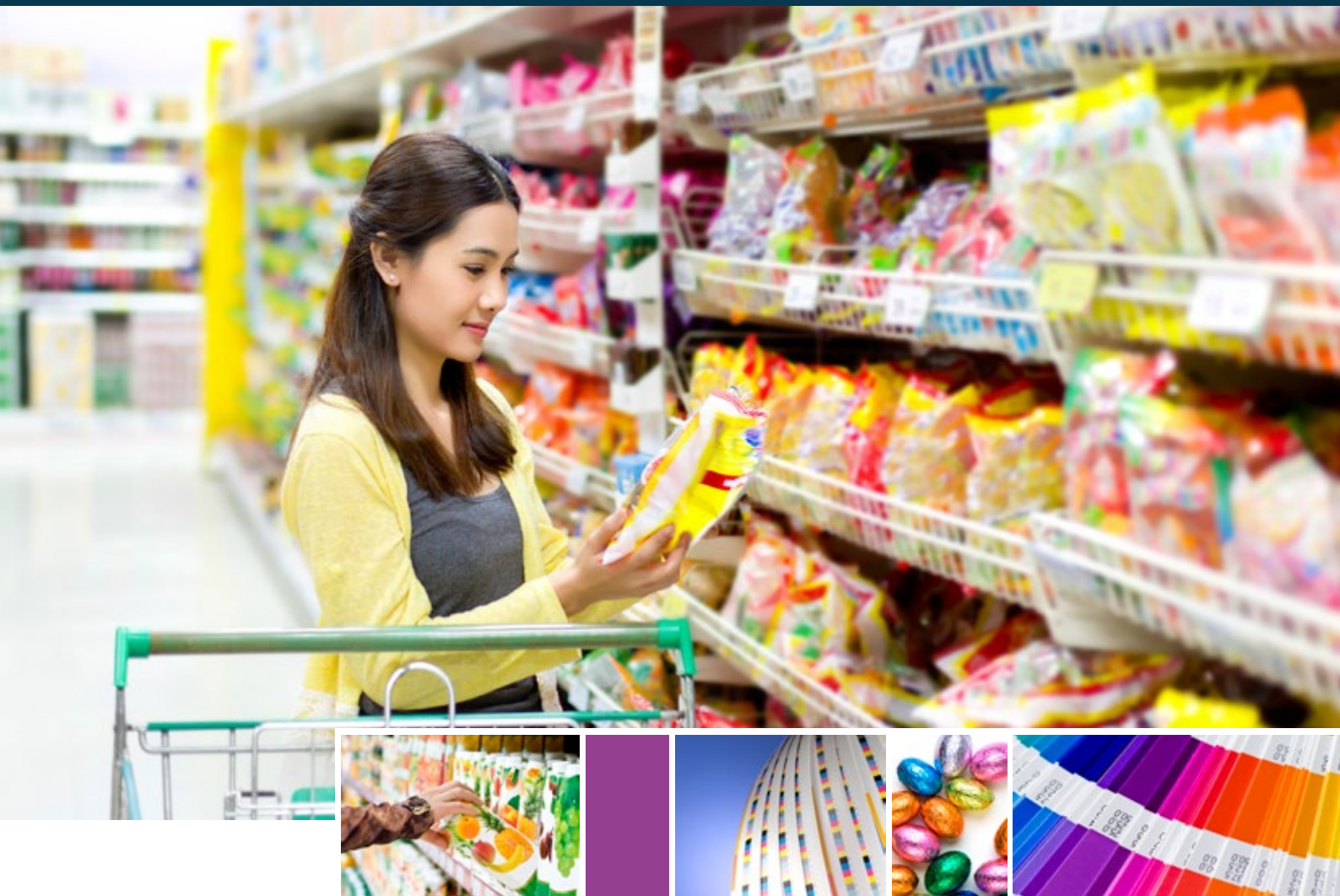


# PACKAGING COATINGS & GRAPHIC ARTS

PRODUCT GUIDE • Energy Curable Resins • Europe, Middle East and Africa



**Allnex**


*All About Resins*

[www.allnex.com](http://www.allnex.com)



## FACTS & FIGURES

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With manufacturing, R&D and technical facilities located throughout Europe, North America, Asia Pacific and Latin America, Allnex offers global and reliable supply of resins and additives combined with local, responsive customer support.

## About us

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- Global company with nearly \$1.5 billion in sales
- Resin portfolio is composed of more than 80% solvent-free and water-based products
- Broad technology platform: liquid coating resins, energy curable resins, powder coating resins, crosslinkers and additives.
- Approximately 2000 employees
- More than 2500 customers
- 16 manufacturing facilities
- 13 research and technology centers
- 2 joint ventures
- A myriad of solutions for key coating segments: automotive, industrial, packaging coating and inks, protective, industrial plastics and specialty architectural





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## Product Families

<p><b><i>Epoxy Acrylates</i></b></p>	<p><b><i>Polyester Acrylates</i></b></p>	<p><b><i>Urethane Acrylates</i></b></p>
<p>Epoxy acrylates provide a good combination of performance properties. Standard BADGE (bisphenol A diglycidyl ether) acrylates exhibit very fast cure response and are known for their good hardness, excellent chemical resistance, high gloss and high viscosity. Modified BADGE acrylates can also provide improved pigment wetting, greater toughness and increased flexibility.</p>	<p>Polyester acrylates cover a wide range of viscosities (low to high) and cure speeds and exhibit moderate to high shrinkage. Polyester acrylates can provide improved pigment wetting and proper water balance for lithographic printing.</p>	<p>Urethane acrylates are versatile products, capable of providing 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 and cure speeds. Products are available in a wide range of viscosities. Aliphatic urethane acrylates are, in comparison to aromatic urethane acrylates, known for their non-yellowing performance.</p>
<p><b><i>Adhesion Promoting Resins</i></b></p>	<p><b><i>Amine Modified Polyether Acrylates, Amine Synergists, Photoinitiators</i></b></p>	<p><b><i>Diluting Acrylates</i></b></p>
<p>Polymeric resins in monomer can provide adhesion to difficult substrates with low shrinkage and better film formation.</p>	<p>Amine modified polyether acrylates are known for their low viscosity and good reactivity. Reactive amine synergists promote fast UV cure with less residual odour, particularly when combined with polymeric photoinitiators.</p>	<p>Diluting acrylates provide viscosity control of energy curable coatings and inks. Unlike volatile solvents, diluting acrylates react with acrylate resins to form the polymer network and have significant influence on the cured properties. Reactivity, hardness, chemical resistance and shrinkage will increase with the increasing functionality of the diluting acrylate, while flexibility and adhesion can decrease.</p>
<p><b><i>Additives</i></b></p>	<p><b><i>Dual Cure Resins</i></b></p>	
<p>Reactive additives were developed for radiation curing applications to give specific additive characteristics (adhesion, wetting, levelling, slip) while becoming part of the network after curing.</p>	<p>Dual cure resins offer unique properties such as adhesion promotion on difficult substrates and curing in non-irradiated areas. Allnex provides a full range of dual cure resins, including isocyanate bearing urethane acrylates as well as their hydroxy bearing combination partners.</p>	

## Performance Keys and Definitions

### Performance Keys

	●	→	●●●●●
<b>Adhesion</b>	<b>Poor</b>		<b>Very good</b>
Flexibility	Poor		Very good
Pigment wetting	Poor		Very good
Reactivity	Low		High
Solvent Resistance	Low		Very good
Yellowing	Yellowing		No Yellowing

### Definitions

Acid value (AV)	The acid content expressed in mg KOH per gram.
Application Field	
F	Flexography
I	Inkjet
L	Lithography
O	Over print varnish
S	Screen
Color	<p>Average values in Gardner or Pt-Co (APHA/Hazen) scales.</p> <ul style="list-style-type: none"> <li>Gardner - range from light yellow to red defined by the chromaticities of glass standards numbered from 1 for the lightest to 18 for the darkest.</li> <li>Pt-Co - defined by specified dilutions of a platinum-cobalt stock solution, ranging from 1 at the light end of the scale to 500 at the darkest.</li> </ul>
Functionality	Theoretical number of acrylate double bonds per molecule.
Hydroxyl value (OHV)	The hydroxyl content expressed in mg KOH per gram.
LEO	Low Extractables and Low Odour. Produced under GMP (Good Manufacturing Practices) with low chemical of concern profile.
Amine value	mg KOH corresponding to the tertiary amine content per g of product
Viscosity	<p>Viscosity in millipascal-seconds (mPa•s) at the specified temperature.</p> <p>Note: mPa•s = centipoise (cP)</p>

## Epoxy Acrylates

Products	Description	Dilution	Functionality	Viscosity mPa·s, 25°C	Viscosity mPa·s, 60°C	Acid value mg KOH/g	OH value mg KOH/g
EBECRYL® 600	Standard Bisphenol-A Epoxy Acrylate	-	2	1000000	3000	2	220
EBECRYL 605	Standard Bisphenol-A Epoxy Acrylate	25% TPGDA	2	10000	-	2	190
EBECRYL 608	Standard Bisphenol-A Epoxy Acrylate	25% OTA-480	2	30000	-	2	195
EBECRYL 640/200T	Modified Bisphenol-A Epoxy Acrylate	20% OTA-480	2	75000	-	2	-
EBECRYL 641	Modified Bisphenol-A Epoxy Acrylate	-	2	21000	-	n.a.	-
EBECRYL 812	Modified Bisphenol-A Epoxy Acrylate	-	4	8000	-	8	-
EBECRYL 1606	Standard Bisphenol-A Epoxy Acrylate	20% TMPTA	2	30000	-	2	-
EBECRYL 1608	Standard Bisphenol-A Epoxy Acrylate	15% OTA-480	2	75000	1000	2	205
EBECRYL 3203	Modified Bisphenol-A Epoxy Acrylate	-	2,7	1000	-	1	-
EBECRYL 3420	Modified Bisphenol-A Epoxy Acrylate	-	2	22000	-	2	-
EBECRYL 3608	Fatty Acid Modified Bisphenol-A Epoxy Acrylate	15% OTA-480	2	65000	1000	2	200
EBECRYL 3639	Modified Bisphenol-A Epoxy Acrylate	35% DPGDA	2	15500	-	n.a.	-





Color Gardner	Adhesion	Solvent Resistance	Reactivity	Flexibility	Pigment Wetting	Application Field	Key Features
2	●	●●●●●	●●●●●	●●	●	O, S	Fast cure, high gloss, excellent solvent resistance, low color
2	●	●●●●●	●●●●●	●●	●	O, S	Fast cure, high gloss, excellent solvent resistance, low color
2	●	●●●●●	●●●●●	●●	●	L, O, S	Fast cure, high gloss, excellent solvent resistance, low color
3	●●	●●●●●	●●●●●	●●●●	●●●	L, O, S	Higher MW, improved pigment wetting (especially TiO <sub>2</sub> )
2	●●●●	●●●●●	●●●●●	●●●	●●	F, O, S	Good adhesion to conventional inks, good flexibility
1	●●●	●●	●●●	●●	●●●	F	Designed for flexographic applications; good adhesion
1	●●	●●●●●	●●●●●	●●	●●	L, O	Fast cure, high gloss, excellent solvent resistance, low color
2	●	●●●●●	●●●●●	●●	●●	L, O	Fast cure, high gloss, excellent solvent resistance, low color
2	●	●●●●	●●●●●	●●	●●●●●	F, S	Excellent wetting of carbon black pigments
3	●●	●●●●●	●●●●●	●●●	●●	F, L	Flexible, good wetting of carbon black pigments
2	●	●	●●●	●●	●●	F, L, S	Good lithographic behaviour
3	●●	●●●●●	●●●●●	●●●●●	●	F, O, S	Excellent flexibility combined with high reactivity and good scratch resistance

## Epoxy Acrylates

Products	Description	Dilution	Functionality	Viscosity mPa·s, 25°C	Viscosity mPa·s, 60°C	Acid value mg KOH/g	OH value mg KOH/g
EBECRYL® 3700	Standard Bisphenol-A Epoxy Acrylate	-	2	1150000	4000	2	-
EBECRYL 3700/180T	Standard Bisphenol-A Epoxy Acrylate	18% OTA-480	2	85000	-	1	-
EBECRYL 3701	Modified Bisphenol-A Epoxy Acrylate	-	2	1250000	7000	5	-
EBECRYL 3702	Fatty Acid Modified Bisphenol-A Epoxy Acrylate	-	2	600000	3000	3	-
EBECRYL 3703	Modified Bisphenol-A Epoxy Acrylate	-	2	360000	4520	5	-
EBECRYL 3703/20TO	Modified Bisphenol-A Epoxy Acrylate	20% EBECRYL 160	2	48000	900	4	-
EBECRYL 3708	Modified Bisphenol-A Epoxy Acrylate	-	2	200000	4200	3	-
EBECRYL 3740/20TP	Modified Bisphenol-A Epoxy Acrylate	20% TPGDA	2	22000	600	2	-
EBECRYL 5848	Epoxidized Soya Oil Acrylate	-	3	25000	-	10	-
EBECRYL 6040	Modified Bisphenol-A Epoxy Acrylate	-	2	25000	-	2	195
EBECRYL LEO™ 10601	Modified Bisphenol-A Epoxy Acrylate	-	2	200000	1700	1	-

Color Gardner	Adhesion	Solvent Resistance	Reactivity	Flexibility	Pigment Wetting	Application Field	Key Features
3	●	●●●●●	●●●●●	●●	●●	F, L, O, S	Fast cure, high gloss, excellent solvent resistance, good wetting of carbon black pigments
3	●	●●●●●	●●●●●	●●	●●	F, L, O, S	Good wetting of carbon black pigments
6	●●●	●●●●●	●●●	●●●	●●●	F, L, O, S	Flexible, good adhesion to plastics
6	●	●●●	●●●	●●	●●●	F, L	Good lithographic behaviour and wetting of organic pigments
5	●●●	●●●●●	●●●●●	●●●	●●●	F, O, S	Very good flexibility, high reactivity, good adhesion to plastics
5	●●●	●●●●●	●●●●●	●●●	●●●	F O, S	Very good flexibility, high reactivity, good adhesion to plastics; moderate viscosity
4	●●●●	●●●	●●●	●●●●●	●●●	F, L, O, S	Very good flexibility, adhesion to plastics
2	●●	●●●●●	●●●●●	●●	●	F, L, O, S	Fast cure, high gloss, excellent solvent resistance, low color
10	●	●	●	●●●●	●●	L, O, S	Hot foil stamping, BPA-free product, High Renewable Content
2	●●	●●●●●	●●●●●	●●	●	O, S	Low viscosity, high scratch resistance, high gloss, good solvent resistance
3	●●	●●●●●	●●●●●	●●●	●●	F, L	Product for indirect food packaging produced under GMP (Good Manufacturing Practices); Very good pigment for carbon black pigments

## Polyester Acrylates

Products	Description	Functionality	Viscosity mPa·s, 25°C	Acid value mg KOH/g	OH value mg KOH/g	Color Gardner
EBECRYL® 450	Polyester Hexaacrylate	6	8600	20	70	dark
EBECRYL 452	Polyester Tetraacrylate	4	600	10	20	dark
EBECRYL 657	Polyester Tetraacrylate	4	125000	20	25	dark
EBECRYL 811	Polyester Tetraacrylate	4	75000	8	-	1
EBECRYL 820	LM Polyester Hexaacrylate	6	550	10	-	dark
EBECRYL 846	Modified Polyester Acrylate	6	45000	10	-	dark
EBECRYL 859	High MW Polyester Acrylate	6	36000	3	-	yellow
EBECRYL 870	Polyester Hexaacrylate	6	45000	15	30	dark
EBECRYL 873	Polyester Hexaacrylate	6	45000	15	50	dark
EBECRYL 1657	Polyester Tetraacrylate	4	125000	20	25	dark
EBECRYL 1870	Polyester Hexaacrylate	6	45000	15	30	dark
EBECRYL 5849	Polyester Acrylate	2	5000	-	-	1
EBECRYL LEO™ 10801	Polyester Hexaacrylate for Low Extractables and Odour	6	48000	10	25	dark

Products	Description	Functionality	Viscosity mPa·s, 25°C	Acid value mg KOH/g	OH value mg KOH/g	Color Gardner
EBECRYL LEO 10101	Self-curing acrylate resin	3	4000	< 1	< 25	-
EBECRYL LEO 10102	Self-curing acrylate resin	3	3500	< 1	< 25	-



Adhesion	Solvent Resistance	Reactivity	Flexibility	Pigment Wetting	Application Field	Key Features
●●●	●●	●●●●	●	●●●●	F, L	Very good lithographic behaviour, good pigment wetting and high reactivity
●●	●	●●●	●●	●●●●●	F, I, L	Exceptional pigment wetting allows preparation of highly concentrated pigment pastes
●	●	●●●	●●	●●●●	F, L	Very good lithographic behaviour and pigment wetting
●●	●	●●	●●	●●	waterless	Good adhesion to plastics, good cure response; recommended for waterless offset inks
●●	●●●	●●●	●	●●●●	F, I	Low migration product; exceptional pigment wetting allows preparation of highly concentrated pigment pastes
●●	●●●	●●●●	●	●●	L	Very high reactivity
●●●	●●●	●●●●	●●	●●●●	L	Excellent lithographic behaviour on high speed presses; high reactivity, and very good pigment wetting.
●●	●●●	●●●●	●	●●●●	F, L	High reactivity; very good lithographic behaviour and pigment wetting
●●●	●●●	●●●●	●	●●●●	F, L	High reactivity; good adhesion; very good lithographic behavior and pigment wetting
●	●	●●●	●●	●●●●	F, L	Low odour version of EBECRYL 657
●●	●●●	●●●●	●	●●●●	F, L	Low odour version of EBECRYL 870
●●	●●●●	●●●●	●	●●●●	O, F, L, S	High reactivity and high Tg: can be used for BPA-free development. High renewable content (56 %)
●●	●●●	●●●●	●	●●●●	F, L	Product for indirect food packaging produced under GMP (Good Manufacturing Practices); Very good pigment for carbon black pigments

Adhesion	Solvent Resistance	Reactivity	Flexibility	Pigment Wetting	Application Field	Key Features
●●	●●●	●●●●●	●●●	●	F, S, I, O	VUse 20-30% in formulation
●●	●●●	●●●●●	●●●	●	L	Use 30% in offset inks

## Urethane Acrylates

Products	Description	Dilution	Functionality	Viscosity mPa·s, 25°C	Viscosity mPa·s, 60°C	Color Gardner (Pt-Co)
EBECRYL® 210	Aromatic Urethane Diacrylate	-	2	214000	3900	2
EBECRYL 220	Aromatic Urethane Hexaacrylate	-	6	28500	-	2
EBECRYL 221	Tin-free Aromatic Urethane Hexaacrylate	-	6	28500	-	2
EBECRYL 230	Aliphatic Urethane Diacrylate	-	2	40000	-	(150)
EBECRYL 244	Aliphatic Urethane Diacrylate	12% HDDA	2	370000	8000	2
EBECRYL 245	Aliphatic Urethane Diacrylate	25% TPGDA	2	41000	2500	2
EBECRYL 264	Aliphatic Urethane Triacrylate	15% HDDA	3	45000	-	2
EBECRYL 265	Aliphatic Urethane Triacrylate	25% TPGDA	3	35000	-	2
EBECRYL 270	Aliphatic Urethane Diacrylate	-	2	120000	3000	2
EBECRYL 284	Aliphatic Urethane Diacrylate	12% HDDA	2	70000	2100	2
EBECRYL 285	Aliphatic Urethane Diacrylate	25% TPGDA	2	23000	-	2



Adhesion	Solvent Resistance	Reactivity	Flexibility	Yellowing	Pigment Wetting	Application Field	Key Features
●●●●●	●●	●●	●●●●	●●	●	F, O, S	Undiluted, good flexibility, general purpose
●	●●●●●	●●●●●	●	●●	●●●	F, L, S	Fast cure, high hardness and solvent resistance
●	●●●●●	●●●●●	●	●●	●●●	F, L, S	Tin-free. Fast cure, high hardness and solvent resistance
●●●●●	●	●	●●●●●	●●●●●	●	O, S	Undiluted, high molecular weight resin; very high flexibility
●●●●●	●	●●	●●●●	●●●●●	●●●	O, S	High flexibility, non-yellowing
●●●●●	●●	●●	●●●●	●●●●●	●●●	O, S	High flexibility, non-yellowing
●●●	●●●●●	●●●●	●●●	●●●●●	●●●	O, S	Good reactivity, abrasion resistance and non-yellowing
●●●	●●●●●	●●●●	●●●	●●●●●	●●●	O, S	Good reactivity, abrasion resistance and non-yellowing
●●●●	●●	●	●●●●	●●●●●	●●	O, S	Undiluted, good flexibility, light stability and adhesion
●●●●	●●●	●●●	●●●	●●●●●	●●●	O, S	Good exterior durability and toughness
●●●●	●●●	●●●	●●●	●●●●●	●●●	O, S	Good exterior durability and toughness

## Urethane Acrylates

Products	Description	Dilution	Functionality	Viscosity mPa·s, 25°C	Viscosity mPa·s, 60°C	Color Gardner (Pt-Co)
EBECRYL® 294/25HD	Aliphatic Urethane Triacrylate	25% HDDA	3	245000	700	2
EBECRYL 1290	Aliphatic Urethane Hexaacrylate	-	6	85000	2000	1
EBECRYL 2002	Water Soluble Aliphatic Urethane Diacrylate	10% TPGDA	2	25000	-	2
EBECRYL 2003	Water Soluble Aliphatic Urethane Diacrylate	10% TPGDA	2	74000	3000	3
EBECRYL 2221	Tin-free Aromatic Urethane Hexafunctional Acrylat	-	6	21000	-	3
EBECRYL 4820	Aliphatic Urethane Triacrylate	35% HDDA	3	3300	-	1
EBECRYL 4858	Aliphatic Urethane Diacrylate	-	2	7000	-	3
EBECRYL 5129	Aliphatic Urethane Hexaacrylate	-	6	20000	700	2
EBECRYL 8402	Aliphatic Urethane Diacrylate	-	2	12500	-	2





Adhesion	Solvent Resistance	Reactivity	Flexibility	Yellowing	Pigment Wetting	Application Field	Key Features
●●●	●●●●●	●●●●	●●●●	●●●●●	●●●	O, S	High chemical and stain resistance; excellent exterior durability
●	●●●●●	●●●●●	●	●●	●●	F, O, S	Fast cure, high hardness and solvent resistance
●●●●●	●●●●●	●●●	●●●●	●●●●	●●	O, S	Fast cure response, good flexibility and adhesion; water uptake to 70%
●●●●●	●●●●●	●●●	●●●●	●●	●●	O, S	Fast cure response, good flexibility and adhesion; water uptake to 80%
●	●●●●●	●●●●	●	●●	●●●	F, L, S	Tin-free. Fast cure, hardness, solvent resistant; PETIA free
●●●●	●●●●●	●●	●●	●●●●●	●●●	O, S	Good exterior durability and toughness
●●●●	●●●	●●●	●●	●●●●●	●●	F, O, S	Low Viscosity. Excellent exterior durability, excellent scratch and impact resistance
●●	●●●●●	●●●●●	●●	●●●●●	●●	F, O, S	Good scratch and abrasion resistance; more flexible than EBECRYL 1290
●●●●●	●●●●	●●●●	●●●●	●●●●●	●●●	F, L, O, S	Undiluted, good flexibility, toughness and exterior durability, low shrinkage

## Adhesion Promoting Resins

Products	Description	Dilution	Viscosity mPa·s, 25°C	Viscosity mPa·s, 60°C	Acid value mg KOH/g	OH value mg KOH/g
EBECRYL® 303	Hydrocarbon Resin	45% HDDA	900	-	1	-
EBECRYL 411	Modified Polyester Resin	40% DPGDA	1300	-	n.a.	n.a.
EBECRYL 436	Chlorinated Polyester Resin	40% TMPTA	90000	1500	25	-
EBECRYL 437	Chlorinated Polyester Resin	40% EBECRYL 40	160000	2700	30	-
EBECRYL 438	Chlorinated Polyester Resin	40% OTA 480	90000	1500	25	-
EBECRYL 446	Modified Chlorinated Polyester Resin	32% TMPTA	10000	1800	25	-
EBECRYL 524	Chlorine Free Polyester Resin	30% HDDA	60000	-	30	20
EBECRYL 525	Chlorine Free Polyester Resin	40% TPGDA	40000	-	25	40
EBECRYL 570	Chlorine Free Polyester Resin	50% EBECRYL 40	47000	-	20	40
EBECRYL 571	Modified Chlorine Free Polyester Resin	40% DPGDA	9000	-	n.a.	20
EBECRYL 575	Chlorine Free Polyester Resin	50% EBECRYL 892	60000	1400	10	40

Color Gardner (Pt-Co)	Adhesion	Solvent Resistance	Reactivity	Flexibility	Pigment Wetting	Application Field	Key Features
0.5	●●●●●	●	●●	●●	●●	F, O, S	Excellent adhesion to a wide range of plastic substrates, low viscosity
6	●●●●●	●	●●●●	●●●	●●●	F, L, O, S	Very good combination of adhesion and reactivity for low viscosity applications such as flexography
5	●●●●	●	●●●	●●	●	L	Very good combination of adhesion and reactivity
7	●●●●	●●	●●●●	●	●	L	Very good combination of adhesion and reactivity
5	●●●●	●	●●	●●	●	L	Good adhesion to metals and plastics
5	●●●●	●	●●●	●●	●	L	Similar performance to EBECRYL 436 with improved lithographic behaviour
(250)	●●●●●	●	●	●●	●	F, O, S	Recommended for primers and laminating adhesives
(200)	●●●●●	●	●	●●	●	F, L, O, S	Recommended for laminating adhesives and OPV on conventional oil based inks
(200)	●●●●	●	●●	●	●	F, L, O, S	Better suited for sensitive applications such as food packaging
3	●●●●	●	●●	●●	●●●	F, O, S	Very good flexibility, developed for shrink sleeve applications
(200)	●●●●	●	●●	●●	●●●●	F, L, O, S	Good adhesion, good pigment wetting and ink water balance in offset inks. Suitable for low migration applications

## Adhesion Promoting Resins

Products	Description	Dilution	Viscosity mPa·s, 25°C	Viscosity mPa·s, 60°C	Acid value mg KOH/g	OH value mg KOH/g
EBECRYL® 740/40TP	Acrylic Resin	40% TPGDA	110000	8500	1	50
EBECRYL 741	Modified Acrylic Resin	45% HDDA	3500	-	-	-
EBECRYL 745	Acrylic Resin	25% HDDA 25% TPGDA	20000	-	1	40
EBECRYL 764	Acrylic Resin	30% DPGDA 20% EBECRYL 160	60000	2000	-	-
EBECRYL 767	Acid Functional Acrylic Resin	38% IBOA	175000	8500	-	-



Color Gardner (Pt-Co)	Adhesion	Solvent Resistance	Reactivity	Flexibility	Pigment Wetting	Application Field	Key Features
3	●●●●●	●	●●	●●●	●●●	S	Very good adhesion to plastics and on conventional oil based inks
6	●●●●●	●	●●	●●●	●●	S	Excellent adhesion to a wide range of plastic substrates combined with low viscosity
3	●●●●●	●	●●	●●●	●●	S	Very good adhesion to plastics and metal
3	●●●●	●	●●	●●●	●●●	L, S	Good adhesion and anti-blocking properties, useful modifier in offset inks for metal decoration
3	●●●●	●	●	●●●●	●●	S	Very good adhesion to plastics

## Amine Modified Polyether Acrylates, Amine Synergists, Photoinitiators

Products	Description	Functionality	Viscosity mPa·s, 25°C	Color Gardner (Pt-Co)	Amine value (mg KOH/g)
<b>Amine Modified Polyether Acrylates</b>					
EBECRYL® 80	Amine Modified Polyether Acrylate	2,5	3000	(200)	60
EBECRYL 81	Amine Modified Polyether Acrylate	2,5	100	2	56
EBECRYL 83	Amine Modified Polyether Acrylate	2,5	500	2	40
EBECRYL 85	Amine Modified Polyether Acrylate	3,3	160	2	40
EBECRYL LEO™ 10551	Amine Modified Polyether Acrylate	2,5	75	2	56
EBECRYL LEO 10552	Amine Modified Polyether Acrylate	3,5	450	2	40
EBECRYL LEO 10553	Amine Modified Polymeric Tetraacrylate	3,4	220	2	28
<b>Amine Synergists</b>					
EBECRYL 7100	Amine Functional Acrylate Co-initiator	n.a.	1200	4	140
EBECRYL P116	Tertiary Amine Co-initiator	n.a.	20	2	236

Products	Description	Type	State	Non- yellowing	Flexography
<b>Photoinitiators</b>					
EBECRYL P39	Polymeric Benzophenone Derivative	H-abstraction	Liquid	✓	✓



Adhesion	Solvent Resistance	Reactivity	Flexibility	Pigment Wetting	Application Field	Key Features
●●	●●	●●●●	●●	●	F, I, O, S	High reactivity
●●	●●	●●●●	●●	●	F, I, O, S	High reactivity combined with good diluting power
●●	●●●	●●●●●	●●●	●	F, I, O, S	High reactivity, low viscosity and low residual odour
●●●	●●●●	●●●●●	●●	●	F, I, O, S	Very high reactivity. Suitable for low migration applications
●●	●●	●●●	●●	●	F, I, O, S	Product for indirect food packaging produced under GMP (Good Manufacturing Practices)
●●●	●●●	●●●●●	●●●	●	F, I, O, S	Product for indirect food packaging produced under GMP, good deep cure
●●	●●●	●●●●	●●●	●	F, I, O, S	Product for indirect food packaging produced under GMP
●●●●	●●●	●●●●	●●●●	●	F, I, O, S	Highly efficient co-initiator, excellent adhesion to plastic substrates; can be used as a resin
●	●●●	●●●●●	●●	●	F, I, O, S	Highly efficient co-initiator, typical use level of 8%

Inkjet	Lithography	OPV	Screen	Key Features
	✓	✓	✓	Photoinitiator for low odour UV coatings; No yellowing in thin layers (<6 μ) typical for OPV; can be used in inks in combination with other photoinitiators

## Diluting Acrylates

Products	Description	Viscosity mPa·s, 25°C	Acid value mg KOH/g	OH value mg KOH/g	Color Gardner (Pt-Co)
<b>Monofunctional</b>					
EBECRYL® 110	Ethoxylated Phenol Acrylate	20	1	15	5
EBECRYL 113	Aliphatic Acrylate	120	1	190	3
EBECRYL 114	Ethoxylated Phenol Acrylate	10	1	-	(200)
IBOA	Isobornyl Acrylate	9	1	-	(50)
ODA	Octyl and Decyl Acrylate Mixture	3	1	-	3
<b>Difunctional</b>					
DPGDA	Dipropylene Glycol Diacrylate	10	1	40	(150)
EBECRYL 11	Polyethylene Glycol Diacrylate	120	17	-	(50)
EBECRYL 130	Tricyclodecanediol Diacrylate	160	1	30	4
EBECRYL 145	Propoxylated Neopentylglycol Diacrylate	20	1	40	(200)
EBECRYL 150	Diacrylated Bisphenol-A Derivative	1400	5	30	2
EBECRYL 151	Modified Diacrylate	125	1	35	5
EBECRYL 152	Modified Diacrylate	20	1	30	2
HDDA	Hexanediol Diacrylate	10	1	15	(40)
TPGDA	Tripropyleneglycol Diacrylate	15	1	40	(50)





Adhesion	Solvent Resistance	Reactivity	Flexibility	Application Field	Key Features
●●●	●	●	●●●●	S	High Flexibility
●●●●	●	●●	●●●●●	I, L, O, S	Low odour, good flexibility and adhesion, Xi free
●●●	●	●●	●●●●	I, S	Very good adhesion to plastic and metal substrates
●●●●	●	●	●	F, I, O, S	Low viscosity and color, high Tg
●●●	●	●	●●●●●	I, S	Excellent flexibility, good adhesion to non-polar substrates, good water resistance
●●●	●●●	●●	●●	F, I, O, S	Good cure speed and flexibility
●●	●	●●	●●●	S	Miscible with water, good flexibility, screen inks and paper coatings
●●	●●●	●●	●	F, I, S	High Tg, low shrinkage, good adhesion to rigid substrates
●●●	●●●	●●	●●	F, I, O, S	Aliphatic difunctional acrylate with low surface tension
●	●●●	●●●	●●	L, O	High reactivity, good scratch resistance
●●	●●●	●●	●●	F, I	Excellent pigment wetting combined with low viscosity
●●●	●●●	●●	●●	F, I	Let down for inkjet inks; good flow , levelling and adhesion to wide range of plastic substrates
●●●●	●●●	●●	●●	F, I, O, S	High diluting power, excellent adhesion, good weathering properties
●●●●	●●●	●●	●●	F, I, O, S	Good cure speed and flexibility

## Diluting Acrylates

Products	Description	Viscosity mPa·s, 25°C	Acid value mg KOH/g	OH value mg KOH/g	Color Gardner (Pt-Co)
<b>Trifunctional</b>					
EBECRYL® 160	Ethoxylated Trimethylol Propane Triacrylate	80	1	25	(200)
EBECRYL LEO™ 10501	Diluting Triacrylate	80	0,5	<25	(200)
OTA 480	Propoxylated Glycerol Triacrylate	90	1	60	(60)
TMPTA	Trimethylol Propane Triacrylate	115	1	30	(50)
<b>Tetrafunctional &amp; higher</b>					
DPHA	Dipentaerythritol Hexaacrylate	16000	8	60	3
EBECRYL 40	Polyether Tetraacrylate	160	0,5	60	2
EBECRYL 45	Polyether Tetraacrylate	160	0,5	60	2
EBECRYL 140	Ditrimethylol Propane Triacrylate	1000	10	30	(400)
EBECRYL 892	Polyether Tetraacrylate	200	4	-	2
EBECRYL 895	Low Viscosity DPHA	7500	10	60	3
EBECRYL 1142	High Purity Ditrimethylolpropane Tetraacrylate	1050	< 0,7	-	(200)
EBECRYL LEO™ 10502	Polymeric Tetraacrylate	170	5	-	2
PETIA	Pentaerythritol Tri- and Tetraacrylate Mixture	1100	10	115	(200)



Adhesion	Solvent Resistance	Reactivity	Flexibility	Application Field	Key Features
●●	●●●	●●●	●●●	L, F, S, I, O	More flexible than TMPTA, good adhesion, high gloss and fast cure speed
●●	●●●	●●●	●●	L, F, S, I, O	Product for indirect food packaging produced under GMP (Good Manufacturing Practices); good cure speed
●●	●●●	●●●	●	L, F, S, I, O	Low viscosity and fast cure speed
●●●	●●●	●●●	●	L, F, S, I, O	High cure speed, chemical and abrasion resistance
●●	●●●●	●●●●●	●	L, F, S, I, O	Very high reactivity, high hardness and scratch resistance
●●●	●●●	●●●	●●	F,L, S, I, O	High reactivity with good diluting power.
●●●	●●●	●●●	●●	F,L, S, I, O	High reactivity. Suitable for low migration applications
●●	●●●	●●●●	●	L, F, S, I, O	High reactivity and good hardness
●●●	●●●	●●●	●●	L, F, S, I, O	Low viscosity, good reactivity and low shrinkage
●●	●●●●	●●●●●	●	L, F, S, I, O	Low migration; very high reactivity, high hardness and scratch resistance
●●	●●●	●●●●	●	L, F, S, I, O	High reactivity and good hardness
●●●	●●●	●●●	●●	F, S, I, O	Product for indirect food packaging produced under GMP (Good Manufacturing Practices); good flexibility
●●●●	●●●●	●●●●	●	L, F, S, I, O	Hard, good chemical resistance and adhesion

## Additives

Products	Description	Viscosity mPa·s, 25°C	Acid value mg KOH/g
<b>Adhesion Promoters</b>			
EBECRYL® 168	Methacrylated Acidic Compound	1350	290
EBECRYL 170	Acrylated Acidic Compound	3000	300
EBECRYL 770	Carboxylated Polyester Methacrylate	100	120
<b>Flow and Levelling Aids</b>			
EBECRYL 350	Silicone Diacrylate	350	7
EBECRYL 1360	Silicone Hexaacrylate	2100	25
MODAFLOW® Resin	Silicone free levelling agent	110000	-
MODAFLOW 9200	Silicone free levelling agent	4000	-
<b>Miscellaneous</b>			
EBECRYL 330	Dispersing Agent	300	70
EBECRYL 341	Silicone free slip agent	50	-
EBECRYL 373	Anti-misting additive	paste	-

Color Gardner (Pt-Co)	Addition Level	Application Field	Key Features
3	1-5	O, S	Adhesion promoter for metals and glass
6	5-8	O, S	Adhesion promoter for metals
(200)	5 - 10	F, L, O, S	Very good adhesion to metal and plastic substrates, alkali strippable
10	0,5-2	F, L, O, S	Copolymerizable, substrate wetting and slip additive
10	0,5-2	F, L, O, S	Copolymerizable, substrate wetting and slip additive; recommended for EB applications
(<80)	0,5-2	F, O, S	Silicone free anti-foam agent for screen printing
(<150)	0,5-2	F, O, S	Silicone free levelling agent with excellent compatibility
Colorless	0,5-3	F, I, S	Solvent free dispersing agent for inorganic pigments, fillers and matting agents
white	2-5	O	Silicone free slip agent for use in OPV, allows overprintability
yellow	3-5	L	Reduces misting of paste inks






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