863	1990	60	28	TSCA EINECS ENCS	Flexibility Impact Resistance Non-yellowing	Metal Coatings Plastic Coatings Glass Coatings
6892	Aliphatic urethane triacrylate	33,000 (25)	1	1.08	1.4933	1300	47	14	TSCA EINECS ENCS	Adhesion Chemical Resistance Flexibility	Adhesives* Plastic Coatings OPV
6893-20R	Aliphatic urethane diacrylate	2300	1	1.15	1.4861	2740	42	41	TSCA, AICS EINECS	Ease of Handling Tensile Strength	Metal Coatings Plastic Coatings

PHOTOMER® 6000 Series - Aromatic Urethane Acrylates

6363	Aromatic urethane diacrylate	5200	1	1.09	1.5013	1980	32	27	TSCA EINECS, DSL ENCS	Abrasion Resistance Coating Hardness Flexibility	Wood Coatings Glass Coatings Plastic Coatings
6572	Aromatic urethane diacrylate	45,000	5	1.14	1.4934	970	86	-29	TSCA EINECS ENCS	Adhesion Chemical Resistance Flexibility	Adhesives* Wood Coatings Metal Coatings

PHOTONOL® 7000 SERIES - SPECIALTY PRODUCTS

Product	Chemical Description	Typical Viscosity (mPa.s) (@ 25 °C)	Color Gardner	Specific gravity @ 25 °C	Hydroxyl Value, mgKOH/g	Surface tension @ 25 °C (m n/m)	Regulatory Status	Product Attributes	Applications
Hydroxy Functional Polyols									
PHOTONOL® PHO-7028	Bisphenol A (4) ethoxylate	9500	2	1.17	260	---	TSCA EINECS ENCS DSL, AICS	Coating Hardness Tensile Strength High Reactivity	Plastic Coatings OPV Adhesive binders Cationic UV Coatings
PHOTONOL® PHO-7127	Neopentyl glycol (2) propoxylate	200	2	0.98	510	32.2	TSCA EINECS ENCS	Flow & Leveling Film Former Dispersive Properties	Lithographic Inks Flexographic Inks Adhesive Binders Cationic UV Coatings
PHOTONOL® PHO-7149	Trimethylpropane (3) ethoxylate	850	2	1.00	695	44.1	TSCA EINECS ENCS, AICS	High Reactivity Low Skin Irritation Chemical Resistance	Glass Coatings OPV Adhesive binders Cationic UV Coatings

PHOTOMER® 8000 Series - Methyl Ether Acrylates

Product	Chemical Description	Typical Viscosity, (mPa.s) (@ 25 °C)	Color APHA or Gardner	Specific gravity @ 25 °C	Acid Value, mg(OH)/g max	Amine Value, mg(OH)/g max	Surface tension (m n/m) @ 25 °C	Regulatory Status	Product Attributes	Applications
8061	Tripropylene glycol monomethyl ether acrylate	8	250	0.99	0.5	30.1	TSCA, IECSC EINECS ENCS	Water soluble Dispersive Properties Low Viscosity	Flexographic Inks Lithographic Inks Coatings*	
8127	Propoxylated neopentyl glycol monomethyl ether acrylate	8	3	0.96	1.0	25.7	TSCA, IECSC EINECS ENCS	Flow & Leveling Water Soluble Dispersive Properties	Graphic Arts* Adhesives* Coatings*	
8149	Ethoxylated trimethylolpropane monomethyl ether diacrylate	28	250	1.08	1.0	35.2	TSCA EINECS, ECL ENCS	High Reactivity Water Soluble Low Viscosity	Flexographic Inks Lithographic Inks Coatings*	

PHOTOMER® - Amine Modified Acrylates — Amine Modified Oligomers

Product	Chemical Description	Typical Viscosity, (mPa.s) (@ 25 °C)	Color Gardner	Specific gravity @ 25 °C	Acid Value, mg(OH)/g max	Amine Value, mg(OH)/g max	Surface tension (m n/m) @ 25 °C	Regulatory Status	Product Attributes	Applications
3660	Amine modified epoxy-acrylate	70,000	1	1.15	4	14	---	TSCA	Low Viscosity Coating Hardness Chemical Resistance	OPV Wood Coatings Flexographic Inks

PHOTOMER® - Amine Modified Acrylates — Amine Synergists

4771	Aliphatic amine acrylate	700	3	1.11	---	14	41.9	TSCA	Cure Speed Non-yellowing Low Viscosity	OPV Flexographic Inks Lithographic Inks
4967	Aliphatic amine acrylate	20	6	0.98	---	220	31.4	TSCA, AICS EINECS, DSL	Cure Speed High Reactivity Chemical Resistance	OPV Lithographic Inks Offset Inks
5006	Amine modified polyesteracrylate	70	2	1.02	---	210	43.3	EINECS	Cure Speed High Reactivity Chemical Resistance	OPV Flexographic Inks Lithographic Inks Wood Coatings

PHOTOMER® Photoinitiators

Product	Chemical Description	Typical Viscosity (mPa.s) @ 25°C	Color Gardner	Surface tension @ 25°C (m n/m)	Regulatory Status	Product Attributes	Applications
81	Liquid benzophenone	23	NA	1.07	TSCA, AICS EINECS, DSL ENCS, ECL	Ease of Handling High Reactivity Non-yellowing	Coatings* Graphic Arts* Adhesives*

PHOTOMER® - Rheology Modifying Resins

Product	Chemical Description	Typical Viscosity (mPa.s) @ 60°C	Color Gardner	Specific gravity @ 25°C	Acid Value, mgKOH/g max	Regulatory Status	Product Attributes	Applications
RM-370	Rheology modifying resin acrylate	60,000	7	1.1	5	TSCA, IECSC, AICS EINECS, ECL ENCS, PICCS	Pigment Wetting Misting Reduction Adhesion	Offset Inks Lithographic Inks Screen Inks Spray Coatings

PHOTOMER® - Adhesion Promoters

Product	Chemical Description	Typical Viscosity (mPa.s) @ 25°C	Color Gardner	Specific gravity @ 25°C	Acid Value, mg KOH/g, max	Surface tension @ 25°C (m n/m)	Tensile Strength (psi)	Elongation (%)	Regulatory Status	Product Attributes	Applications
4703	Acidic adhesion promoter	173	2	1.29	260	47.4	---	---	TSCA, IECSC ENCS	Adhesion Low Viscosity Chemical Resistance	Laminating Adhesives Plastic & Glass Coatings Photoresists, etchresists
4846	Low acid value adhesion promoter	750	1	1.14	<10	37.9	---	---	TSCA, IECSC, AICS EINECS, DSL ENCS, PICCS	Adhesion High MW Resin Co Flexibility	Adhesives* Plastic Coatings Automotive Coatings
4173	Acidic adhesion promoter	4000	1	1.26	190	49.1	---	---	TSCA, IECSC, AICS EINECS, DSL ENCS, PICCS	Adhesion Coating Hardness Chemical Resistance	Adhesives* Metal & Plastic Coatings Photoresists, etchresists
5424	Acid functional oligomer	8500	12	1.17	90	---	1380	21	TSCA	Adhesion Flexibility Caustic Solubility	Metal Coatings Graphic Arts* PSA

Additives for Energy Curing

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Product	Class	Description	Function	% Active	Viscosity mPa.s (25°C)	Specific gravity @ 25°C	% Solids	% VOC ¹	% Water	Use Level, %	Regulatory Status
DEHYDRAN® 1208	Defoamer	Proprietary polysiloxane-based defoamer for nonaqueous formulations	Defoamer for aqueous and non aqueous coatings in white spirit	100	15	0.83	20.6	74.2	0.1	0.2-1.0TW	TSCA, AICS EINECS, DSL ENCS
DEHYDRAN® 4200	Defoamer	Polysiloxane based defoamer	Effective in aqueous and 100% solid UV systems	100	100	0.96	97.7	2.0	0.3	0.25 to 0.75% TW	TSCA DSL
FOAMASTER® R	Defoamer	Mineral oil based defoamer	For use in UV aqueous systems	100	1440	0.90	NA	5.1	<1.0	0.20 - 1.0 TW	TSCA
FOAMASTER® 111	Defoamer	Mineral oil based, silicone-free defoamer	For use in UV aqueous systems	100	700	0.90	NA	5.6	<1.0	0.2 - 1.0 TW	TSCA, AICS EINECS, DSL
FOAMSTAR® A-34	Defoamer	FoamStar technology combined with polysiloxanes	Defoamer for difficult to defoam formulations including high gloss	100	90	0.97	97.6	2.3	0.1	0.3-0.6TW	TSCA, AICS DSL ENCS
FOAMSTAR® A-36	Defoamer	FoamStar technology combined with polysiloxanes	Defoamer for difficult to defoam formulations including high gloss	100	95	0.96	97.8	2.1	0.1	0.3-0.6TW	TSCA, AICS DSL ENCS

Additives for Energy Curing Continued

Product	Class	Description	Function	% Active	Viscosity mPa.s (25°C)	Specific gravity @ 25°C	% Solids	% VOC ¹	% Water	Use Level, %	Regulatory Status
PERENOL® E1 DEHYDRAN® ARA 7219 (USA)	Defoamer	Silicone-free defoamer	Defoamer/air release for non-aqueous UV formulations	100	65	0.83	26.2	73.8	0.0	0.1 - 0.5 TW	EINECS TSCA AICS
PERENOL® E 14	Defoamer	Polysiloxane based defoamer	Effective in 100% solid UV systems	100	NA	0.95	NA	NA	NA	0.5 - 1.0 TW	TSCA, AICS EINECS ENCS
HYDROPALAT® 1080	Dispersant	Monofunctional oleo alkylene oxide block copolymer	Dispersant for organic pigments in aqueous UV formulations	80	200	1.03	80.0	1.0	20.0	.20 - 1.5 TW	TSCA, AICS EINECS ENCS
HYDROPALAT® 3275	Dispersant	Polymeric dispersant	Develops optimum color strength for organic and inorganic pigments	37.5	3000	1.06	37.5	2.1	60.4	5.0 - 30 PW	TSCA EINECS ENCS
TEXAPHOR® P 60	Dispersant	Polyurethane derivative	Pigment dispersant for 100% solid UV formulations	50	2700	1.00	49.0	51.0	0.1	2.0 - 30.0 PW	TSCA EINECS ENCS
TEXAPHOR® P 63	Dispersant	Modified polyurethane dispersant	Polymer dispersant/wetting agent for optimizing color development	45	400	0.99	45.0	55.0	0.1	2.0-30.0PW	EINECS ENCS
TEXAPHOR® UV 20	Dispersant	Solvent-free anionic, aliphatic Ester	Pigment dispersant for 100% solid UV formulations matt coatings	100	2000	0.95	100.0	NA	0.1	0.5 - 2.0 TW	TSCA EINECS ENCS

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Additives for Energy Curing Continued

Product	Class	Description	Function	% Active	Viscosity mPa.s (25 °C)	Specific gravity @ 25 °C	% Solids	% VOC ¹	% Water	Use Level, %	Regulatory Status
TEXAPHOR® P 61	Dispersant	Polyurethane derivative	Pigment dispersant for 100% solid UV formulations matt coatings	30	150	1.01	30.0	NA	0.1	2.0 - 30.0 PW	TSCA EINECS ENCS
TEXAPHOR® SF 73	Dispersant	Modified polyurethane dispersant	Polymer dispersant / wetting agent for optimizing color development	100	6000	1.10	45.0	NA	0.1	2.0-30.0PW	TSCA EINECS ENCS
PERENOL® F 60	Flow / leveling	100% copolyacrylate	Flow modifier for 100% solid energy curable coatings	100	1000	1.02	99.0	1.3	0.1	0.25-0.75TW	TSCA, AICS EINECS, DSL ENCS
PERENOL® S konz.	Slip / Leveling	Polysiloxane	Universal slip aid	100	NA	1.05	> 95	NA	NA	0.1 - 0.5 TW	TSCA, AICS EINECS ENCS
PERENOL® S 71 UV	Slip / Leveling	Acrylated polysiloxane	Tetra-functional slip and flow aid	100	230	1.04	NA	NA	NA	0.5 - 1.5 TW	TSCA EINECS
PERENOL® S 83 UV	Slip / Leveling	Polysiloxane	Non-reactive slip and leveling aid	100	280	1.02	NA	NA	NA	0.5 - 1.5 TW	TSCA, AICS EINECS

Additives for Energy Curing Continued

Product	Class	Description	Function	% Active	Viscosity mPa.s (25 °C)	Specific gravity @ 25 °C	% Solids	% VOC ¹	% Water	Use Level, %	Regulatory Status
PERENOL® MS-40	Antiblocking	Polyethylene mixed wax emulsion	For use in UV aqueous systems	40	250	0.96	40.0	1.5	60.0	2.0 - 4.0 TW	TSCA DSL
PERENOL® UV-Wax	Antiblocking	Micronized ester wax with UV reactive groups	Improves scratch and blocking resistance	100	1000	1.02	NA	NA	NA	1.0 - 4.0 TW	TSCA EINECS

PW = pigment weight, TW = total weight, NA = not available, 1. EPA method 24

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Not all products are listed in this guide. Common monomers used in large quantities can be made to high-purity specifications. For further information about our products, please contact our technical support team.



Regulatory Designation	Country
TSCA	UNITED STATES
EINECS	EUROPE
ENCS	JAPAN
IECSC	CHINA
ECL	KOREA
AICS	AUSTRALIA
DSL	CANADA
PICCS	PHILIPPINES

* Denotes Numerous Market Applications
PW = pigment weight
TW = total weight
NA = not available
1. EPA method 24



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