

CYTEC



Industrial Coatings

RADCURE[®]
Energy curable resins

Europe, Middle East and Africa

From defining more efficient processes for mining customers to developing new additives for polymer-based alternatives to wood and metals, the product lines of Cytec Specialty Chemicals are unified in their dedication to customer-driven innovation.

Working closely with our customers, we develop revolutionary technologies that enable them to improve performance and productivity, enter new markets, and refine new applications. How to improve mine profitability or coatings efficiency in the face of important environmental concerns? How to develop polymers that really stand up to UV light? How to use phosphines to create better, safer biocides and fumigants for agriculture? Our technology and sales teams work on-site with customers every day to address today's business challenges and troubleshoot tomorrow's.

The applications are diverse, but the commitment is uniform: finding better solutions for customers through continual research, ongoing collaboration and a passion for innovation.

An Expansive Portfolio

Cytec Specialty Chemicals is a complete solution provider for customers requiring high-value surface technologies in industries that include industrial coatings, automotive, architectural, wood and paper, graphics, adhesives and opto-electronics.

We offer our customers advanced and diverse products and technologies for surfaces with an emphasis on environmentally friendly products such as UV/EB curable resins and additives, powder coating resins and additives, as well as waterborne and solventborne liquid coating resins and additives.

We are committed to working with our customers to develop environmentally advanced solutions and we are dedicated to open communication concerning the safe handling, distribution, use and disposal of the products we make.

A Focus on Customer Satisfaction

Cytec Specialty Chemicals operates a globally integrated set of order fulfillment IT systems and

processes. All Spec Chem personnel in the order fulfillment processes are dedicated to delivering customer satisfaction through reliable and cost-effective supply of products to our customers. Cytec Specialty Chemicals has specialized personnel in Customer Service, Procurement, Manufacturing, Planning and Logistics to achieve this goal. In addition to timely and accurate order fulfillment, there is an equally important focus on maintaining safety and protecting the environment at all steps in the process, from the procurement of raw materials to the delivery of finished goods to the customer's door.

Dedication to Operational Excellence

Cytec's Spec Chem Manufacturing Organization operates globally to provide superior service to our customers in all regions. Our vision of operational excellence brings value to our customers through ongoing, continuous improvement initiatives, including Lean Manufacturing, Six Sigma Principles, and Best Practice Engineering. Our value proposition is driven by excellence in our Safety, Environmental, Quality Systems and Employee Development Programs. We are structured by business technology, which enables our sites to work transparently with R&D, Customer Service and the Business, to share best practices across common processes. We also are able to gain leverage from overall global manufacturing synergies to most efficiently meet customer needs.

Key product lines

- Liquid Coating Resins and Additives
- Mining Chemicals
- Phosphine and Phosphorus Specialties
- Polymer Additives
- Powder Coating Resins and Additives
- RADCURE® UV/EB
- Specialty Additives

Provider of innovative solutions to the industrial coatings industry

We are committed to consolidating our leadership position as the preferred supplier to the global energy-curable coatings industry. We shall continue to deliver added value to our customers through innovative market driven solutions based on technological and operational excellence.

To fulfill our objective of delivering superior value to our customers, we have a dedicated technical service team investigating the coatings requirements for all industrial applications. Based on this, we have designed a full range of high-performance “UV/EB” products, that address the most stringent needs of the energy curing coatings market.

With numerous plants, research and technical service centres distributed around the world, we are in a strong position to satisfy the multi-dimensional requirements of our customers with unrivalled world-class levels of service.

This brochure includes the most commonly used products in our portfolio. If your needs cannot be satisfied with any of the products in this portfolio, please contact us directly to help you find a solution.



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Urethane acrylates

Urethane acrylates

Urethane acrylates from Cytec are the most versatile products able to provide a wide range of performance characteristics. Depending on the specific product chemistry, virtually any performance level can be achieved in terms of softness/hardness, flexibility, non-yellowing, cure speeds selecting products in a wide range of viscosities. Aliphatic urethane acrylates are, in comparison to aromatic urethane acrylates, known for their non-yellowing performance and outdoor performances.

Key to the table

Colour:	data are maximum values, expressed in Gardner or where specified with (°) APHA
Density:	expressed in g/cm ³
Dilution:	parts of diluent in 100 parts of product
Funct.:	theoretical value, expressed as number of double bonds per molecule
Mw:	theoretical molecular weight
Viscosity:	Brookfield viscosity or where specified with (*) Cone & Plate viscosity or with (**) Höppler viscosity Data are mean values expressed in mPa.s, measured at 25°C or 60°C

Abbreviations

BuAc:	Butyl acetate
DPGDA:	Dipropylene glycol diacrylate
HDDA:	1,6-Hexanediol diacrylate
HPMA:	Hydroxy propyl methacrylate
IBOA:	Isobornyl acrylate
PEA:	Phenoxy ethyl acrylate
TMPFA:	Trimethylolpropane formal acrylate
TPGDA:	Tripropylene glycol diacrylate

Products	Product description	Dilution	Visc. 25 °C
Aromatic urethane acrylates			
EBECRYL®* 204	Aromatic urethane acrylate	25 HDDA	17 000
EBECRYL® 205	Aromatic urethane acrylate	25 TPGDA	30 000
EBECRYL 210	Aromatic urethane acrylate		
EBECRYL 215	Aromatic urethane acrylate	20 TPGDA	16 500
EBECRYL 220	Aromatic urethane acrylate		28 500
EBECRYL 6202	Aromatic urethane acrylate	25 DPGDA	8 000
EBECRYL 8232	Aromatic urethane acrylate	20 DPGDA	7 000 (*)
EBECRYL 8310	Aromatic urethane acrylate	5 TPGDA	5 200

Aliphatic urethane acrylates

EBECRYL 230	Aliphatic urethane acrylate		40 000
EBECRYL 264	Aliphatic urethane acrylate	15 HDDA	45 000
EBECRYL 265	Aliphatic urethane acrylate	25 TPGDA	35 000
EBECRYL 267	Modified aliphatic urethane acrylate		2 500 (*)
EBECRYL 270	Aliphatic urethane acrylate		
EBECRYL 280/15 IB	Aliphatic urethane acrylate	15 IBOA	
EBECRYL 284	Aliphatic urethane acrylate	12 HDDA	
EBECRYL 285	Aliphatic urethane acrylate	25 TPGDA	23 000
EBECRYL 294/25 HD	Aliphatic urethane acrylate	25 HDDA	
EBECRYL 1259	Aliphatic urethane acrylate	35 HPMA	12 000
EBECRYL 1290	Aliphatic urethane acrylate		
EBECRYL 4820	Aliphatic urethane acrylate	35 HDDA	3 300 (*)
EBECRYL 4858	Aliphatic urethane acrylate		7 000
EBECRYL 5129	Aliphatic urethane acrylate		
EBECRYL 8210	Aliphatic urethane acrylate		4 500
EBECRYL 8254	Aliphatic urethane acrylate		2 500
EBECRYL 8296	Aliphatic urethane acrylate		
EBECRYL 8307	Aliphatic urethane acrylate	30 HPMA	4 000 (*)
EBECRYL 8402	Aliphatic urethane acrylate		12 500
EBECRYL 8405	Aliphatic urethane acrylate	20 HDDA	
EBECRYL 8465	Aliphatic urethane acrylate		

* EBECRYL UV curable resins and diluting oligomers

Visc. 60 °C	Colour	Density	Mw	Funct.	Key features	Reactivity	Hardness	Flexibility	Chemical resistance	Adhesion
	2	1.12	2000	3	General purpose, good abrasion and scratch resistance.	●●●	●●●	●●	●●●	●●●
	2	1.22	2000	3	General purpose, good abrasion and scratch resistance.	●●●	●●●	●●	●●●	●●
3900	2	1.11	1500	2	General purpose.	●	●	●●●●	●●	●●●●
	2	1.10	1500	2	General purpose.	●	●●	●●●	●●	●●●
	2	1.22	1000	6	Used as additive to improve surface hardness and chemical resistance.	●●●●	●●●●	●	●●●●	●
	2	1.10	1500	2	General purpose, good abrasion resistance.	●	●●	●●●	●●	●●●
	2	1.10		2	High flexibility, with excellent grit feeder abrasion resistance.	●●●	●	●●●●	●	●●●●
	<2	1.07	1500	2	Excellent abrasion resistance.	●●	●●	●●●	●●	●●●
	150A	1.08	5000	2	Used to improve flexibility and adhesion.		●	●●●●	●	●●●
	2	1.12	2000	3	General purpose, excellent abrasion and scratch resistance.	●●●	●●●	●●	●●●●	●●●
	2	1.13	2000	3	General purpose, excellent abrasion and scratch resistance.	●●●	●●●	●●	●●●●	●●●
	1	1.14	1200	3	High abrasion resistance, with balanced flexibility and hardness.	●●●	●●●	●●	●●●	●●
3000	2	1.10	1500	2	Used as flexibilizer.	●	●	●●●●	●	●●
2500	2	1.12	1200	2	Adhesion and exterior durability.	●●	●●	●●●	●●	●●●
2100	2	1.18	1200	2	Good exterior durability.	●●	●●	●●●	●●	●●●
	2	1.13	1200	2	Good exterior durability.	●●	●●	●●●	●●	●●●
7000	2	1.10	1500	3	Best stain and abrasion resistance, excellent exterior durability, good thermal stability.	●●●	●●●	●●	●●●●	●●●
	2	1.07	2000	3	Good heat resistance.	●	●●	●●●	●●	●●●
2000	1	1.19	1000	6	High scratch resistance.	●●●●	●●●●	●	●●●●	●
	1	1.08	1900	3	Good exterior durability.	●	●●●	●●	●●●●	●●●
	3	1.14	450	2	Excellent exterior durability, excellent scratch and impact resistance.	●●●	●●●	●●	●●●	●●●●
700	2	1.18	800	6	Good scratch and abrasion resistance, moderate flexibility.	●●●●	●●●●	●	●●●●	●●
	2	1.12	600	4	OH-functionalized urethane acrylate for dual cure application.	●●●●	●●●●	●	●●●●	●
	<2	1.15	1200	6	Low viscosity in combination with high reactivity.	●●●●	●●●●	●	●●●●	●
2500 (**)			2400	3	Special oligomer for haptic coatings on plastics and films.	●	●	●●●●	●●	●●●
	2	1.10	3500	2	High flexibility and corrosion resistance.	●●	●	●●●●	●●●	●●●
	2	1.16	1000	2	Excellent flexibility and abrasion resistance.	●●	●●	●●●●	●●	●●●●
4000	2	1.13	2700	4	Good exterior durability and reactivity.	●●	●●	●●	●●	●●●
2100	<2	1.14	1400	3	Excellent outdoor resistance.	●●●	●●	●	●●●	●●

● = low
●● = moderate
●●● = good
●●●● = very good

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Polyether and polyester acrylates

Polyether and polyester acrylates

Aminated polyether acrylates are typically known for their low viscosity and good reactivity. Polyester acrylates cover a wide range of viscosities (low to high) and cure speeds and show a moderate to high shrinkage.

Key to the table

Acid value: expressed in mg per KOH per g
Colour: data are maximum values expressed in Gardner. Where specified (A), the maximum color value is expressed in APHA units
Density: expressed in g per cm³
Dilution: parts of diluent in 100 parts of product
Funct.: functionality, expressed as number of acrylic double bonds per molecule
Mw: molecular weight
Viscosity: Höppler viscosity or where specified, with (*) dynamic viscosity (DIN EN ISO 3219, 20 1/s) Data are mean values expressed in mPa.s, measured at 25 °C or 60 °C

Abbreviations

HDDA: 1,6-Hexanediol diacrylate
HEMA: Hydroxy ethyl methacrylate
TMPTA: Trimethylolpropane triacrylate
TPGDA: Tripropylene glycol diacrylate
OTA: Acrylated glycerol derivative

Products	Product description	Dilution	Visc. 25°C
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Polyether acrylates

EBECRYL®* 80	Amine modified polyether acrylate		3000
EBECRYL® 81	Amine modified polyether acrylate		100
EBECRYL 83	Amine modified polyether acrylate		500
EBECRYL 841	Amine modified polyether acrylate		600
EBECRYL 880	Amine modified polyether acrylate		24

Polyester acrylates

EBECRYL 524	Polyester resin	30 HDDA	60000
EBECRYL 525	Polyester resin	40 TPGDA	40000
EBECRYL 770	Acid functional polyester	40 HEMA	100
EBECRYL 800	Polyester acrylate		14000
EBECRYL 810	Polyester acrylate		500
EBECRYL 830	Polyester acrylate		50000
EBECRYL 837	Polyester acrylate		800
EBECRYL 851	Polyester acrylate		3250
EBECRYL 852	Polyester acrylate		110
EBECRYL 853	Polyester acrylate		80
EBECRYL 884	Polyester acrylate		(25000)
EBECRYL 885	Polyester acrylate		34000
EBECRYL 892	Tetra-functional polyester acrylate		140
EBECRYL 893	Modified polyester acrylate		600 (*)

* EBECRYL UV curable resins and diluting oligomers

Visc. 60°C	Colour	Density	Acid value	Mw	Funct.	Key features	Reactivity	Hardness	Flexibility	Chemical resistance	Adhesion
	200A	1.11		1000	4	Provides excellent reactivity in a formulation.	●●●●	●●	●●●●	●●	●●●●
	2	1.08		600	2.5	Good reactivity combined with good diluting power.	●●	●●●●	●●	●●	●●
	2	1.11		1000	3.5	Very good reactivity, low residual odor.	●●●●	●●●●	●●	●●●●	●●
	200A	1.10			3.5	Very good reactivity, low viscosity.	●●●●	●●●●	●●	●●●●	●●
	1	1.04				Good scratch resistance, sprayable.	●●	●●●●	●●	●●	●●
	250A	1.22		1000		Used as adhesion primer and binder on difficult substrates.	●	●●●●	●●●●	●	●●●●
	200A	1.21	25 (*)			Used as adhesion primer and binder on difficult substrates.	●	●●	●●●●	●	●●●●
	200A	1.17	120 (*)		1	Alkali strippable/metal adhesion.		●	●●●●●	●	●●●●●
	2	1.15	20	780	4	General purpose – low viscosity polyester acrylate.	●●	●●●●	●●	●●●●●	●●●●
	2	1.09	25	1000	4	Reactive diluting resin. Suitable for white pigmented systems.	●●	●●	●●	●●●●	●
	3	1.18	30	1500	6	Very good reactivity and scratch resistance.	●●●●	●●●●●	●	●●●●●	●
	<3	1.14				Very high reactivity.	●●●●●	●●●●●	●●	●●●●●	●●
	3	1.12			2.5	Binder for wood coating.	●●	●●●●	●●	●●●●	●●
	2	1.06			3	Binder for wood coating.	●	●●	●●●●	●●	●●●●
	200A	1.10		470	3	Low viscous trifunctional Xi-free polyester acrylate, having low irritation, low odour and good flexibility.	●	●●	●●●●	●●	●●●●
				3000	3	Excellent flexibility and abrasion resistance for furniture and parquet floor.	●●●●	●●●●	●●●●	●●●●	●●
	5	1.19		6000	3	Excellent flexibility and abrasion resistance for furniture and parquet floor.	●●●●	●●●●	●●●●	●●●●	●●●●
	<2	1.15			4	Good adhesion and hardness.	●●	●●●●	●●	●●●●	●●●●
	3	1.11		1400	3.5	Special resin for field applied coatings on vinyl composition tile and concrete.	●●●●	●●●●	●●	●●●●●	●●

● = low
●● = moderate
●●● = good
●●●● = very good

10 Product Range

Epoxy acrylates

Epoxy acrylates

Epoxy acrylates are typically characterized by very fast cure, good hardness and excellent chemical resistance. In general they tend to be low in flexibility, with little elongation but they provide high gloss to the coating. A few exceptions show a good compromise flexibility/reactivity.

Key to the table

Acid value: expressed in mg per KOH per g
Colour: data are maximum values expressed in Gardner
Density: expressed in g per cm³
Dilution: parts of diluent in 100 parts of product
Funct.: functionality, expressed as number of acrylic double bonds per molecule
Mw: molecular weight
Viscosity: Höppler viscosity or where specified, with (*) dynamic viscosity (DIN EN ISO 3219, 20 1/s)
 Data are mean values expressed in mPa.s, measured at 25 °C or 60 °C

Abbreviations

BuAc: Butyl acetate
DPGDA: Dipropylene glycol diacrylate
HDDA: 1,6-Hexanediol diacrylate
TPGDA: Tripropylene glycol diacrylate
IBOA: Isobornyl acrylate
OTA: Acrylated glycerol derivative

Products	Product description	Dilution	Visc. 25°C
Epoxy acrylates			
EBECRYL®* 600/30DP	Epoxy acrylate	30 DPGDA	3900
EBECRYL® 604	EBECRYL 600	20 HDDA	8500
EBECRYL 605	EBECRYL 600	25 TPGDA	7500
EBECRYL 609	EBECRYL 600	25 BuAc	3250
EBECRYL 648	Epoxy acrylate	25 OTA 480	47500
EBECRYL 860	Epoxidized soya bean oil acrylate		25000
EBECRYL 1608	Epoxy acrylate	20 OTA 480	
EBECRYL 3105	Epoxy acrylate		
EBECRYL 3213	Epoxy acrylate	25 DPGDA	4000 (*)
EBECRYL 3300	Epoxy acrylate	35 DPGDA	1100
EBECRYL 3416	Modified epoxy acrylate	35 TPGDA	18000 (*)
EBECRYL 3639	Modified epoxy acrylate	30 DPGDA	16500
EBECRYL 3700/250T	Epoxy acrylate	25 OTA480	35000
EBECRYL 3700/30TP	Epoxy acrylate	30 TPGDA	5700
EBECRYL 3701	Epoxy acrylate		
EBECRYL 3703	Epoxy acrylate		
EBECRYL 3708	Epoxy acrylate		
EBECRYL 6040	Epoxy acrylate		25000

*EBECRYL UV curable resins and diluting oligomers

Visc. 60°C	Colour	Density	Acid value	Mw	Funct.	Key features	Reactivity	Hardness	Flexibility	Chemical resistance	Adhesion
	1	1.13	2	500	2	General purpose epoxy resin.	●●	●●	●●	●●	●●
	2	1.13	2	500	2	Outstanding water resistance.	●●	●●	●	●●●	●●●
	2	1.17	2	500	2	General purpose – epoxy resin.	●●	●●	●●	●●	●●
	2	0.99	2	500	2	Resin for solvent based applications.	●●●	●●●●	●	●●●●	●●
	3	1.14	2	500	2	Excellent pigment wetting.	●●●	●●●	●	●●●	●●
	8	1.03	15	1200	3	Good pigment wetting - high renewable content.	●	●	●●●	●	●
1000	2	1.17	2	900	2	Deodorized product for printing inks.	●●●	●●●	●	●●●	●●
600	5	1.18	5	900	2	Excellent adhesion.	●	●●	●●●●	●●	●●●●
	7	1.14	17	560	2	Hardness and corrosion resistance.	●●	●●●	●	●●●	●●
	3	1.12	1.5	550	2	Outstanding adhesion to metal, good compromise hardness/flexibility and excellent corrosion resistance.	●●●●	●●●	●●	●●	●●●
	15	1.15	8	1900	4	Reactivity, hardness and corrosion resistance.	●●●●	●●●	●	●●●●	●●
	2	1.15	2	1800	2	High flexibility - high reactivity.	●●●●	●●●	●●●●	●●●	●●●
	3	1.17	0.75	500	2	Good pigment wetting - improved adhesion when adding isocyanates.	●●●	●●●	●	●●●	●●
	3	1.14	0.75	500	2	General purpose epoxy resin - improved adhesion when adding isocyanates.	●●	●●	●●	●●	●●
7000	6	1.14	5	850	2	Enhanced adhesion to plastics.	●●	●●	●●●●	●●	●●●●
4250	5	1.17	5	850	2	Enhanced adhesion to plastics. Fast UV cure response.	●●●●	●●●●	●●●●	●●●	●●●●
3500	4	1.16	1	1500	2	High flexibility, elongation and impact resistance.	●	●●●	●●●●	●●●	●●●●
	2	1.14	2	500	2	General purpose.	●●●	●●●	●	●●●	●●

● = low
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Acrylic acrylates

Acrylic acrylates

Acrylic acrylates provide a good adhesion to various substrates with a moderate cure speed and moderate to good flexibility. They are characterized by a low shrinkage and can give coatings excellent weatherability.

Products	Product description	Dilution	Visc. 25°C
Acrylic acrylates			
EBECRYL®* 740-40 TP	Acrylic oligomer	40 TPGDA	
EBECRYL® 745	Acrylic oligomer	50 blend TPGDA, HDDA	20000
EBECRYL 767	Acrylic oligomer	30 IBOA	
EBECRYL 1200	Acrylic oligomer	45 BuAc	3000 (*)

*EBECRYL UV curable resins and diluting oligomers

Key to the table

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Colour: data are maximum values expressed in Gardner
Density: expressed in g per cm³
Dilution: parts of diluent in 100 parts of product
Funct.: functionality, expressed as number of acrylic double bonds per molecule
Mw: molecular weight
Viscosity: Höppler viscosity or where specified, with (*) dynamic viscosity (DIN EN ISO 3219, 20 1/s)
 Data are mean values expressed in mPa.s, measured at 25 °C or 60 °C

Abbreviations

BuAc: Butyl acetate
DPGDA: Dipropylene glycol diacrylate
HDDA: 1,6-Hexanediol diacrylate
TPGDA: Tripropylene glycol diacrylate
IBOA: Isobornyl acrylate
OTA: Acrylated glycerol derivative

Visc. 60°C	Colour	Density	Acid value	Mw	Funct.	Key features	Reactivity	Hardness	Flexibility	Chemical resistance	Adhesion
8500	3					Excellent primer for difficult substrates.	●	●	●●●	●	●●●●
	3					Excellent primer for difficult substrates.	●	●	●●●	●	●●●●
8500	3					Excellent primer for difficult substrates.	●	●	●●●●	●	●●●●
	5					Physically drying. Suitable for exterior applications.	●●●	●●●	●●●	●●●	●●●

● = low
 ●● = moderate
 ●●● = good
 ●●●● = very good



Waterbased and water-compatible resins

Reasons for the success of UV waterborne radiation curing technology include outstanding performance of the coatings, very fast curing, low process costs per square metre of surface, and environmental compliance. The very low viscosity of the UCECOAT® range enables their application by different coating techniques (roller, spray, curtain and vacuum coating) and together with a low-solids content, allows a nice open-pore finish applied by spraying.

The UCECOAT range of radiation curable polyurethane dispersions is designed to meet the most severe requirements for both clear and pigmented furniture, cabinetry top coats and the formulated coatings show outstanding adhesion on different wood and plastic substrates, flexibility, excellent chemical and scratch resistance. Furthermore, with most of the UCECOAT polyurethane dispersions, it is possible to obtain a tack-free surface after physical drying so that dust collection is minimized and handling is easier.

Water soluble aliphatic urethane acrylates give excellent results in primer formulations with incomparable wood wetting and excellent adhesion on a wide variety of woods. The advantage of primers based on soluble urethane acrylate UCECOAT grades is that in the drying process the water flash-off can be avoided since water is partially absorbed into the wood and mostly evaporated by the heat of UV-lamps.

Products	Product description
Waterbased resins	
UCECOAT** 6558	Aliphatic urethane acrylate solution in water
UCECOAT® 6569	Aliphatic urethane acrylate oligomer in water
UCECOAT 7177	Aliphatic polyurethane dispersion
UCECOAT 7571	Aliphatic acrylated polyurethane dispersion, anionic stabilized
UCECOAT 7631	Aliphatic polyurethane dispersion
UCECOAT 7655	Aliphatic polyurethane dispersion
UCECOAT 7660	Aliphatic acrylated polyurethane dispersion
UCECOAT 7674	Aliphatic polyurethane dispersion
UCECOAT 7699	Aliphatic acrylated polyurethane dispersion
UCECOAT 7710	Aliphatic polyurethane dispersion
UCECOAT 7733	Aliphatic polyurethane dispersion
UCECOAT 7770	Aliphatic acrylated polyurethane dispersion, anionic stabilized
UCECOAT 7773	Aliphatic acrylated polyurethane dispersion, anionic stabilized
UCECOAT 7849	Aliphatic acrylated polyurethane dispersion, anionic stabilized

* UCECOAT waterbased UV curable resins

Solid content	Visc. 25°C	pH	Max. average particle Size	Min. film formation Temp.	Mw	Co-solvent	Key features
50	4500				2000	none	Especially recommended as wood primer. Excellent wood wetting and adhesion. High flexibility, no yellowing. Resoluble in water before UV cure.
95	6000 (60°C)						Excellent adhesion on wood and wood wetting. High flexibility and non-yellowing. Resoluble in water before UV cure.
40	<200 (B)	7			5500	none	Excellent adhesion and wetting on wood. Excellent chemical resistance. High flexibility and hardness, low yellowing. Water re-emulsifiable before UV cure.
35	<200 (B)	7.5	100	<0	10000	none	Recommended for coatings on wood. Excellent stain resistance, good flexibility and hardness. No irritant labelling. Tack-free before UV cure.
35	<200	7.5	<100	<0		none	Tack free before UV cure, after water evaporation. Excellent outdoor resistance. Good flexibility and hardness.
35	<200	7.5	<150	<0		none	High scratch and excellent reactivity in white pigmented and clear systems. Tack-Free after water evaporation.
40	<200 (B)					none	Excellent adhesion and matting on wood. Water re-emulsifier before UV cure.
40	<200	6.4 - 7.8	<150	<0		none	Excellent wetting and adhesion on wood.
35	<200	7.0 - 8.5	<150	6 °C		none	Outstanding hardness and scratch resistance (nail, pencil, coin), excellent stain resistance for high and wooden furniture top coats, incl. pigmented systems.
45	<200	6 - 7.5	<150	<0		none	For mirror gloss coatings on plastic and wood.
38	<200	7 - 8.5	<125	<0		none	Xi-free resin with outstanding stain resistance.
35	<200 (B)	7.5	150	<0	10000	none	Recommended for PVC resilient flooring and metal coatings. Good stain resistance. Good hardness. Tack-free before UV cure.
39	<200 (B)	7.5	150	<0	10000	none	Recommended for PVC resilient flooring and topcoat on wood. Excellent stain resistance. High hardness. Tack-free before UV cure.
35	<200 (B)	7.5	100	<0	10000	none	Recommended for coatings on wood. Good stain and outdoor performance. No irritant labelling. Tack-free before cure.

Key to the table

Film form. temp.: expressed in °C
Mw: molecular weight
Particle size: expressed in nm
pH: measured using a conventional glass electrode equipment
Solid content: measured by gravimetry and expressed as the percentage of solid residue remaining after complete drying of the waterborne dispersion for 2 hours at 120 °C
Viscosity: Höppler viscosity (mean value) or where specified, Brookfield viscosity (B) (max. value) expressed in mPa.s, measured at 25 °C



RAYLOK® performance products

To be successful in today's industrial coatings market you need to take advantage of the latest innovations.

RAYLOK performance products is an original line of high performance systems specifically designed by Cytac to achieve superior results for dedicated applications.

UVECRYL® performance product

Especially designed for applications and substrates that need extremely high scratch resistance performance.

Products	Product description	Product features
Water-compatible diluting acrylates		
EBECRYL®* 11	Polyethylene glycol 600 diacrylate	100% water soluble, good flexibility.
EBECRYL® 12	Polyether triacrylate	Partially water soluble, up to 50%, flexible, light colour and low viscosity, very good wood wetting

* EBECRYL UV curable resins and diluting oligomers

Products	Product description
RAYLOK®* 1621	Oil modified acrylate
RAYLOK® 1622	Oil modified acrylate
RAYLOK 1722	Phosphorus based acrylated oligomer
RAYLOK 5021	Aromatic urethane acrylate
RAYLOK 5022	Ready to use formulation

Products	Product description
UVECRYL®* 29203	UV-curable scratch and abrasion resistant clear coat

* EBECRYL UV curable resins and diluting oligomers

* RAYLOK UV curable performance products

* UVECRYL UV performance products

Solid content	Viscosity mPa.s@25 °C	Colour	Density	Mw	Funct.	Co-Solvent	Xi-lable (**)
100	120	10	1.12	700	2	None	Yes
100	155	3	1.11	800	3	None	Yes

Key to the table

Acid value: expressed in mg KOH per g. Data are maximum values
Colour: data are maximum values expressed in Gardner. Where specified (A), the maximum color value is expressed in APHA units
Density: expressed in g per cm³

Funct.: functionality, expressed as number of acrylic double bonds per molecule
Mw: molecular weight
Viscosity: Höppler viscosity. Data are mean values expressed in mPa.s, measured at 25 °C

Visc. 25 °C	Visc. 60 °C	Colour	Density	Mw	Functionality	Key features
520		7	1.06		2 + 1	Oil modified binder with good wood wetting and adhesion, oxidative + UV-curing with 80 W/cm lamps.
520		7	0.98		3	Oil modified binder, UV-curing with 80 W/cm lamps.
	7100	2.5	1.10	3000	2	Halogen-free flame retardant oligomer, used in intermediate coats, superior clarity of the cured film.
	12500	2	1.14		2	For electrical sleeves – excellent flexibility, electrical and thermal insulating properties.
	8000	2	1.14		2	For electrical sleeves – excellent flexibility, electrical and thermal insulating properties.

Visc. 25 °C	Colour	Key features
1400	Max 2	Very high scratch and abrasion resistant clear coat for plastics, such as PMMA and PC.

Key to the table

Acid value: expressed in mg KOH per g. Data are maximum values except values indicated with (*) which are mean values
Colour: data are maximum values expressed in Gardner
Density: expressed in g per cm³

Mw: molecular weight
Viscosity: Höppler viscosity or where specified, with (*) dynamic viscosity (DIN EN ISO 3219, 20 1/s)
 Data are mean values expressed in mPa.s, measured at 25 °C or 60 °C

18 Product Range

Diluting acrylates

Diluting acrylates

As RADCURE™ formulations are normally solvent-free, diluting acrylates can be added to reduce the viscosity for better processing and to improve crosslinking. Reactivity, mechanical and chemical resistance and shrinkage increase with increasing functionality of the diluting acrylate, while the flexibility and adhesion decrease.

Key to the table

Acid value: expressed in mg KOH per g. Data are maximum values

Colour: data are maximum values expressed in Gardner.

Where specified (A), the maximum color value

is expressed in APHA units

Density: expressed in g per cm³

Viscosity: Höppler viscosity. Data are mean values expressed in mPa.s, measured at 25 °C

Products	Product description	Visc. 25 °C	Colour	Density
Monofunctional				
EBECRYL®* 110	Oxyethylated phenol acrylate	20	5	1.12
EBECRYL® 113	Monofunctional epoxy acrylate	120	3	0.97
EBECRYL 114	Phenoxyethyl acrylate	10	200A	1.10
EBECRYL 1039	Urethane monoacrylate	25	100A	1.07
IBOA	Isobornyl acrylate	9	100A	0.98
Difunctional				
EBECRYL 130	Tricyclodecanediol diacrylate	160	4	1.01
EBECRYL 145	Propoxylated neopentyl glycol diacrylate	20	2	1.01
EBECRYL 150	Bisphenol A derivative diacrylate resin	1400	2	1.14
DPGDA	Dipropylene glycol diacrylate	10	150A	1.06
HDDA	1,6-Hexanediol diacrylate	10	40A	1.03
TPGDA	Tripropylene glycol diacrylate	15	50A	1.05
Trifunctional				
EBECRYL 160	Trimethylolpropane ethoxy triacrylate	80	200A	1.09
OTA 480	Acrylated glycerol derivative	90	60A	1.08
TMPTA	Trimethylolpropane triacrylate	115	50A	1.11
Multifunctional				
EBECRYL 40	Polyether tetraacrylate	160	2	1.15
EBECRYL 140	Polyester acrylate	1000	400A	1.1
DPHA	Dipentaerythritol penta/hexaacrylate	16 000	3	1.18
PETIA	Mixture of pentaerythritol tri- and tetraacrylate	1100	200A	1.18

*EBECRYL UV curable resins and diluting oligomers

Acid value	Key features	Reactivity	Hardness	Flexibility	Chemical resistance	Adhesion	Reactivity	Hardness	Flexibility	Chemical resistance	Adhesion
		Diluting acrylates ⁽¹⁾					Family ⁽²⁾				
1	Low odour monoacrylate; good adhesion onto non-polar substrates.	●	●●	●●●●	●●	●●●●	●●	●●	●●●●	●●●●	●●●●
	Low irradiation, Xi free, low odour.	●	●●	●●	●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●
1	Excellent adhesion to plastics and metal.	●	●●	●●●●	●●	●●●●	●●●●	●●	●●●●	●●●●	●●●●
	Best compromise for a monofunctional diluent.	●	●●	●●●●	●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
1	High Tg.	●	●●	●●●●	●●●●	●●●●	●●●●	●●●●	●	●●●●	●●●●
	High reactive diluting oligomer characterised by high Tg and low shrinkage.	●●	●●●●	●●	●●●●	●●●●	●●	●●●●	●●	●●●●	●●●●
	Aliphatic di-functional acrylate of low surface tension.	●●	●●	●●●●	●●	●●●●	●●	●●	●●●●	●	●●●●
5	Low irritant, high reactive diluting acrylated resin.	●●●●	●●●●	●●	●●●●	●●	●●●●	●●●●	●●	●●●●	●●
1		●●	●●	●●	●●	●●●●	●●	●●●●	●●●●	●●	●●●●
1	High diluting power, good weathering properties.	●●	●●	●●	●●●●	●●●●	●●	●●●●	●●	●●●●	●●●●
1		●●	●●	●●	●●	●●●●	●●	●●	●●●●	●	●●●●
1	Good compromise of properties.	●●●●	●●●●	●●	●●●●	●●	●●●●	●●●●	●●●●	●●●●	●●●●
1	Good compromise of properties, good pigment wetting.	●●●●	●●●●	●●	●●●●	●●	●●	●●	●●●●	●●●●	●●●●
1	Good surface cure and scratch resistance.	●●●●	●●●●	●	●●●●	●	●●●●	●●●●	●	●●●●	●
	Low shrinkage.	●●	●●	●●●●	●●●●	●●●●	●●	●●	●●●●	●●●●	●●●●
110	Good reactivity and hardness.	●●●●	●●●●	●●	●●●●	●●	●●●●	●●●●	●●	●●●●	●●
10	Very good scratch resistance.	●●●●	●●●●	●	●●●●	●	●●●●	●●●●	●	●●●●	●
10	High degree of crosslinking.	●●●●	●●●●	●	●●●●	●	●●●●	●●●●	●	●●●●	●

⁽¹⁾ Performance of the material

⁽²⁾ Performance within the product group

● = low
 ●● = moderate
 ●●● = good
 ●●●● = very good

Amino functional acrylate co-initiators

Acrylated co-initiators from Cytec are intended to be used as synergist in conjunction with type II photoinitiators. The primary advantage is that they will become part of network after curing.

Photoinitiators and stabilizers (1)

Cytec has been the global leader in radiation curing chemicals for many years. Monomers, oligomers and reactive diluents for both graphic arts and industrial coatings applications have been supplied. In order to serve customers better, Cytec has recently added photoinitiators and stabilizers to the already extensive portfolio of radiation curable products.

While focus for innovation and technical service remains on monomers and oligomers, Cytec provides ADDITOL® photoinitiators of excellent quality and stabilizers for clear and pigmented coatings and printing inks.

The ADDITOL photoinitiators product range includes the most commonly used photoinitiators in graphic arts and industrial coatings as well as materials improving long term stability of pigmented systems. The tables show the typical application areas for each ADDITOL additive.

Products	Product description
Amino functional acrylate co-initiators	
EBECRYL®* P 116	Tertiary amine derivative
EBECRYL® 7100	Amine functional acrylate

Products	Product description	State
Photoinitiators		
ADDITOL®* BCPK	Benzophenone 1-hydroxy-cyclohexylphenylketone liquid mixture	L
ADDITOL BDK	2,2-dimethoxy-1,2-diphenylethan-1-one	S
ADDITOL BP	Benzophenone	S
ADDITOL CPK	1-hydroxy-cyclohexyl phenyl ketone	S
ADDITOL HDMAP	2-hydroxy-2-methyl-1-phenyl propanone	L
ADDITOL ITX	Isopropyl thioxanthone (2 and 4 isomer mixture)	S
ADDITOL MBF	Methyl benzoylformate	L
ADDITOL TPO	2, 4, 6-trimethylbenzoyl diphenyl phosphinoxide	S
EBECRYL P39	Polymeric photoinitiator	S
Stabilizers (1)		
EBECRYL S 130	Stabilizer blend	L

(1) No samples available "only in commercial packaging"

* ADDITOL photoinitiators

* EBECRYL UV curable resins and diluting oligomers

Visc. 25 °C	Colour	Acid Value	Key features
20	2		Low odour, toys regulation compliance.
1200 max	4		Good water resistance, can be used as resin.

Clear wood	Pigmented wood	Clear plastics / metal	Pigmented plastics / metal	Over Print varnish	Inks	Non yellowing	Synergist needed	Key features
●●	●	●●	●	●●	●	●	●●	Combines surface and through cure Also suitable for water-based formulations.
●●	●	●●	●	●	●			Multipurpose photoinitiator.
●●	●	●●	●	●●	●		●●	Multipurpose photoinitiator, good surface cure with amine synergist.
●●	●	●●	●	●●		●●		Non yellowing systems.
●●	●	●●	●	●	●	●		Multipurpose photoinitiator.
	●		●		●●			Curing of pigmented systems (other than white).
●●	●	●●		●●	●	●		Mild odour liquid giving very good surface cure.
	●●	●●	●●		●	●●		Efficient cure of white pigmented and thick clear coatings.
●●	●	●●	●	●●	●		●●	Low odour - increased flexibility.
●●	●●	●●	●●		●●	●●	NA	Very universal use for grinding and in-can stability of pigmented systems and clear coatings. No negative impact on reactivity. Suitable for metallic inks.

Key to the table

Very universal use for grinding and in-can stability
of pigmented systems and clear coatings.
No negative impact on reactivity. Suitable for metallic inks.

- = highly recommended
- = used in combination with other photoinitiators
- S = solid
- L = liquid
- P = paste
- NA = not applicable

Radiation curable additives

Cytec reactive additives were specifically developed for radiation curing applications to improve specific properties (adhesion, wetting, slip) while they become part of the network after curing.

Products	Product description	Dosage	Aspect*	Over-coatability
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Radiation curable additives

EBECRYL®* 168	Methacrylated acidic derivative	1.0–5.0%		
EBECRYL® 170	Acrylated acidic derivative	5.0–10.0%		
EBECRYL 171	Methacrylated acidic derivative	1.0–5.0%		
EBECRYL 350	Silicone diacrylate	0.3–1.0%		No
EBECRYL 1360	Silicone hexaacrylate	0.3–1.0%		No

Cationic UV curable Resins

Cationic UV cure technology is used to produce solvent-free, environmental friendly lacquers, inks, coatings and adhesives, offering unique film properties. Typical applications for cationic UV cure technology are metal, adhesives and coatings onto difficult plastic substrates. As the ionic polymerization reaction continues during the post curing process (also called dark cure effect) practically all of the reactive species are incorporated into the final polymer matrix.

Products	Product description	Visc. 25°C	Colour Pt-Co scale	Density
UVACURE®* 1500	Primary component of cationic UV-curing formulations giving a hard and tough film.	240	80	1,17

* EBECRYL UV curable resins and diluting oligomers

* UVACURE® Cationic UV curable resin

Leveling agent	Defoamer	Thickener	Adhesion promoter	Dispersing agent	Key features
			●		Good adhesion on wood and melaminated foil.
			●		Good adhesion to metal, glass, plastic and wood.
			●		Good adhesion to metal, glass, plastic and wood.
●					Copolymerisable silicone derivative providing good substrate wetting and slip.
●					Copolymerisable silicone derivative providing good substrate wetting and slip, mainly recommended for EB-curing.

Reactivity	Hardness	Flexibility	Chemical resistance	Adhesion	Key features
●●	●●	●●	●●●	●●●●	Resin for cationic UV curing - dark cure possible.



Contact

Cytec Surface Specialties SA/NV

Square Marie Curie, 11
B-1070 Brussels

Tel: +32 (0) 2 560 4511

Fax: +32 (0) 2 560 4521

custinfo@cytec.com



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