

Packaging everyday life

Resins and additives for printing and packaging

 **BASF**
We create chemistry



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Supporting the conversion to sustainable solutions

Sustainability is deeply implemented in our innovation process. One key contribution is made by our technologies enabling the conversion from solvent-based to water-based printing and converting – without compromising on performance and at competitive costs. With our Sustainable Solution Steering method we have furthermore evaluated the value chain from cradle to grave, considering industry- and region-specific views in our markets. After identifying key sustainability drivers, our resins and additives have been systematically reviewed. This approach allows us to assess the sustainability performance of each of our products in its specific application. We create chemistry that makes performance love sustainable solutions.

For the printing & packaging industry, we identified the reduction of emissions and the continuous improvements in the field of health and safety in use to be among the key drivers for more sustainable inks. Products that contribute substantially to these key drivers along the value chain have thus been classified as Sustainability Accelerators.

Let's take a joint look at your specific requirements and find out how we can further improve both your, as well as our, sustainability profile!

[Learn more about BASF's commitment to driving sustainable solutions at: www.basf.com/sustainability](http://www.basf.com/sustainability)





The best choice for printing and packaging applications

Packaging printing

Our portfolio enables you to increase the effectiveness and structural qualities of your packaging. We understand the performance and sustainability challenges you face, such as cost savings, product quality and consistency, resistance and resolubility, grinding efficiency and color strength, low VOC and food contact compliance.

Take a look at our comprehensive portfolio and get in touch to find the most suitable raw materials.

Packaging inks

For eco-efficient flexible packaging, we have developed a full range of water-based and energy-curable solutions suitable for both surface and reverse printing on different film substrates. Our resins furthermore enable efficient printing on corrugated board, reducing the amount of binder and thus cost in use. For paper and paperboard, our portfolio provides products for flexographic, gravure and digital applications.

Functional packaging coatings

Part of our product portfolio is water-based binders adding functionality to your packaging. From aqueous acrylic binders for the formulation of heat seal lacquers with low to high activation temperatures to pre-metallization primers for vacuum metallized paper substrates, we offer numerous solutions.

Overprint varnishes

You are looking to formulate a clear varnish for a matt, satin or glossy finish? Our water-based styrene acrylic binders provide maximum formulation flexibility. Our energy-curable solutions show excellent gloss and scuff resistance on absorbing and non-absorbing substrates.

Industrial printing

When it comes to decorative laminates, wallpapers or floor decors, our resins and additives complement your needs, e.g., with high-molecular-weight dispersing agents that improve the tinctorial strength and ink viscosity. Defoamers, slip and surface additives optimize finishing effects and applicability. To round off our solution package, we offer a range of water-based and UV as well as solvent-based resins, reactive diluents, photoinitiators and light stabilizers.

Key resin portfolio

■ Water-based ■ Solvent-based ■ Energy-curable

Product	Description	Application	
		Film & aluminum foil	Paper & board

Functional packaging coatings

Joncryl® HSL 701	High solids colloidal solution for heat seal lacquer on BOPP film	■	-
Joncryl® HSL 9031	Emulsion for versatile heat seal lacquer on aluminum and polyester lidding substrates	■	-
Joncryl® HSL 9012	Emulsion for heat seal lacquers for pharmaceutical blister packaging	-	■
Joncryl® HSL 9011	Emulsion for low heat activated blister lacquer for carton board	-	■
Joncryl® 1687	Emulsion for high-performance heat-resistant print primers	■	-
Joncryl® ECO 2177 E	Emulsion for high-performance pre- and post-metallization lacquers	-	■
Joncryl® ECO 2189 E	Emulsion for high-performance pre- and post-metallization lacquers	-	■
Joncryl® 1631	Emulsion for MVTR and low COBB lacquers	-	■

Surface film printing

Joncryl® FLX 5026	Self-crosslinking technology for medium-duty white printing ink with good heat seal resistance on BOPP	■	-
Joncryl® FLX 5000	Self-crosslinking technology for medium-duty printing on LDPE and BOPP with excellent resolubility	■	-
Versamid® PUR 1120	An elastomeric aliphatic polyurethane compatible with NC pigment concentrates	■	-

Lamination – reverse film printing

Joncryl® FLX 5201	Polyurethane dispersion for BOPP and PET lamination providing very high bond strength	■	-
Joncryl® FLX 5040	Self-crosslinking technology for BOPP lamination	■	-
Joncryl® FLX 5220	Polyurethane-acrylic hybrid emulsion for lamination structures including PET and OPA, providing very good lamination bond strength and printability	■	-
Versamid® PUR 1032	An elastomeric aliphatic polyurethane providing very good lamination bond strength also after retort	■	-

Pigment grinding

Joncryl® HPD 496	Very efficient pigment grind resin solution with very high performance	■	■
Joncryl® HPD 396	High-performance pigment grind resin solution	-	■
Laromer® LR 9013	Inert resin in monomer – providing excellent pigment wetting, high yield values and low shrinkage	■	■
Laromer® LR 8985	Inert resin in monomer – providing excellent pigment wetting, high yield values and low shrinkage	■	■
Laromer® EA 9101	Epoxidized soybean oil acrylate – providing moderate reactivity, excellent flexibility and pigment wetting and properties and outstanding ink/water stability in offset inks	■	■

Corrugated, paperboard & paper inks

Joncryl® 668	Very efficient, low cost-in-use colloidal	-	■
Joncryl® 633 E	Opaque water-based binder to reduce TiO ₂ content	-	■
Joncryl® 8053	Low cost-in-use film-forming emulsion	-	■
Joncryl® 2651	Film-forming emulsion for general purpose paper printing with good water resistance	-	■

Product	Description	Application	
		Film & aluminum foil	Paper & board

Binder resin

Laromer® PE 9105	Tetrafunctional polyester acrylate – providing high reactivity and flexibility, excellent film-forming properties, low viscosity and good adhesion to plastics	■	■
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Overprint varnishes

Joncryl® 678	Solid resin providing good gloss	-	■
Joncryl® 682	Solid resin providing high gloss	-	■
Joncryl® 2190	High Tg emulsion providing high gloss	-	■
Joncryl® 8067	Low cost-in-use, high Tg emulsion	-	■
Joncryl® 617 E	Film-forming emulsion providing good gloss	-	■

Reactive diluent

Laromer® LR 8863	Trifunctional monomer – providing high reactivity, flexibility and hardness	■	■
Laromer® GPTA	Trifunctional monomer – providing high reactivity, outstanding ink/water stability in offset inks, flexibility and hardness	■	■
Laromer® PO 33 F	Trifunctional monomer – providing high reactivity, low shrinkage and excellent solvent resistance	■	■
Laromer® PPTTA	Tetrafunctional monomer – providing excellent reactivity and film-forming properties and good flexibility	■	■

Reactivity booster

Laromer® LR 8996	Amine-modified polyether acrylate – providing excellent reactivity and film-forming properties, low viscosity and good solvent resistance	■	■
Laromer® LR 8997	Amine-modified polyether acrylate – providing excellent reactivity and film-forming properties, low viscosity and superior solvent resistance	■	■
Laromer® PO 94 F	Amine-modified polyether acrylate – providing excellent reactivity and film-forming properties, medium viscosity and good solvent resistance	■	■
Laromer® PO 9114	Ethoxylated (4.0) bisphenol A diacrylate – providing excellent reactivity, gloss, adhesion, mechanical and chemical resistance	■	■

Surface curing

Irgacure® 127	α-Hydroxy ketone – providing superior reactivity, low migration and low sensitivity to oxygen inhibition	■	■
Irgacure® 369	α-Amino ketone – providing high reactivity in high pigmented systems	■	■

Through curing

Irgacure® 379	α-Amino ketone – product features as Irgacure® 369 with improved solubility	■	■
Irgacure® TPO L	Acylphosphine oxide – providing medium reactivity and efficient for LED exposure	■	■
Irgacure® 819	Acylphosphine oxide – providing high reactivity and efficient for LED exposure	■	■



Water-based resins

With our Joncryl® range, we offer high-performance resins that enable flexible packaging printers and converters to switch from solvent-based to water-based technologies. Stricter regulations are a key issue in the industry, and we make sure that it is incorporated into our new product development process, e.g., compliance with food contact legislation.

Flexible printing inks without performance trade-off

The Joncryl® FLX portfolio is known in the industry as the reference in resins for water-based film printing inks. With their excellent resistance or lamination bond strength in combination with an excellent resolubility, they are highly suitable for flexible packaging applications. Joncryl® FLX products are not only cost-effective and eco-efficient. They also represent our commitment to support printers and converters with sustainable solutions – without compromising on performance.

Versatile and efficient heat seal lacquers

The Joncryl® HSL product line offers a range of options for heat seal lacquers in various applications, providing secure seal and smooth peeling behavior. Joncryl® HSL 9031 for example is a water-based solution for high-performance heat seal lacquers on aluminum and polyester lidding. Joncryl® HSL 9011 can be used in various food contact applications as well as in cardboard blisters for sensitive applications, e.g., baby pacifiers and toothbrushes. Joncryl® HSL 701's optical properties and heat sealing profile make it an ideal choice for polypropylene wrapping applications.

Joncryl® emulsions

■ Good ■■ Very good

Product	Physical properties						Applications					Key properties	Performance characteristics					
	Non-volatile [%]	pH [25 °C]	Viscosity [mPa.s, 25 °C]	Acid value on solids	Glass transition temperature Tg (DSC) [°C]	Minimum film-forming temperature [°C]	Ink for paper and board	Ink for film	Ink for wallpaper	Functional packaging coating	Overprint varnish		Water resistance	Heat resistance	Gloss	Resolubility	Grease resistance	Alkaline resistance
Joncryl® 74 E	48.0	8.1	600	69	-8	< 5	■	-	-	-	■	Efficient film-forming properties, good water resistance	■	-	-	-	-	-
Joncryl® 77 E	46.0	8.1	550	62	35	12	■	-	-	-	■	Good film-forming properties, block resistance, gloss	-	-	-	-	-	-
Joncryl® 90	44.0	8.3	260	76	110	> 85	■	-	-	-	-	General purpose, fast drying, good gloss	-	-	■	-	-	-
Joncryl® 537 E	46.5	8.2	250	52	50	43	■	-	-	-	-	Alkali and detergent resistance	-	-	-	-	-	■
Joncryl® 538	46.5	7.7	250	70	64	60	-	-	■	-	-	Plasticizer migration resistance, suitable for vinyl substrates, for use in complex ink formulations	-	-	-	-	-	■
Joncryl® 617 E	45.5	8.3	1,250	63	7	< 5	■	-	-	-	■	Good film-forming properties, economical	-	-	-	-	-	-
Joncryl® 631 E	49.5	7.8	2,500	31	107	> 85	■	-	-	-	-	Good hiding power resulting in increased color brightness, good resolubility and printability, fast drying	-	-	-	■	-	-
Joncryl® 633 E	37.0	7.2	600	60	-	< 50	■	-	-	-	-	High opacity, TiO ₂ replacement resulting in low cost-in-use, good resolubility	-	-	-	■	-	-
Joncryl® 1631	47.0	8.0	800	-	-	< 5	-	-	-	■	-	Low COBB and good MVTR properties	■■	-	-	-	-	-
Joncryl® 1665	36.5	9.3	300	63	-42	< 5	■	-	-	■	-	Heat resistance, good wet rub resistance	-	■	-	-	-	-
Joncryl® 1680 E	43.5	7.6	300	28	56	49	-	-	-	-	■	Low gloss, no matting agent required	-	-	-	-	-	-
Joncryl® 1685	43.5	9.5	350	-	-20	< 5	■	-	-	■	-	High heat resistance, good gloss and clarity	-	■	-	-	-	-
Joncryl® 1686	30.0	8.0	400	225	44	23	■	-	-	-	■	Hot mar resistance	-	■	-	-	-	-
Joncryl® 1687	45.0	9.0	250	14	28	-	-	-	-	■	-	Heat and chemical resistance, high-performance print receptive	■■	■■	-	-	■	■
Joncryl® 1688	34.0	9.6	450	-	-	< 5	-	-	-	■	-	Heat resistance and adhesion to hard aluminum	■	■	-	-	-	-
Joncryl® 2038	41.0	7.8	600	74	> 85	> 85	-	-	■	-	-	Solvent and detergent resistance, suitable for both paper and vinyl substrates, good resolubility	-	-	-	-	-	■
Joncryl® 2040	45.0	2.0	25	-	-	60	■	-	-	-	-	Excellent melamine penetration and bleeding resistance, good lamination properties for décor inks	-	-	-	-	-	-
Joncryl® 2118	44.0	8.0	250	40	-	< 5	-	-	-	■	-	Low taint	■	-	■	-	-	-
Joncryl® 2157 E	48.0	8.3	125	36	105	> 85	■	-	-	-	-	Very fast drying, exhibits low curling, very good resolubility also suitable for gravure	-	-	-	-	-	-
Joncryl® 2178 E	44.0	8.5	700	68	42	< 5	■	-	-	-	-	Dry and wet block resistance, high coefficient of friction	-	-	-	-	-	-
Joncryl® 2190	44.0	8.3	260	76	110	> 85	■	-	-	-	■	Excellent optical clarity, high gloss, good heat resistance, fast drying	-	-	■	-	-	-
Joncryl® 2651	44.5	7.7	450	85	-30	< 5	■	■	-	-	-	Good adhesion and leveling on film substrates, good printability	■	-	-	-	-	-
Joncryl® 8050 E	42.0	7.9	550	114	-18	< 5	■	-	-	-	-	Grease resistance, excellent film clarity	-	-	-	-	■	-
Joncryl® 8052	46.5	7.9	750	65	-35	< 5	■	-	-	-	-	Film-forming properties, for general purposes, grease resistance, low COBB	■	-	-	-	■	-
Joncryl® 8053	40.0	8.2	625	70	-25	< 5	■	-	-	-	-	Low cost-in-use, very effective film former, good gloss and transparency	■	-	-	-	-	-
Joncryl® 8055	46.0	7.9	400	-	110	> 85	■	-	-	-	-	Very good resolubility, fast drying, NaOH neutralized therefore low odor	-	-	■	■	-	-
Joncryl® 8067	42.0	8.1	250	78	110	> 90	■	-	-	-	■	Low cost-in-use, good clarity and gloss, good heat resistance, fast drying	-	-	■	-	-	-

Joncryl® emulsions

■ Good ■■ Very good

Product	Physical properties						Applications					Key properties	Performance characteristics					
	Non-volatile [%]	pH [25 °C]	Viscosity [mPa·s, 25 °C]	Acid value on solids	Glass transition temperature Tg (DSC) [°C]	Minimum film-forming temperature [°C]	Ink for paper and board	Ink for film	Ink for wallpaper	Functional packaging coating	Overprint varnish		Water resistance	Heat resistance	Gloss	Resolubility	Grease resistance	Alkaline resistance
Joncryl® 8212	44.0	8.1	250	34	56	62	-	-	-	■	-	Hard emulsion, good adhesion to aluminum	■	-	■	-	-	-
Joncryl® ECO 2117	46.0	8.2	1,250	62	8	< 5	■	■	-	-	-	Film-forming, printability	-	-	-	-	-	-
Joncryl® ECO 2124 E	47.0	7.9	1,150	65	-35	< 5	-	-	-	■	-	Grease resistance, excellent resolubility, printability, viscosity stability, good compatibility	■	-	■	-	-	■
Joncryl® ECO 2177 E	46.0	8.2	700	64	21	11	-	-	-	■	-	Good film-forming properties, block resistance, gloss	-	-	■	-	-	-
Joncryl® ECO 2189 E	48.0	8.2	550	65	98	> 85	-	-	-	■	-	Good gloss, block resistance	-	-	■	-	-	-
Joncryl® FLX 5000	42.0	8.5	1,000	90	-	< 5	-	■	-	-	-	Good dry and wet rub resistance, excellent resolubility and printability, good blocking resistance	■	■	-	■■	-	-
Joncryl® FLX 5002	35.0	8.8	240	-	-	< 5	-	■	-	-	-	Good dry resistance, excellent resolubility and printability, economical	■	■	-	■■	■	-
Joncryl® FLX 5010	45.5	8.2	40	6	-	13	■	■	-	-	-	Excellent resistance properties	■■	■	■	■	-	■
Joncryl® FLX 5020	41.0	8.1	40	26	-	13	-	■	-	-	-	Very good resistance properties, good heat-seal resistance, fast curing	■■	■	-	■	-	■
Joncryl® FLX 5026	45.0	9.0	175	7	-	11	-	■	-	-	-	Very good resistance in white inks, excellent heat-seal resistance on OPP, good overprintability with both solvent-based and water-based colors	■	■■	-	■	-	■
Joncryl® FLX 5040	46.0	9.2	1,350	85	-30	-	-	■	-	-	-	Good bond strength on OPP laminates, excellent resolubility and printability, versatile with many pigment concentrates	-	-	-	■	-	-
Joncryl® FLX 5201	40.0	8.5	55	-	-	-	-	■	-	-	-	High bond strength on OPP and PET laminates, versatile with many pigment concentrates and letdown varnishes, good transfer and printability	-	-	-	■	-	-
Joncryl® FLX 5220	45.0	8.5	150	-	-	< 5	-	■	-	-	-	Polyurethane-acrylic hybrid emulsion for lamination structures including PET and OPA, providing very good lamination bond strength and printability	-	-	-	■	-	-
Joncryl® HSL 701	29.0	9.5	< 100	30	55	27	-	-	-	■	-	Excellent heat seal properties at high and low pressure	-	-	■	-	-	-
Joncryl® HSL 702	42.0	8.2	120	53	42	39	-	-	-	-	-	Low solvent retention, high solids emulsion, excellent heat seal properties	-	-	-	-	-	-
Joncryl® HSL 9011	45.0	8.7	< 500	35	-30	< 5	-	-	-	■	-	Low activation temperature, food contact approved	■	-	■	-	-	-
Joncryl® HSL 9012	39.0	8.0	< 200	35	-	< 5	-	-	-	■	-	Good heat seal properties on hard aluminum	■	-	■	-	-	-
Joncryl® HSL 9020	44.0	8.0	60	24	21	< 5	-	-	-	■	-	Good heat seal properties for paper applications	■	-	-	-	-	-
Joncryl® HSL 9031	48.0	7.7	70	-	-	< 5	-	-	-	■	-	Excellent heat seal properties, good hot tack	■	-	-	-	-	-
Joncryl® LMV 7051 E	44.5	7.5	400	115	98	56	■	-	-	-	-	Low maintenance, pH-neutral, low odor, very good resolubility	-	-	-	■	-	-

Joncryl® colloidals

■ Good ■■ Very good

Product	Physical properties						Applications		Key properties	Performance characteristics		
	Non-volatile [%]	pH [25 °C]	Viscosity [mPa·s, 25 °C]	Acid value on solids	Glass transition temperature Tg (DSC) [°C]	Molecular weight	Ink for paper and board	Overprint varnish		Pre-print	Flat dilution profile	Cost-in-use
Joncryl® 637	40.0	6.1	70	130	-	65,000	■	-	Broad compatibility, flat dilution profile	-	■	-
Joncryl® 652	50.0	-	100	136	105	19,000	■	-	Providing gloss, hardness	■	■	-
Joncryl® 661	44.0	2.1	60	154	70	85,000	■	■	Low cost-in-use	■	-	■
Joncryl® 665	44.5	2.0	25	164	123	57,000	■	-	Low cost-in-use, high efficiency	■	-	■
Joncryl® 667	45.0	2.0	25	160	90	16,000	■	-	Excellent transfer and printability, excellent ink viscosity stability for high-quality inks	■	-	-
Joncryl® 668	44.0	2.0	25	164	123	75,000	■	-	Very low cost-in-use, very high efficiency	■	-	■■

Joncryl® resins and solutions

■ Good ■■ Very good

Product	Appearance			Physical properties							Applications			Key properties	Performance characteristics			
	Solid resin	Resin solution	Grind resin solution	Non-volatile [%]	pH [25 °C]	Viscosity [mPa·s, 25 °C]	Molecular weight [Mw]	Acid value on solids	Glass transition temperature Tg (DSC) [°C]	Neutralization agent	Pigment grinding dispersion	Water-based ink	Overprint varnish		Pigment loading	Shock stability of pigment paste	Flow behavior of pigment paste	Dilution efficiency
Joncryl® 586	■	-	-	97.0	-	-	4,500	110	66	-	-	■	■	Alkali resistance, excellent water and wet block resistance, good resolubility	-	-	-	-
Joncryl® 678	■	-	-	99.0	-	-	8,500	215	109	-	-	■	■	Excellent transfer and printability, good gloss and hold-out, cost-effective pigment grind vehicle	-	-	-	■
Joncryl® 682	■	-	-	99.0	-	-	1,750	238	57	-	-	-	■	High gloss, high solids/low viscosity solutions, excellent resolubility, excellent transfer	-	-	-	-
Joncryl® 8078	-	■	-	32.0	8.3	1,750	8,500	222	101	NH3	-	■	■	Excellent transfer and printability, good gloss and hold-out, cost-effective pigment grind vehicle	-	-	-	-
Joncryl® 8083	-	■	-	30.0	8.3	950	8,500	224	101	MEA	-	■	■	High gloss, high solids/low viscosity solutions, excellent resolubility, excellent transfer	-	-	-	-
Joncryl® 8085	-	■	-	42.5	8.1	1,350	1,750	245	57	NH3	-	-	■	Enables high-concentrated dispersions, good color development, gloss and transparency	■	■	■	-
Joncryl® HPD 96 E	-	-	■	31.0	8.5	2,000	16,500	233	105	MEA	■	-	-	Enables high-concentrated dispersions, good color development, gloss and transparency, Swiss Ordinance List A compliant	■	■	■	-
Joncryl® HPD 96 E MEA	-	-	■	31.5	8.5	2,000	16,500	195	105	NH3	■	-	-	Enables high-concentrated dispersions, superior color development, excellent performance with critical pigments, high gloss and transparency, Swiss Ordinance List A compliant	■	■	■	-
Joncryl® HPD 197	-	-	■	32.0	8.5	1,350	8,500	220	100	MEA	■	-	-	Enables very high-concentrated dispersions, superior color development, excellent performance with critical pigments, excellent gloss and transparency. Swiss Ordinance List A compliant	■	■	■	-
Joncryl® HPD 197 MEA	-	-	■	30.0	8.2	700	8,500	220	100	NH3	■	-	-	Enables high-concentrated dispersions, excellent color development, low maintenance, pH-neutral	■	■	■	-
Joncryl® HPD 396	-	■	-	31.5	8.5	400	10,000	185	91	NH3	■	-	-	Enables high-concentrated dispersions, excellent color development, low maintenance, pH-neutral	■■	■■	■■	-
Joncryl® HPD 496	-	-	■	34.5	8.5	500	5,500	178	58	NH3	■	-	-	Enables very high-concentrated dispersions, superior color development, excellent performance with critical pigments, excellent gloss and transparency. Swiss Ordinance List A compliant	■■	■■	■■	-
Joncryl® LMV 7085 E	-	-	■	34.5	7.3	2,000	13,000	230	77	NH3	■	-	-	Enables high-concentrated dispersions, excellent color development, low maintenance, pH-neutral	■	■	■	-



Solvent-based resins

Solvent-based resins remain an essential solution in printing inks for flexible packaging. BASF offers different technologies with specific performance properties, for example polyurethanes that become increasingly important in the market, as they address the need for high-quality packaging and can substitute halogen-containing solutions. Solvent-based inks for flexible packaging permit more sustainable solutions by enabling packaging with a favorable footprint, e.g., pouches replacing cans.

Good lamination bond strength and compatibility

Our Versamid® PUR portfolio offers elastomeric aliphatic polyurethanes that are highly suitable for lamination with reverse film printing as they show very good lamination bond strength also after retort. The Versamid® PUR portfolio can be formulated into inks that provide good flexibility and adhesion to various polyolefin, polyester, polymer-coated and metallized films. Versamid® PUR products can be used as a pigment grind vehicle providing good flow and printability properties.

Versamid® PUR, Lutonal®, Laroflex®, Laropal®, Acronal®, Joncryl® resins

Product	Key properties	Acrylate and co-polymer of acrylate/ether	Polyurethane	Polyvinyl ether	Co-polymer of vinyl chloride and vinyl isobutyl ether	Aldehyde resin	Pigment grinding	Surface printing	Medium-duty lamination	High-end lamination (incl. retort)	Heat seal lacquer	Primer	Non-volatile [%]	Viscosity [mPa·s, 25 °C]	Molecular weight	Acid value on solids	Tg [°C]	2-Propanol (IPA)	n-Propyl acetate	n-Propanol	Ethanol	Butyl acetate	Ethyl acetate
Acronal® 4 F	NC and PVC compatible, improves flexibility and adhesion, provides chemical resistance	■	-	-	-	-	-	-	-	■	■	-	98.5	150	-	-	-40	-	-	-	-	-	-
Acronal® 700 L		■	-	-	-	-	-	-	-	■	■	-	50.0	650	-	-	-40	-	-	-	-	-	50
Joncryl® 611	Compatible with many other resin systems, used as modifying resin to confer flexibility and improve adhesion	■	-	-	-	-	■	■	-	-	-	-	99.0	150 (40% in toluene)	8,150	53	60	Soluble in ketones, acetates and alcohol/acetate blends					
Joncryl® 612	Good pre- and post-metallization properties and good adhesion to NC and offset inks; excellent wash-off time and ink retention as required for use in beer labels	■	-	-	-	-	-	-	-	-	-	■	99.0	-	25,000	10	81	Soluble in ethyl acetate					
Laroflex® MP 15	High resistance to heat and hydrolysis, good adhesion to aluminum for use in PVC / acrylic gravure inks	-	-	-	■	-	■	-	-	■	-	-	100.0	15 (20% in toluene)	-	-	Softening point 47 °C	-	-	-	-	-	-
Laroflex® MP 45		-	-	-	■	-	■	-	-	■	-	-	100.0	45 (20% in toluene)	-	-	Softening point 50 °C	-	-	-	-	-	-
Lutonal® A 25	NC and PVB compatible, improves flexibility	-	-	■	-	-	-	■	■	-	-	-	> 90.0	6	-	-	-43	-	-	-	-	-	-
Lutonal® A 50		-	-	■	-	-	-	■	■	-	-	-	50.0	13	-	-	-30	-	-	-	50	-	-
Laropal® A 81	Co-binder with very good compatibility with other resin technologies, offering hardness, gloss, flow	-	-	-	-	■	■	■	-	-	-	-	100.0	-	-	-	57	Soluble in alcohols, aldehydes, ketones and aromatic hydrocarbons					
Lutonal® M 40	NC and PVB compatible, improves flexibility	-	-	■	-	-	-	■	■	-	-	-	70.0	150	-	-	-49	-	-	-	30	-	-
Versamid® PUR 1010	High lamination bond strength, suitable as pigment grind vehicle providing excellent flow and printability properties	-	■	-	-	-	-	-	■	■	-	-	35.0	800	-	-	-	-	44	21	-	-	-
Versamid® PUR 1032	High lamination bond strength in white inks	-	■	-	-	-	-	-	■	■	-	-	45.0	2,500	-	-	-	-	-	-	40	-	15
Versamid® PUR 1120	NC compatible, suitable for both surface and lamination print	-	■	-	-	-	-	■	■	-	-	-	42.0	550	-	-	-	48	10	-	-	-	-



Energy-curable resins

We are continuously expanding our Laromer® portfolio of raw materials for the fast-growing UV and electron beam (EB) curable ink and overprint varnish market. The technology offers significant advantages such as instant curing for increased productivity or high performance in resistance properties and gloss, to name just a few. Already today, our energy-curable Laromer® portfolio meets the demand of increasingly stringent legislative requirements and helps to continue the conversion to more sustainable solutions.

Ensuring safety

The UV food packaging market is a highly dynamic one, with new technologies at the forefront. For instance, UV curing has been dominated by mercury lamps, but with LEDs a new rival has emerged that continues to make strong technical progress. BASF remains fully committed to the UV food packaging market by providing all necessary data for food contact compliance. Already today, our Laromer® portfolio offers food contact-compliant solutions and we continuously work on innovative new offers.

Laromer® resins and functional monomers

■ Low ■ Medium ■ Good ■ Excellent
■ Good ■ Very good ■ Excellent

Product	Key properties	Type of resin	Type of thinner	Viscosity [mPa·s, 25 °C]	Functionality calculated	Reactivity	Hardness	Elasticity	Chemical resistance	Offset ink	Flexographic ink	Screen ink	Digital ink	Overprint varnish
Pigment grinding resin														
Laromer® LR 8985	More hydrophobic than Laromer® LR 9013	-	None	55.0–85.0	3.0	■	■	■	■	■	■	■	-	■
Laromer® LR 9013	Excellent pigment wetting properties, low in shrinkage	-	None	45.0–70.0	3.0	■	■	■	■	■	■	■	-	■
Polyester acrylates														
Laromer® LR 8800	Hard, chemical resistance, low odor	-	None	4.0–8.0	3.0	■	■	■	■	-	-	-	-	■
Laromer® LR 9004	Tough with good adhesion	-	None	20.0–50.0	2.6	■	■	■	■	■	■	■	-	■
Laromer® PE 44 F	Free of diluents, low viscosity, low odor, flexible	-	None	2.0–5.0	3.0	■	■	■	■	■	■	■	-	■
Laromer® PE 56 F	Well-balanced properties, leads to a tough film	-	None	20.0–40.0	3.1	■	■	■	■	■	■	■	-	■
Laromer® PE 9074	BDDA-free version of Laromer® LR 9004	-	None	7.0–13.0	3.2	■	■	■	■	■	■	■	-	■
Laromer® PE 9084	Medium viscous version of Laromer® PE 9074	-	None	16.0–26.0	3.3	■	■	■	■	■	■	■	-	■
Laromer® PE 9105	Good substrate wetting, low viscosity	-	None	0.15–0.40	4.0	■	■	■	■	-	■	■	■	■
Polyether acrylates														
Laromer® GPTA	More hydrophobic than Laromer® LR 8863	-	None	0.07–0.13	3.0	■	■	■	■	■	■	-	■	■
Laromer® LR 8863	Lower in viscosity than Laromer® PO 33 F	TMPEOTA	None	0.05–0.10	3.0	■	■	■	■	■	■	■	■	■
Laromer® PO 33 F	Low yellowing, low-odor diluent	TMPPOTA	None	0.07–0.13	3.0	■	■	■	■	■	■	■	■	■
Laromer® PO 9102	Good substrate and pigment wetting, low viscosity	PONPGDA	None	0.01–0.02	2.0	■	■	■	■	-	■	-	■	■
Laromer® PO 9114	High hardness, chemical resistance	EBPADA	None	0.8–1.6	2.0	■	■	■	■	■	■	-	-	■
Laromer® PPTTA	High reactivity, good mechanical properties, excellent chemical resistance and low odor	-	None	0.13–0.19	4.0	■	■	■	■	■	■	■	■	■
Amine modified polyether acrylates														
Laromer® LR 8869	Highly reactive, very low in color	-	None	0.08–0.11	2.8	■	■	■	■	■	■	■	-	■
Laromer® LR 8996	Reactive, very low in color and viscosity	-	None	0.05–0.09	2.9	■	■	■	■	■	■	■	-	■
Laromer® LR 8997	Highly reactive, very low in color	-	None	0.3–0.5	3.4	■	■	■	■	■	■	■	-	■
Laromer® PO 84 F	Reactive, good pigment wetting	-	None	0.4–0.7	3.5	■	■	■	■	-	■	■	-	■
Laromer® PO 94 F	Highly reactive, good pigment wetting, low odor	-	None	0.4–0.8	3.5	■	■	■	■	■	■	■	-	■
Laromer® PO 8956 M	Highly reactive amine synergist	-	None	0.015–0.030	< 1	■	■	■	■	-	■	■	■	■
Laromer® PO 9103	Highly reactive, good adhesion on plastic	-	None	2.5–4.0	2.0	■	■	■	■	-	■	-	-	■
Laromer® PO 9104	Reactive, low viscosity and flexible	-	None	0.06–0.09	2.0	■	■	■	■	-	■	-	-	■
Laromer® PO 9106	Highly reactive, good pigment/filler wetting	-	None	2.5–3.5	3.4	■	■	■	■	■	■	■	-	■

Laromer® resins and functional monomers

■ Low ■ Medium ■ Good ■ Excellent
■ Good ■ Very good ■ Excellent

Product	Key properties	Type of resin	Type of thinner	Viscosity [mPa-s, 25 °C]	Functionality calculated	Reactivity	Hardness	Elasticity	Chemical resistance	Offset ink	Flexographic ink	Screen ink	Digital ink	Overprint varnish
Epoxy acrylates														
Laromer® EA 9081	Very low viscosity, easy to handle	Aromatic	75% mix	0.2–0.5	2.5	■■■	■■■■	■■	■■■■	■■	■■	■■	-	■■■
Laromer® EA 9097	Low viscosity, very good chemical resistance	Aromatic	40% TPGDA	1.5–3.0	2.0	■■	■■■■	■■	■■■■	■■	■■	■■	-	■■■
Laromer® EA 9101	Flexibilizing co-resin, outstanding pigment wetting	ESBOA	None	13.0–20.0	3.8	■	■	■■■	■	■■■	■	-	-	■■
Laromer® EA 9107	Good ink-water balance, highly reactive	Aromatic	30% GPTA	6.6–7.4 (35 °C)	2.3	■■■	■■■■	■	■■■	■■	■■	■■	-	■■■
Laromer® EA 9108	High chemical resistance, highest reactivity	Aromatic	25% TMPTA	40.0–50.0	2.3	■■■	■■■■	■	■■■■	■■	■■	■■	-	■■■
Laromer® EA 9109	Medium viscosity, hydrophobic character	Aromatic	20% HDDA	7.0–13.0	2.0	■■■	■■■■	■	■■■■	■■	■■	■■	-	■■■
Laromer® LR 8765 R	Partially water-soluble, flexible, highly reactive	Aliphatic	None	0.6–1.2	2.0	■■■	■■■■	■	■	-	■■	■■■	-	■■■
Laromer® LR 8986	Highly reactive, resistant to chemicals	Aromatic	None	3.0–6.0	2.4	■■■	■■■	■■	■■■■	■■■	■■■	■■■	-	■■■
Laromer® LR 9019	Highly reactive, very good chemical resistance	Aromatic	None	12.0–20.0	2.4	■■■■	■■■	■■■	■■■■	■■■	■■■	■■■	-	■■■
Laromer® LR 9023	Diluted version of Laromer® LR 9019	Aromatic	15% DPGDA	2.0–5.0	2.4	■■■	■■■	■■	■■■■	■	■■■	■■■	-	■■■
Urethane acrylates														
Laromer® LR 8987	Scratch- and weather-resistant, use for outdoor applications	Aliphatic	30% HDDA	2.0–6.0	2.8	■■■	■■■	■■	■■■	■	■■■	■■■	-	■■■
Laromer® UA 19 T	Elastic, low yellowing, flexible at temperatures below 0 °C	Aliphatic	35% TPGDA	14.0–32.0	2.0	■	■■	■■■	■	■	■■■	■■■	-	■■■
Laromer® UA 9073	Flexible and tough with high viscosity	Aromatic	None	2.0–15.0 (60 °C)	2.0	■■	■■	■■■	■■	■■	■■	■■	-	■■
Laromer® UA 9089	High elasticity, excellent PVC adhesion and weather resistance	Aliphatic	None	18.0–24.0	2.0	■■	■■	■■■■	■■	■■	■■	■■	-	■■
Urethane acrylate dispersions														
Laromer® LR 9005	Excellent scratch and chemical resistance	Aromatic	60% water	0.02–0.25	2.0	■■	■■■■	■■	■■■■	-	-	-	-	■■
Laromer® UA 9060	Very good chemical and scratch resistance, fast drying, very hard	Aromatic	60% water	0.0005–0.3000	2.0	■■	■■■■	■■	■■■■	-	-	-	-	■■
Laromer® UA 9064	Low-yellowing version of Laromer® UA 9060	Aromatic	62% water	0.02–0.25	2.0	■■	■■■■	■■	■■■■	-	-	-	-	■■
Laromer® UA 9122	Excellent resolubility and good adhesion on plastic, suitable for indirect food packaging	Aliphatic	62% water	0.2–0.8	2.0	■■■	■■	■■■	■■	-	-	-	■■	■■
Reactive diluents														
Laromer® DPGDA	Excellent cutting power	-	None	0.008	2.0	■■■■	■■■	■■	■■■	■	■■■	■■	■■■	■■■
Laromer® HDDA	Excellent cutting power and adhesion	-	None	0.006	2.0	■■■■	■■	■■■	■■■	■	■■■	■■	■	■■■
Laromer® LR 8887	Good flexibility and adhesion	CTFA	None	0.04	1.0	■	■	■■■	■	-	■■	■■■	■■■	■
Laromer® POEA	Excellent adhesion and pigment wetting properties	-	None	0.008	1.0	■	■	■■■	■■	-	-	-	■■■	-
Laromer® TBCH	Good flexibility and adhesion	-	None	0.009	1.0	■	■	■■■	■	-	■	■■■	■■■	■
Laromer® TMPTA	Cure speed and chemical resistance	-	None	0.13	3.0	■■■■	■■■	■	■■■	■	■■	■	■■	■■■
Laromer® TPGDA	Good cutting power reactivity	-	None	0.011	2.0	■■■■	■■	■■■	■■■	■	■■■	■■	-	■■■
Special UV/EB curable products														
Laromer® PR 9120	Self matting, gloss level depending on dosage level	-	Mix	-	-	■■■■	■■■■	■■■■	■■■■	-	-	-	-	■■■

Water-based resins

Solvent-based resins

Energy-curable resins

Formulation additives

Irgacure® photoinitiators

Product	Product type	Description	Key properties	UV/VIS absorption peaks in methanol [nm]	Melting point [°C] DIN 53736 ISO 1218	Solubility [%]				
						n-Butyl acetate	Laromer® HDDA	Laromer® TPGDA	Laromer® TMPTA	Irgacure® 1173
α-Hydroxy ketones										
Irgacure® 127	α-Hydroxy ketone	Especially suitable for UV inks and thin clear lacquers	Superior reactivity over alpha-hydroxy ketones such as Irgacure® 184 or Irgacure® 1173, low sensitivity to oxygen inhibition, low emission/odor after curing	260, 320	-	-	-	15	15	40
Irgacure® 184	α-Hydroxy ketone	Acrylate clear topcoats for paper, metal and plastics, main use in clear varnishes and as co-initiator in pigmented systems, also recommended for outdoor applications	Low yellowing, medium volatility, highly efficient for surface cure	246, 280, 333	45–49	> 50	> 50	> 50	> 50	> 50
Irgacure® 1173	α-Hydroxy ketone		Good solvent properties, highly suitable for blends with other photoinitiators, highly efficient for surface cure, slightly more reactive than Irgacure® 184	245, 280, 331	Liquid (RT)	> 50	> 50	> 50	> 50	-
Irgacure® 2959	α-Hydroxy ketone	Acrylate clear topcoats for paper, metal and plastics, also in water-based UV dispersions	Low yellowing, low odor, low volatility, low migration, reactive OH group enabling use as building block for MFPI, FDA approved for indirect food contact in adhesive applications	276, 331	86–90	3	10	20	5	35
Irgacure® LEX 201	α-Hydroxy ketone	Especially suitable for UV inks and thin clear lacquers	Dual function, low migration photoinitiator for UV-curable inks and overprint varnishes for packaging applications	273	Liquid (RT)	> 50	> 50	> 50	> 50	> 50
α-Amino ketones										
Irgacure® 369	α-Amino ketone	For pigmented systems, photoresists and printing plates	Highly efficient	233, 324	110–114	11	10	6	5	25
Irgacure® 379	α-Amino ketone		Highly efficient, excellent solubility compared to Irgacure® 369, easy to incorporate	237, 320	82–87	-	30	24	-	35
Acylphosphine oxides										
Irgacure® 819	BAPO	Main use in pigmented white/colored inks, UVA-stabilized inks and thick-section curing	Low odor, low volatility, photosensitivity at longer wavelength	360, 365, 405	127–133	6	5	5	5	30
Irgacure® 819 DW	BAPO	Suitable for use in water-diluted ink systems such as UV inkjet	Easy to incorporate into water-based UV systems, low odor, low volatility, photosensitivity at longer wavelength	360, 365, 405	Liquid dispersion	-	-	-	-	-
Irgacure® 2100	APO	Especially suited for pigmented inks, composites and adhesives	Low yellowing after cure, improved through cure and reactivity over Irgacure® TPO	275, 370	Liquid (RT)	> 50	> 50	> 50	> 50	> 50
Irgacure® TPO	MAPO	Main use in clear and pigmented coatings, printing inks and adhesives	Good solubility in common UV systems, significant lower through cure performance than Irgacure® 819, low yellowing, low odor	295, 380, 393	87–93	25	20	15	15	> 50
Irgacure® TPO L	MAPO	Especially suited for pigmented inks, composites and adhesives	Easy to incorporate, low yellowing, photosensitivity at longer wavelength	-	Liquid (RT)	> 50	> 50	> 50	> 50	> 50

Irgacure® photoinitiators

Product	Product type	Description	Key properties	UV/VIS absorption peaks in methanol [nm]	Melting point [°C] DIN 53736 ISO 1218	Solubility [%]				
						n-Butyl acetate	Laromer® HDDA	Laromer® TPGDA	Laromer® TMPTA	Irgacure® 1173
Cationics										
Irgacure® 250	Iodonium salt	Can be used to effectively cure cationic printing inks, white base coatings and adhesives, the product is especially suitable for the curing of thick and highly pigmented systems	Photoinitiator for cationic polymerization of epoxy or oxetane-based photocurable systems upon exposure to light	-	75% solution in propylene carbonate	-	-	-	-	-
Irgacure® 270	Sulfonium salt	Can be used to effectively cure cationic printing inks and adhesives, the product is especially suitable for food packaging coatings	Low migration, low odor photoinitiator for cationic polymerization of epoxy or oxetane-based photocurable systems upon exposure to light	235, 293, 317	192	-	-	-	-	-
Others										
Irgacure® 500	Benzophenone/ α-Hydroxy ketone	Acrylate clear topcoats for paper, metal and plastics, main use in clear varnishes and as co-initiator in pigmented systems	Low yellowing, excellent surface cure, low viscosity provides advantage lowering the viscosity of formulation	250, 332	Liquid (RT)	> 50	> 50	> 50	> 50	> 50
Irgacure® 651	Benzil dimethyl ketal	Fillers and topcoats based on UPES/styrene for inks and clear lacquers based on acrylates for paper, metal and plastics, printing plates and photoresists	Yellowing after cure tends to limit the use to primer or intermediate coats	254, 337	64–67	> 50	40	25	> 50	> 50
Irgacure® 754	Phenylglyoxylate	Clear lacquers	Highly efficient in surface cure, low emission, low residual odor, lowest yellowing after cure	260, 345	Liquid (RT)	> 50	> 50	> 50	> 50	> 50



Formulation additives

BASF is a premiere provider of formulation additives for the printing ink industry including digital inks. These unique products enable performance-driven products, which meet the latest and most stringent environmental regulations. The portfolio comprises a broad technology base of dispersing agents, wetting agents and surface modifiers, defoamers, rheology modifiers and film-forming agents. Numerous of our additives have been classified as Sustainability Accelerators.

Fit for food contact

Our broad range of food contact-compliant raw materials such as Hydropalat® WE 3966 provides great possibilities in formulating inks and coatings in this sensitive application field.

More out of less

Dispersing agents like Dispex® Ultra PX 4585 increase resource efficiency in two ways. First, they shorten the energy consuming process of pigment dispersion. Second, they use pigments more efficiently by allowing for maximum color strength and stability.

Similar performance, lower emissions

Low-VOC formulation additives such as recently developed Efka® PX 4733 improve the performance of 100% UV-reactive systems and thus help to reduce emissions.

Hydropalat® wetting agents and Efka® surface modifiers

□ Potentially suitable ■ Recommended

Product	Sustainability Accelerator*	Applications							Key properties	Solid content [%]	VOC content [%]	Dosage [%]
		Water-based	Energy-curable	Solvent-based	Gravure	Flexo	Screen	Inkjet				
Substrate wetting agents												
Hydropalat® WE 3120	-	■	-	-	■	■	■	■	Low-foaming wetting agent for aqueous formulations; excellent reduction of dynamic surface tension	> 99.5	< 0.5	0.5–1.0
Hydropalat® WE 3130	■	■	-	-	■	■	■	□	Highly effective, low-foaming substrate wetting agent with broad food contact approvals	90	-	0.5–1.0
Hydropalat® WE 3197	■	■	-	-	■	■	■	■	Highly effective, low-foaming substrate wetting agent with broad food contact approvals	> 95	-	0.5–1.0
Hydropalat® WE 3220	-	■	□	-	■	■	□	■	Silicone surfactant to reduce surface tension; no influence on slip; 100% active	> 99	-	0.1–0.5
Hydropalat® WE 3221	-	■	-	-	■	■	□	■	Silicone surfactant to reduce surface tension; no influence on slip	48	52	0.1–0.5
Hydropalat® WE 3475	-	■	-	-	■	■	■	□	Highly efficient sulfosuccinate wetting agent; strong reduction of dynamic surface tension; standard product used in overprint varnishes	75	~ 6	1.0–5.0
Hydropalat® WE 3477	-	■	-	-	■	■	■	□	Highly efficient sulfosuccinate wetting agent; strong reduction of dynamic surface tension; alternative solvent used (propylen glycol)	77	~ 6	1.0–5.0
Hydropalat® WE 3650	-	■	-	-	■	■	■	■	Highly effective, low-foaming substrate wetting agent for water-based coatings and ink applications	> 96	< 0.5	0.5–1.0
Hydropalat® WE 3694	■	■	-	-	■	■	■	■	Highly effective, very low-foaming substrate wetting agent with broad food contact approvals	> 95	-	0.5–1.0
Hydropalat® WE 3966	■	■	-	-	■	■	■	□	Label-free, non-ionic surfactant; excellent improvement of shock stability in inks; strong improvement of compatibility	> 95	-	0.5–1.0
Slip and leveling agents												
Efka® SL 3210	■	■	■	■	■	■	■	■	Broad-spectrum flow and slip enhancer based on modified polydimethylsiloxane; economic solution	100	< 1	0.1–1.0
Efka® SL 3258	-	■	■	■	■	■	■	■	Highly effective solvent-free slip additive and leveling agent; specifically designed for aqueous and UV-curable formulations	> 95	< 0.5	0.1–1.0
Efka® SL 3259	■	□	■	■	■	■	■	■	Highly effective solvent-free slip additive and leveling agent for non-aqueous coatings and UV systems	> 95	< 0.5	0.1–1.0
Efka® SL 3299	■	□	■	■	■	■	■	■	Broad-spectrum and highly effective flow and slip enhancer based on modified polydimethylsiloxane	100	< 1	0.1–1.0
Flow and leveling agents												
Efka® FL 3740	-	-	■	■	■	■	■	■	Silicone- and solvent-free flow and leveling agent with air-release properties for non-aqueous coatings	> 95	< 0.5	0.5–1.0
Efka® FL 3741	-	-	■	■	■	■	■	■	Silicone- and solvent-free flow and leveling agent with air-release properties; excellent compatibility	> 95	< 0.5	0.5–2.0

Listed data reflect typical product properties, they do not represent specification values.

* Product that has been evaluated with BASF's Sustainable Solution Steering method and contributes substantially to sustainability in the value chain.

Dispex[®], Dispex[®] Ultra and Efka[®] dispersing agents

□ Potentially suitable ■ Recommended

Product	Sustainability Accelerator*	Applications							Key properties	Solid content [%]	Acid value [mg KOH/g]	Amine value** [mg KOH/g]
		Water-based	Energy-curable	Solvent-based	Gravure	Flexo	Screen	Inkjet				
Anionic dispersing agents based on polyacrylic acid												
Dispex [®] AA 4040	-	■	-	-	□	■	■	■	Used in economical slurries of TiO ₂ and inorganic fillers for water-based gravure, flexo and screen applications; ammonium neutralized for better water resistance than Dispex [®] AA 4140	40	pH 8.0	-
Dispex [®] AA 4140	-	■	-	-	□	■	■	■	Used in economical slurries of TiO ₂ and inorganic fillers for water-based gravure, flexo and screen applications (sodium polyacrylate)	40	pH 7.5	-
Low molecular weight wetting and dispersing agents												
Dispex [®] Ultra FA 4431	-	□	-	■	□	■	■	□	Wetting agent for high polarity solvent-based systems; suitable for alcohol dilutable flexo formulations, particularly effective for TiO ₂ ; also suitable for UV white systems	100	100	-
Dispex [®] Ultra FA 4437	-	■	-	-	□	■	■	■	Non-ionic wetting and dispersing agent for aqueous formulations; especially designed for organic pigment concentrates	100	-	-
Dispex [®] Ultra FA 4480	-	■	-	-	□	■	■	■	Universal, non-ionic wetting and dispersing agent; powerful alternative to APEOs; improves gloss development and color intensity	80	-	-
High molecular weight polymeric dispersing agents												
Dispex [®] Ultra PA 4560	■	■	-	-	□	■	-	■	Polyacrylate dispersing agent for resin-containing and resin-free water-based systems; effective and economic solution	50	-	25
Dispex [®] Ultra PA 4590	-	■	-	-	□	■	-	■	Polyacrylate dispersing agent for resin-containing and resin-free water-based systems; proven effectiveness in water-based flexo applications	40	6	39
Efka [®] PU 4009	-	-	■	■	□	□	■	-	Polyurethane dispersing agent for low- to medium-polarity systems; cost-effective	60	13	9
Efka [®] PU 4047	-	-	■	■	□	-	■	■	PUR dispersant in BGA/2-butanol, suitable for solvent-borne and UV inkjet formulations	35	-	17
Efka [®] PU 4050	-	-	■	■	□	□	■	-	Polyurethane dispersing agent for medium- to high-polarity solvent-based systems in gravure and screen applications	45	-	14
Efka [®] PU 4063	-	-	■	■	□	□	■	-	Polymeric dispersing agent for the deflocculation of inorganic and organic pigments in high-quality solvent-based pigment pastes	45	-	10
Next-generation high molecular weight polymeric dispersing agents with tailor-made molecular structure												
Dispex [®] Ultra PX 4522	■	■	-	-	□	■	-	■	Excellent dispersant for organic pigments and carbon black, label-free	> 95	-	-
Dispex [®] Ultra PX 4575	■	■	-	-	□	■	-	■	Universal dispersing agent with particular good performance in inorganic pigments but also excellent performance with organic pigments	40	-	32
Dispex [®] Ultra PX 4585	■	■	-	-	□	■	-	■	CFRP*** technology; advanced dispersant for classical and high-performance pigments in water-based inkjet applications, but also in classical water-based print applications (e.g., Flexo)	50	-	20
Efka [®] PX 4350	■	-	■	□	□	■	-	-	Highly efficient dispersing agent for PB15:3-15:6 pigments and pigment green, but also for PV 23; high gloss due to excellent compatibility	51	-	12
Efka [®] PX 4700	-	-	■	■	-	-	-	■	CFRP*** technology; advanced dispersant for high-performance pigments in solvent-based inkjet applications, especially for strong solvent and UV formulations	80	-	60
Efka [®] PX 4701	■	-	■	■	-	■	□	■	CFRP*** technology; advanced dispersant for high-performance pigments especially for energy curable systems; especially for UV inkjet and flexo applications, also for solvent-based inkjet applications – strong and mild solvent formulations	100	-	40
Efka [®] PX 4731	-	-	■	■	□	■	□	■	Advanced dispersant for classical and high-performance pigments in energy-curable systems; UV inkjet and UV flexo applications; also solvent-based inkjet applications, especially mild solvent formulations	100	-	25
Efka [®] PX 4733	■	-	■	■	□	■	□	■	Advanced dispersant for classical and high-performance pigments in energy curable systems; UV flexo and UV inkjet applications; also solvent-based inkjet applications, especially strong solvent formulations	100	-	25

Listed data reflect typical product properties, they do not represent specification values.

* Product that has been evaluated with BASF's Sustainable Solution Steering method and contributes substantially to sustainability in the value chain.

** Use of dispersing agents containing amine groups or any other ingredients containing amines is not recommended for nitrocellulose-containing systems to be used for food packaging applications.

*** CFRP, Controlled Free Radical Polymerization.

Rheovis® rheology modifiers, Efka® film-forming agents and Loxanol® humectants

□ Potentially suitable ■ Recommended

Product	Sustainability Accelerator*	Applications							Key properties	Solid content [%]	Viscosity [mPa·s]	Dosage [%]
		Water-based	Energy-curable	Solvent-based	Gravure	Flexo	Screen	Inkjet				
Rheology modifiers												
Rheovis® AS 1125	-	■	-	-	□	■	■	■	Anionic polyacrylate copolymer (ASE thickener) for use in economical slurries of TiO ₂ and inorganic fillers for water-based gravure, flexo and screen applications	25	~ 17	1.0-3.0
Rheovis® AS 1130	■	■	-	-	□	■	■	■	Anionic polyacrylate copolymer (ASE thickener) for use in economical slurries of TiO ₂ and inorganic fillers for water-based gravure, flexo and screen applications	30	~ 5	1.0-3.0
Rheovis® PE 1330	-	■	-	-	■	■	□	■	Excellent high-shear thickener, imparts excellent flow	30	~ 4,500	1.0-3.0
Rheovis® PU 1214	-	■	-	-	■	■	□	■	Mid-shear thickener, nearly Newtonian flow behavior, excellent balance between high- and low-shear built	44	~ 3,500	0.5-3.0
Rheovis® PU 1331	■	■	-	-	■	■	□	■	Excellent high-shear thickener, imparts excellent flow, outstanding efficiency	18	~ 4,500	0.5-3.0
Film-forming agents												
Efka® PL 5381	■	-	-	■	■	■	□	-	Epoxy plasticizer, with various food contact approvals	-	~ 550	1.0-4.0
Efka® PL 5382	■	-	-	■	■	■	□	-	Epoxy plasticizer; purified version of Efka® PL 5381	-	~ 550	1.0-4.0
Efka® PL 5590	-	-	-	■	■	■	□	-	Secondary plasticizer for polyvinyl chloride (plastisols)	-	~ 13	1.0-4.0
Efka® PL 5642	■	-	-	■	■	■	□	-	Universal, highly effective plasticizer; low odor; excellent low-temperature performance	-	~ 9	1.0-4.0
Efka® PL 5643	■	-	-	■	■	■	□	■	Primary plasticizer that offers excellent durability with low temperature resistance; excellent replacement for DOP	-	~15	1.0-4.0
Humectants												
Loxanol® PL 5812	-	■	-	-	■	■	■	■	Can be used as solubilizer in pasty pigment preparations and can act as humectant in aqueous formulations	-	~ 60	up to 10
Loxanol® PL 5813	-	■	-	-	■	■	■	■		-	~ 85	up to 10
Loxanol® PL 5814	-	■	-	-	■	■	■	■		-	~ 110	up to 10

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FoamStar® and Efka® defoamers, and others

□ Potentially suitable ■ Recommended

Product	Sustainability Accelerator*	Applications							Key properties	Solid content [%]	VOC content [%]	Dosage [%]
		Water-based	Energy-curable	Solvent-based	Gravure	Flexo	Screen	Inkjet				
Defoamers												
Efka® SI 2721	-	-	■	-	■	■	□	□	Defoamer for energy-curable systems; for UV flexo, UV screen and UV OPV applications; can be used in mill bases and finished inks, solvent-free	-	> 95	0.3–1.0
Efka® SI 2741	-	-	-	■	■	■	□	□	Effective in nitrocellulose and polyurethane-based formulations	-	> 95	0.3–0.5
Efka® SI 2750	-	-	-	■	■	■	□	□	Especially acetate reduced nitrocellulose and polyurethane formulations; easier to incorporate than Efka® SI 2741, free of aromatic solvents	-	> 95	0.3–1.0
FoamStar® ED 2522	-	■	-	-	■	■	□	□	High-performance, ultra-low-SVOC silicone emulsion defoamer for premium water-based paints, clear coats and inks; excellent storage stability	~ 20	< 0.1	0.1–1.0
Foamaster® NO 2306	■	■	□	-	■	■	□	-	Universal defoamer based on natural oils; effectively removes micro-foam, excellent press side defoamer	100	< 0.5	0.3–0.8
FoamStar® SI 2201	■	■	-	-	■	■	■	■	Easily incorporable, highly compatible, with excellent defoaming efficiency for flexo applications; can also be used for OPVs and primers	100	< 0.5	0.3–1.0
FoamStar® SI 2210	■	■	-	-	■	■	■	□	100%-active-content defoamer compound, provides a strong spontaneous defoaming effect; outstanding long-term defoaming persistency	100	< 0.5	0.1–0.8
FoamStar® SI 2213	■	■	-	-	■	■	■	□	Very compatible defoamer for clear and low-pigmented paints and coatings and for aqueous flexo inks; highly effective with excellent compatibility	100	< 0.1	0.1–0.8
FoamStar® SI 2216	-	■	-	-	■	■	■	□	Highly effective defoamer for aqueous pigment concentrates and systems with high surfactant content	100	< 0.5	0.1–0.5
FoamStar® SI 2250	-	■	-	-	■	■	■	□	Highly effective shear-stable defoamer, very effective in mill bases and circulation processes (high-shear conditions)	100	< 1	0.1–0.3
FoamStar® SI 2292	-	■	-	-	■	□	■	■	Highly compatible silicone-based defoamer solution for high-gloss paints and varnishes based on acrylics and PU dispersions; minimized risk of cratering	10	90	0.5–2.0
Others												
Joncryl® 601	-	■	-	-	-	■	-	-	Increased printing efficiency, high transfer, good resolubility, aqueous solution of an acrylamide polymer to be used as additive	12.5	pH 7.5	1.0–3.0
Joncryl® Wax 4	-	■	-	-	■	■	-	-	Provides highest rub resistance, lowest formulated cost, ultra-low VOC's, no foam	40	pH 9.0	1.0–3.0
Joncryl® Wax 35	-	■	-	-	■	■	-	-	Maintains gloss, decreases the coefficient of friction, enhanced rub and scratch resistance, high melting point	34.5	pH 9.8	5.0
Loxanol® MI 6730	-	■	-	-	■	■	-	-	Used as primer for coating applications; highly effective adhesion promoter in multilayer packaging films	50	Mw ~ 25,000	-
Loxanol® MI 6735	-	-	-	■	■	■	-	-	Crosslinking agent for PVB (polyvinyl butyral) inks	100	Mw ~ 15,500	0.5–1.0
Zinc Oxide Solution #1	-	■	-	-	■	■	-	-	Zinc ammonium carbonate crosslinking agent providing improved heat resistance and film hardness to all acrylic, water-based printing inks having carboxyl functionality	25	pH 11.4	1.0–8.0

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