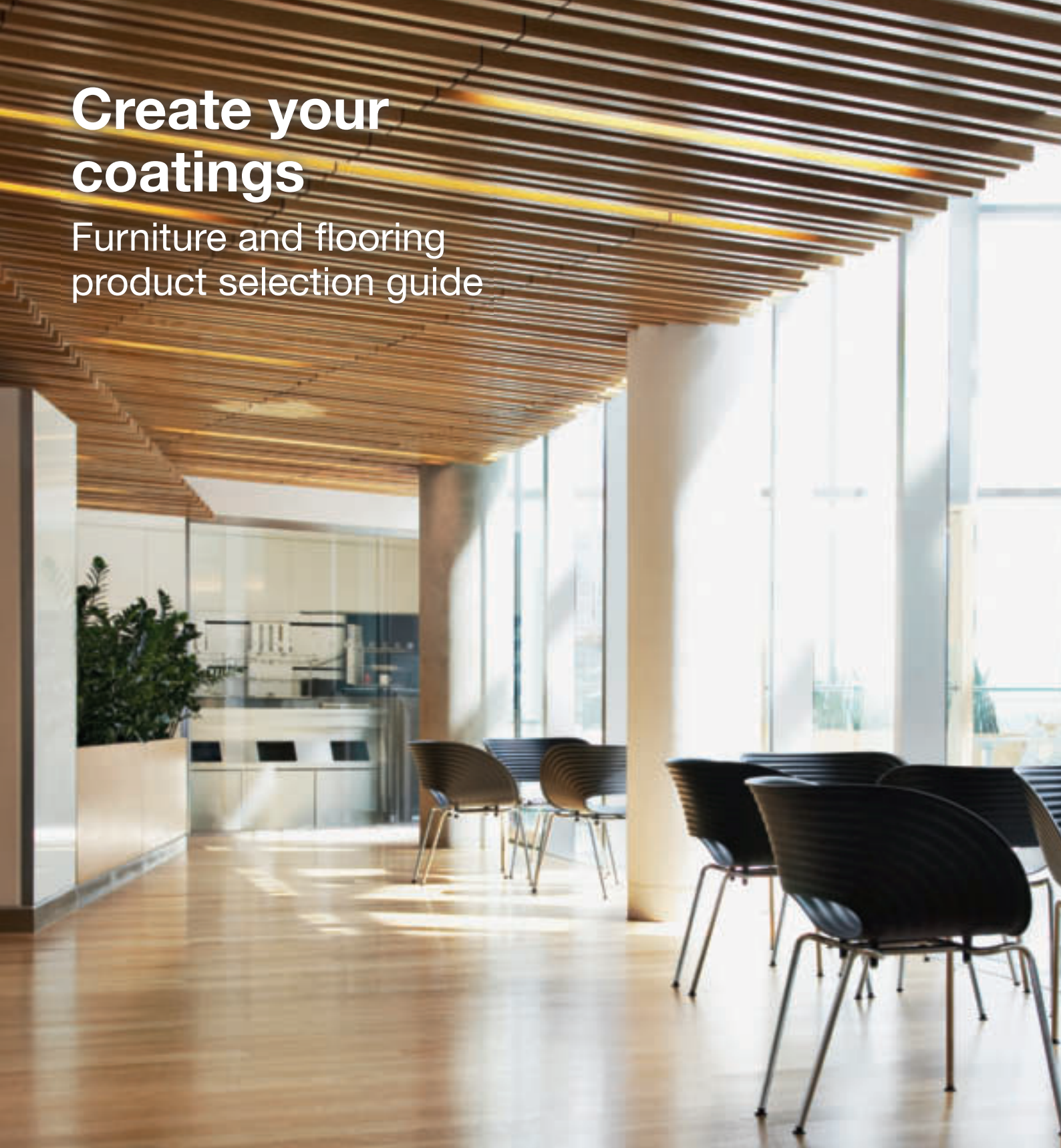
Create your coatings

Furniture and flooring product selection guide



BASF
The Chemical Company

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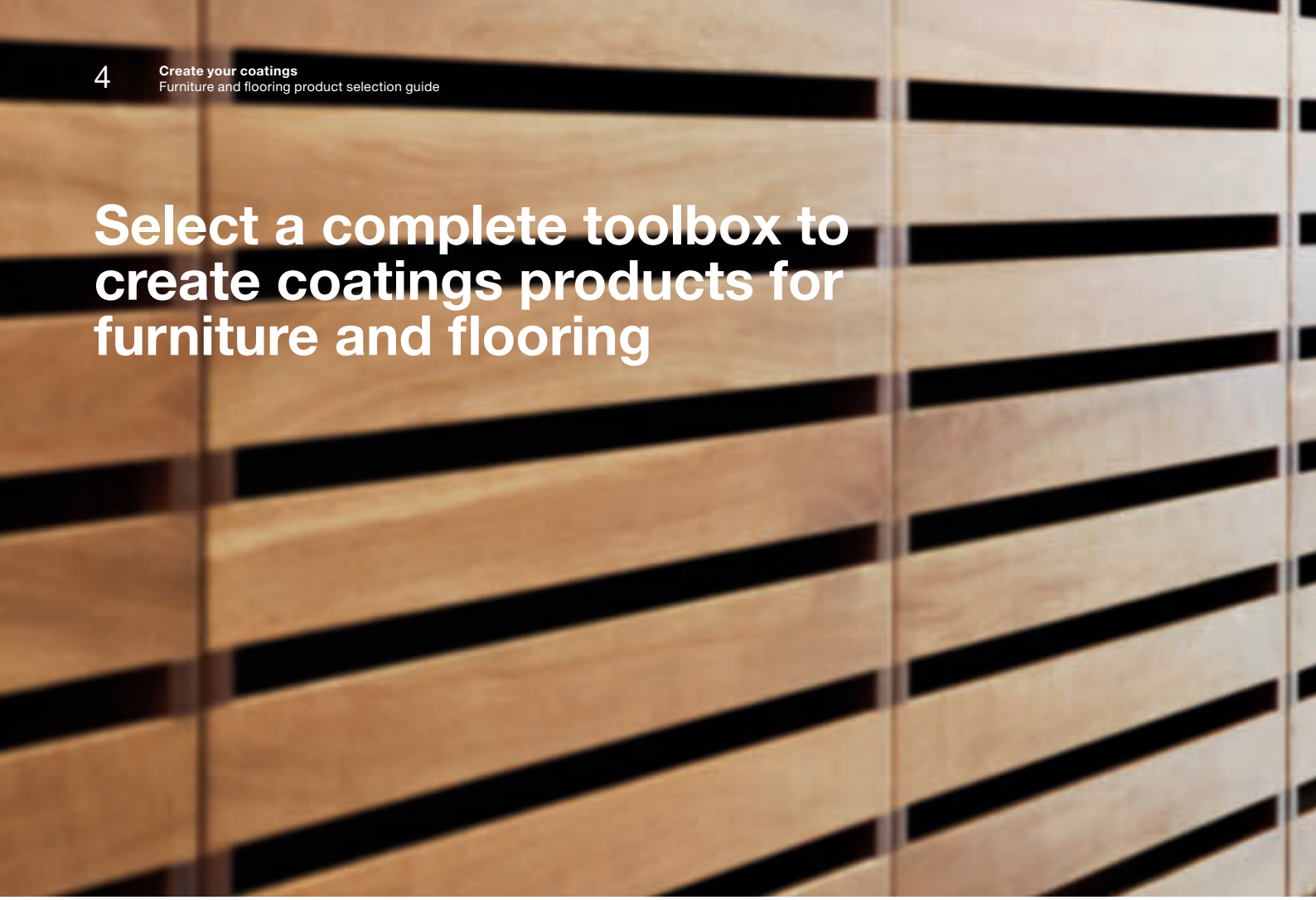


Select a complete toolbox to create coatings products for furniture and flooring

As the world's leading chemical company, BASF is committed to innovative customer solutions. BASF – your coatings partner.

Due to the complexity of modern coatings, BASF works closely in partnership with its customers and value chain contacts in order to make customized innovative developments. We are a customer solutions provider. We offer a broad technology base with a wide choice of conventional and alternative technologies.

Backwardly integrated production – BASF from source to final product

With six Verbund sites and close to 385 production sites worldwide we serve customers and partners in almost all countries in the world. Through new technologies, intelligent system solutions and high-quality products in accordance with the principles of sustainable development we help our customers to be more successful. BASF produces most of its products directly from petrochemical feedstocks. Being largely self-sufficient has its obvious advantages. This means a secured source of supply of raw materials for our customers.

Creating a broad technology profile

At BASF we focus on your needs and offer a depth and breadth of technology knowledge. Our cross-functional teams have extensive expertise in a broad range of chemistries for a variety of furniture and flooring coatings, for example:

- acrylic dispersions 1K and 2K systems, polyurethane dispersions and polyurethane dispersion hybrids
- UV-curable monomers, resins and photoinitiators
- light stabilizers
- polyisocyanates
- formulation additives

Creating unique performance attributes

Understanding industry requirements is an integral part of BASF's commitment to helping our customers be more successful with their coatings' challenges. We can help you to be innovative and deliver quality products by offering:

- formulation support
- global R&D platform and manufacturing network
- regulatory support (REACH expertise)
- market knowledge

Creating sustainability for future generations

Our goal at BASF is to design products that assist the coatings industry in its efforts to conserve the environment without compromising product quality or performance. Responsible Care®[1] is an initiative by the global chemical industry aimed at achieving continuous improvements in health, environment and safety. BASF signed the Responsible Care Global Charter in 2006.

Protecting the environment by improved coatings for furniture and flooring. At BASF we create chemistry.

Water-based systems

Joncryl® acrylic and colloidal emulsions

Product	Appearance	Key properties	Solids by weight [%]	pH [25 °C]
RC acrylic emulsion				
Joncryl® 77	semi-translucent emulsion	good balance of flexibility/hardness, excellent pigment wetting	46.0	8.1
Joncryl® 1915	semi-translucent emulsion	very good block resistance, excellent adhesion, low VOC, pigment dispersing capabillity	44.0	8.5
Joncryl® 1992	white emulsion	excellent hot block resistance, excellent sandability, good water resistance	43.0	8.5
Joncryl® 8223	semi-translucent emulsion	good water resistance, good intercoat adhesion with 100 % UV systems, good pigment wetting	30.0	8.2
Joncryl® 8224	translucent emulsion	very fast drying, excellent block resistance and stackability	45.0	7.7
Joncryl® 8225	translucent emulsion	excellent clartiy and mattability, very fast drying, good block resistance, stackability, film formation (very low coalescing solvent demand)	45.0	7.8
Joncryl® 8226	semi-translucent emulsion	excellent scratch resistance and (hot) block resistance, stackability, fast drying, good chemical and scratch resistance properties, good clarity, excellent hot-cold-check resistance	42.0	7.9
colloidal emulsion				
Joncryl® 95 E	transparent emulsion	excellent penetration, minimal grain raising, excellent clarity, fast drying, excellent sandability	30.0	8.0
Joncryl® 663	semi-translucent emulsion	high viscosity at low solids content, excellent film building, good flow and leveling, good pigment wetting	40.0	6.2
Joncryl® 661	semi-translucent emulsion	high viscosity at low solid content, good transfer, good pigment wetting	44.0	2.1

Viscosity [mPa·s, 25 °C]	MFT [°C]	Acid value [on solids -NV]	Glass transition temperature Tg [DSC] °C	Description and applications
550	12	62	35	medium-hard RC emulsion recommended as blending partner to improve flexibility in combination with colloidal emulsions
700	< 5	68	43	RC emulsion, block-resistant acrylic emulsion for hardboard and other flatstock coatings
125	> 60	NA	78	RC acrylic emulsion recommended for fast drying, high-hot-block-resistant coatings to be applied with roller or curtain coaters on, e.g., door skins
250	< 5	100	21	RC acrylic emulsion for industrial wood and board primers, modifier for industrial clear topcoats
70	10	53	NA	RC workhorse acrylic emulsion recommended for fast drying, quick-stackable coatings (primers and top coats) or as modifier for water-based UV coatings (developed for interior wood coatings)
75	< 5	57	NA	RC low VOC acrylic emulsion for use in industrially applied clear lacquers for furniture and flatstock
75	20	36	NA	RC scratch-resistant emulsion for industrial interior wood coatings on fast lines, the water-based alternative to nitrocellulose and acid-curable lacquers
100	20	70	43	emulsion for quick-drying interior stains, wood sealers, clear lacquers or as modifier in water-based alkyds
450	NA	131	30	acrylic copolymer emulsion for use as a thickener in various acrylic water-based paints
60	NA	154	70	acrylic copolymer dispersion, rheology modifier, roller-applied primers

RC (Rheology Controlled)

Joncryl® RC emulsions are surfactant-free and characterized by the use of low-molecular-weight acid-functional resins.

Water-based systems

Joncryl® and Luhydran® crosslinkable and self-crosslinking emulsions
Joncryl® U polyurethane dispersions
Joncryl® HYB polyurethane acrylic hybrids

Product	Appearance	Key properties
self-crosslinking acrylic emulsions		
Joncryl® 8322	semi-translucent emulsion	economical, good clarity and warmth of wood, quick hardness development, good chemical resistance, good hardness and sandability
Joncryl® 8330	semi-translucent emulsion	very good appearance (high clarity), excellent block and chemical resistance, hardness, drying at room temperature
Joncryl® 8331	semi-translucent emulsion	excellent chemical resistance, very good hot block resistance, quick hardness development, high sandability
Joncryl® 8333 new	white emulsion	superior plasticizer and hand cream resistance
Luhydran® A 849 S	white emulsion	very good chemical resistance, good appearance, water resistance and grain enhancement
Luhydran® A 875 S	white emulsion	good block resistance, clarity, film forming, sandability, chemical, plasticizer and scratch resistance
crosslinkable acrylic emulsions		
Joncryl® OH 8311	translucent emulsion	hydroxy-functional, excellent adhesion, resistance to water, chemicals and solvents
Joncryl® OH 8312 new	white emulsion	long pot life up to 6 hours, crosslinkable with water-based polyisocyanates, low coalescing solvent levels, excellent chemical resistance (ammonia, ethanol, alcohol - red wine and coffee), good scratch resistance, good hardness development, good block resistance, good adhesion
Luhydran® S 938 T	white emulsion	APEO-free, ecological, OH-functional, good chemical resistance, good water resistance, good block resistance, resistant to bleed (hydrolysis)
polyurethane dispersions and polyurethane dispersion hybrids		
Joncryl® U 4190	translucent emulsion	economical, ecological, abrasion resistance, film toughness, chemical resistance, excellent adhesion
Joncryl® HYB 6336	translucent emulsion	cost-effective ecological, excellent appearance, excellent clarity, excellent chemical and scratch resistance, good grain enhancement
Joncryl® HYB 6340 new	translucent emulsion	value-engineered solvent-free hybrid with excellent Taber®4 abrasion resistance

Luhydran®

Luhydran® are surfactant-based cross-linkable or self-crosslinking emulsions.

Joncryl® U

Joncryl® U are NMP-free polyurethane dispersions for high-quality furniture and flooring coatings.

Solids by weight [%]	pH [25 °C]	Viscosity [mPa·s, 25 °C]	MFT [°C]	Hydroxyl number [on solids]	Acid value [on solids - NV]	Description and applications
41.0	8.6	1,500	30	NA	NA	economical self-crosslinking acrylic polymer emulsion developed for use in industrial wood coatings
38.0	8.1	50	33	NA	25	self-crosslinking emulsion for high-quality interior clear and pigmented water-based wood coatings
38.5	8.1	80	59	NA	25	self-crosslinking acrylic polymer emulsion developed for use in industrial wood coatings, high chemical resistance
45.0	7.2	250	58	-	-	next-generation self-crosslinking water-based emulsion for interior coatings with superior plasticizer and hand cream resistance
44.0	7.0	200	39	NA	NA	self-crosslinking workhorse emulsion for interior wood coatings
44.0	7.0	60	60	NA	NA	self-crosslinking emulsion for industrial interior wood coatings, good block resistance
42.0	7.6	40	50	120	30	RC acrylic polyol emulsion (water-based) for ambient-curing two-component urethane wood/metal coatings
44.0	2.7	250	48	100	9	a hydroxyl-functional reactive dispersion for water-based two-component high-quality industrial furniture coatings for kitchen and bathroom applications
45.0	2.0	25	60	100	NA	APEO-free ecological crosslinkable emulsion for furniture foils or heat-curable coatings and 2K polyurethane interior applications
36.5	8.5	< 220	23	-	NA	economical, ecological NMP-free aliphatic water-based polyurethane dispersion
38.0	8.0	50	40	-	26	cost effective, ecological NMP-free aliphatic polyurethane acrylic hybrid for high-quality water-based clear coats on wood
40.0	7.6	50	45	-	12	superior abrasion (Taber®4 abrasion) resistance, NMP-free aliphatic polyurethane acrylic hybrid with good chemical resistance for high-quality water-based clear coats on wood for parquet flooring applications and high-performance furniture topcoats

Joncryl® HYB

Joncryl® HYB is a new line of hybrid polyurethane acrylic hybrids for cost-effective high-quality high-performance coatings.

Radiation-curing systems

Laromer® resins

Product	Type of resin	Type of thinner [content]	Functionality calculated	Viscosity [Pa·s, 23°C]	Hydroxyl value [mg KOH/g] DIN EN ISO 4629	Hardness	Elasticity	Reactivity
epoxy acrylates								
Laromer® LR 8765	aliphatic	none	2.0	0.6 - 1.2	330	■	■■■	■■■
Laromer® LR 8986	aromatic	none	2.4	3 - 6	170	■■■■	■■■	■■
Laromer® LR 9019	aromatic	none	2.4	15 - 25	175	■■■	■■■	■■■■
Laromer® LR 9023	aromatic	DPGDA [15 %]	2.4	2 - 5	150	■■■	■■	■■■
polyester acrylates								
Laromer® PE 55 F		none	3.1	25 - 45	70	■■	■■■	■■■
Laromer® PE 56 F		none	3.1	20 - 40	70	■■	■■■	■■■
Laromer® PE 46 T		TPGDA [30 %]	2.8	2 - 2.5	60	■■	■■	■■
Laromer® LR 9004		none	2.6	20 - 50	60	■■	■■■	■■■
Laromer® PE 9024		none	2.6	10 - 30	70	■■	■■■	■■■
Laromer® PE 9045		TPGDA [20 %]	2.5	2 - 7	60	■■	■■■	■■■
Laromer® PE 44 F		none	3.0	2 - 5	80	■	■■■	■■
Laromer® LR 8800		none	3.0	4 - 8	80	■■■	■■	■■
Laromer® LR 8907		DPGDA [25 %]	1.9	0.5 - 2	120	■	■■■■	■■
Laromer® LR 8981		none	3.0	4 - 14	80	■	■■■	■■■■
Laromer® PE 9032	modified	none	4.0	15 - 25	50	■■	■■■	■■■
Laromer® PE 9074		none	3.2	7 - 13	-	■■	■■■	■■■
Laromer® PE 9079		none	3.4	2 - 4 [at 60 °C]	-	■■	■■■	■■■

Laromer®

Laromer® is a broad range of products for UV- and EB-cured systems.

Chemical resistance	Characteristics	Europe EINECS	USA TSCA	Canada DSL	Japan ENCS	China IECSC	Korea ECL
■	partially water-soluble, flexible highly reactive	■	■	■	■	■	■
■■■■	low viscosity, free of diluents, very good chemical resistance	■	■	■	■	■	■
■■■■	highly reactive, very good chemical resistance	■	■	-	-	■	-
■■■■	diluted version of Laromer® LR 9019	■	■	-	-	■	-
■■■	well balanced properties with high toughness	■	■	■	■	■	■
■■■	improved compatibility with reactive diluents (versus PE 55 WN)	■	■	■	■	■	■
■■■	low-viscosity diluted version of Laromer® PE 56 F	■	■	■	■	■	■
■■■	tough with good adhesion, good chemical resistance	■	■	-	-	■	-
■■■	compatible with nitrocellulose	■	■	-	-	■	-
■■■	lowly viscous version of Laromer® LR 9004	■	■	-	-	■	-
■■■	free of diluents, low viscosity, low odor, flexible	■	■	-	■	■	-
■■■■	hard, chemical resistance, low odor	■	■	-	■	■	■
■■■	highly flexible, use in combination with hard, less flexible binders	■	-	-	-	■	-
■■■	highly reactive with good sanding properties	■	■	-	-	■	-
■■■	abrasion-resistant in parquet applications (“falling sand”)	■	■	-	-	-	-
■■■	BDDA-free, very high toughness, good adhesion, reactive, good chemical resistance, good price/performance ratio	■	■	-	■	■	-
■■■	highly viscous version of Laromer® PE 9074	■	■	-	■	■	-

■■■■ excellent ■■■ good ■■ medium ■ low

Radiation-curing systems

Laromer® resins

Product	Type of resin	Type of thinner [content]	Functionality calculated	Viscosity [Pa·s, 23°C]	Hydroxyl value [mg KOH/g] DIN EN ISO 4629	Hardness	Elasticity	Reactivity
urethane acrylates								
Laromer® UA 19 T	aliphatic	TPGDA [35 %]	2.0	14 - 32	10	■■	■■■	■
Laromer® UA 9028	aliphatic	butyl acetate [30 %]	2.0	0.8 - 1.6	15	■	■■■■	■
Laromer® UA 9030	aliphatic	Laromer® LR 8887 [30 %]	1.7	80 - 150	12	■	■■■■	■
Laromer® LR 8987	aliphatic	HDDA [30 %]	2.3	4 - 6	11	■■■	■■	■■
Laromer® UA 9029	aliphatic	butyl acetate [30 %]	2.4	0.3 - 1	5	■■	■■	■■■
Laromer® UA 9033	aliphatic	Laromer® LR 8887 [30 %]	1.7	15 - 25	6	■	■■■■	■■■
Laromer® UA 9048	aliphatic	DPGDA [25 %]	6.5	10 - 20	10	■■■■	■	■■■
Laromer® UA 9050	aliphatic	butyl acetate [20 %]	8.0	1.5 - 5	10	■■■■	■	■■■
Laromer® UA 9065	aromatic	DPGDA [35 %]	2.0	7 - 9	5	■■	■■■■	■■■■
polyether acrylates								
Laromer® PO 33 F	alkoxylated TMP triacrylate	none	3.0	0.07 - 0.13	30	■■■	■	■
Laromer® LR 8863	ethoxylated TMP triacrylate	none	3.0	0.05 - 0.1	10	■■■	■	■
Laromer® PO 43 F		none	2.4	0.2 - 0.4	100	■■■	■■	■■
Laromer® LR 8967		none	2.6	0.12 - 0.19	50	■■■	■■	■■
Laromer® LR 8982		none	2.7	0.15 - 0.3	70	■■■	■■	■■
amine-modified polyether acrylates								
Laromer® PO 77 F		none	2.9	1 - 3	120	■	■■■	■■■
Laromer® PO 84 F		none	3.5	0.4 - 0.7	50	■■	■■	■■■
Laromer® PO 94 F		none	3.5	0.3 - 0.6	55	■■	■■■	■■■■
Laromer® LR 8997		none	3.4	0.3 - 0.5	55	■■	■■	■■■■
Laromer® PO 83 F		none	2.8	0.09 - 0.13	30	■■	■■	■■■
Laromer® LR 8889		none	2.6	0.09 - 0.14	60	■	■■■	■■■
Laromer® LR 8869		none	2.8	0.06 - 0.11	30	■■	■■	■■■
Laromer® LR 8996		none	2.9	0.05 - 0.09	30	■■	■■	■■■

Chemical resistance	Characteristics	Europe EINECS	USA TSCA	Canada DSL	Japan ENCS	China IECSC	Korea ECL
■	elastic, low yellowing, flexible at temperature below 0 °C	■	■	■	-	■	■
■	highly elastic, low yellowing, low viscosity, monomer-free	■	■	■	-	■	■
■	highly elastic, low yellowing, good adhesion	■	■	■	-	■	-
■■■	scratch- and weather-resistant, for outdoor applications	■	■	-	-	-	-
■■■	monomer-free version of Laromer® LR 8987	■	■	-	-	-	-
■■	highly elastic, reactive, good adhesion, low shrinkage	■	■	■	-	■	-
■■■■	excellent scratch and abrasion resistances, highly functional	■	-	-	■	-	■
■■■■	lowest yellowing, excellent scratch resistance	■	-	-	-	■	■
■■	very reactive, very flexible, good abrasion resistance (“falling sand”)	■	-	-	-	-	-
■■■	low yellowing, low-odor diluent	■	SNUR	-	■	■	-
■■■	lower in viscosity than Laromer® PO 33 F	■	■	■	■	■	■
■■■	chemical resistance, allround resin	■	■	■	■	■	■
■■■	low-viscous version of Laromer® PO 43 F	■	■	■	■	■	■
■■	partially water-soluble (spray viscosity adjustable)	■	■	-	■	■	-
■■■	reactive allround resin, good sanding properties	■	■	-	-	■	-
■■■	reactive, good pigment wetting	■	SNUR	-	-	■	■
■■■■	highly reactive, very good chemical resistance	■	■	■	-	■	■
■■■	highly reactive, very low in color	■	-	-	-	■	-
■■■	good chemical resistance, low viscosity	■	SNUR	-	-	■	-
■■■	reactive, low viscosity, flexible	■	-	-	-	■	■
■■■	harder than Laromer® LR 8889	■	■	-	-	■	-
■■■	reactive, very low color and viscosity	■	■	-	-	■	-

SNUR = significant new use rule ■■■■ excellent ■■■ good ■■ medium ■ low

Radiation-curing systems

Laromer® resins

Product	Type of resin	Type of thinner [content]	Functionality calculated	Viscosity [Pa·s, 23°C]	Hydroxyl value [mg KOH/g] DIN EN ISO 4629	Hardness	Elasticity	Reactivity
water-based products*								
Laromer® PE 22 WN	polyester acrylate	water [50 %]	2.2	0.15 - 0.5	-	■■	■■	■■
Laromer® PE 55 WN	polyester acrylate	water [50 %]	2.2	0.25 - 0.65	-	■■	■■■	■■■
Laromer® LR 8949	aliphatic urethane acrylate dispersion	water [60 %]	1.7	0.015 - 0.18	-	■■	■■■	■■
Laromer® LR 8983	aromatic urethane acrylate dispersion	water [60 %]	0.7	0.05 - 0.3	-	■■	■■■■	■■
Laromer® LR 9005	aromatic urethane acrylate dispersion	water [60 %]	2.0	0.02 - 0.25	-	■■■■	■■	■■
Laromer® WA 9057	acrylic UV crosslinkable emulsion	water [64 %]	-	0.01 - 0.2	-	■■■	■■■	■■
Laromer® UA 9059	aliphatic urethane acrylate	water [30 %]	1.8	6 - 11	-	■	■■■■	■■
Laromer® UA 9060	aromatic urethane acrylate dispersion	water [60 %]	2.0	0.005 - 0.3	-	■■■■	■■	■■
Laromer® UA 9064	urethane acrylate dispersion	water [62 %]	-	0.02 - 0.25	-	■■■■	■■	■■
special radiation-curable products								
Laromer® UP 35 D	unsaturated polyester	DPDGA [45 %]	3.5	3 - 6	-	■■	■■■	■■
Laromer® LR 9013	modified polyether acrylate	none	3.0	45 - 70	25	■■■	■	■
Laromer® PO 9026	nano-modified polyether acrylate	none	1.5	0.6 - 1.5	-	■■■■	■	■■
Laromer® PA 9039	adhesion promoter	none	1.5	0.3 - 0.8	-	■■■	■■	■
Laromer® PR 9052		TMPTA [60 %]	6.0	4 - 8	-	■■■	■	■■
Laromer® PR 9058	modified aromatic	none	2.3	3 - 6	170	■■■	■■	■■■
dual-cure product								
Laromer® LR 9000	aliphatic urethane acrylate	none	2 + 2 NCO	1 - 1.4	-	■■	■	■

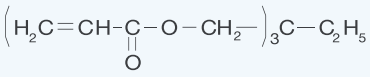
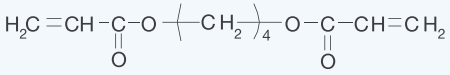
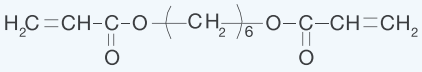
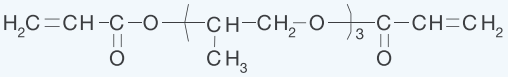
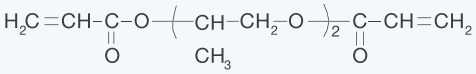
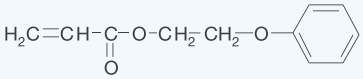
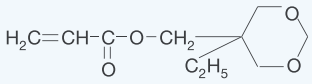
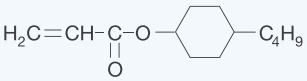
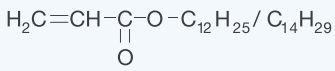
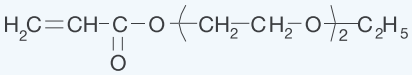
Chemical resistance	Characteristics	Europe EINECS	USA TSCA	Canada DSL	Japan ENCS	China IECSC	Korea ECL
■■■■	hard, excellent chemical resistance, good sanding properties	■	■	-	-	■	■
■■■	flexible, easy to matt, adhesion to PVC	■	■	-	-	■	■
■■■■	good grain enhancement, very good chemical and weather resistance	■	■	-	-	-	-
■■	excellent physical drying properties, easy to formulate	■	■	-	■	-	-
■■■■	excellent scratch resistance and chemical resistance	■	■	■	-	■	■
■■■	good chemical and scratch resistance, excellent block resistance	■	■	-	-	-	-
■	excellent adhesion on wood, very flexible, excellent “coin-test” results	■	-	-	-	-	-
■■■■	very good chemical and scratch resistance, fast drying, very hard	■	■	-	-	-	■
■■■■	very good chemical resistance, fast drying, very high hardness, high scratch resistance, very low yellowing	■	-	-	-	-	-
■■■	hard, good chemical resistance, good sanding properties	■	■	-	-	■	-
■■	excellent pigment wetting properties, low in shrinkage	■	■	■	■	■	■
■■■	contains 50 % nano particles very good scratch resistance	■	■	-	■	■	■
■■	leads to good adhesion on different substrates	■	■	-	■	■	■
■■■	abrasion-resistant in flooring applications (S42, S33), hard, scratch-resistant	■	■	■	-	■	■
■■■	excellent pigment wetting, good filler acceptance, low viscosity	■	■	■	■	■	■
■■	contains NCO- and UV-reactive groups within one molecule	■	■	■	■	■	-

* Part of BASF’s product portfolio consists of a broad range of water-based Joncryl® and Luhydran® products that can be used as combination resins for industrial coatings.

■■■■ excellent ■■■ good ■■ medium ■ low

Radiation-curing systems

Laromer® functional monomers

Product	Structure	CAS number	Mol mass [g/mol] approx.	Density [g/cm³]
Laromer® functional monomers				
Laromer® TMPTA trimethylolpropane triacrylate		15625-89-5	300	1.102 (25 °C)
Laromer® BDDA butanediol diacrylate		1070-70-8	200	1.049 (45 °C)
Laromer® HDDA hexanediol diacrylate		13048-33-4	230	1.015 (25 °C)
Laromer® TPGDA tripropyleneglycol diacrylate		42978-66-5	300	1.036 (25 °C)
Laromer® DPGDA dipropyleneglycol diacrylate		57472-68-1	240	1.046 (25 °C)
Laromer® POEA phenoxyethyl acrylate		48145-04-6	190	1.100 (25 °C)
Laromer® 8887 trimethylolpropaneformal monoacrylate		66492-51-1	200	1.094 (25 °C)
Laromer® TBCH 4-t-butylcyclohexyl acrylate		84100-23-2 282-104-8	210	0.940 (25 °C)
lauryl acrylate 1214		2156-97-0	250	0.870 (25 °C)
ethyldiglycol acrylate		7328-17-8	188	1.006 (25 °C)

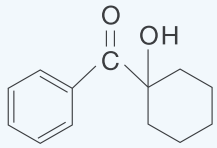
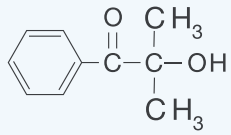
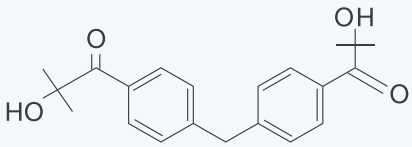
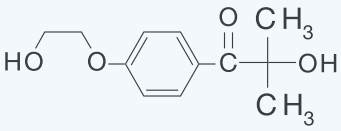
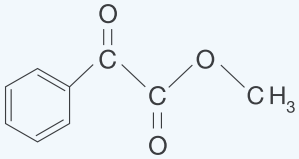
Laromer® functional monomers

Laromer® functional monomers can be combined with Laromer® oligomers for a complete 100 % UV or a water-based UV system.

Content of stabilizer [MeHQ]	Color [APHA DIN ISO 6271]	Viscosity [mPa·s, 23 °C] approx.	Europe EINECS	USA TSCA	Canada DSL	Japan ENCS	China IECSC	Korea ECL
200 ± 50 ppm	max. 150	130	■	■	■	■	■	■
200 ± 50 ppm	max. 150	5	■	■	■	■	■	■
200 ± 50 ppm	max. 150	6	■	■	■	■	■	■
350 ± 50 ppm	max. 150	11	■	■	■	■	■	■
350 ± 50 ppm	max. 150	8	■	■	■	■	■	■
200 ± 50 ppm	max. 250	8	■	■	■	■	■	■
1000 ± 100 ppm	max. 200	40	■	■	■	-	■	-
200 ± 50 ppm	max. 100	9	■	■	-	■	■	-
200 ± 50 ppm	max. 150	6	■	■	■	■	■	■
2000 ± 200 ppm stabilizer blend	max. 250	5	■	■	■	■	■	■

Radiation-curing systems

Irgacure®, Darocur®, Lucirin® photoinitiators

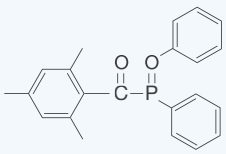
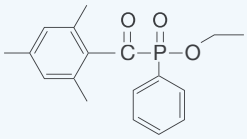
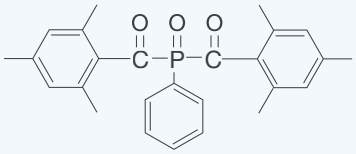
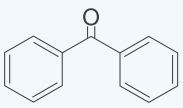
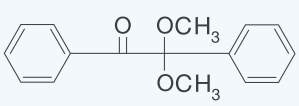
Product	Structure	Appearance	UV/VIS absorption peaks [nm] in methanol	Melting point [°C, ISO 1218, DIN 53736]	Solubility in n-butyl acetate [%]	Solubility in Laromer® HDDA [%]
α-hydroxyketones						
Irgacure® 184		solid	246, 280, 333	45 - 49	> 50	> 50
Darocur® 1173		liquid	245, 280, 331	liquid at room temperature	> 50	> 50
Irgacure® 127		solid	260, 320		n/a	n/a
Irgacure® 2959		solid	276,331	86 - 90	3	10
Irgacure® 500	Irgacure® 184 (50 %) benzophenone (50 %)	liquid	250, 332	liquid at room temperature	> 50	> 50
phenylglyoxylates						
Irgacure® 754	oxy-phenyl-acetic acid 2-[2-oxo-2-phenyl-acetoxy-ethoxy]-ethyl ester and oxy-phenyl-acetic acid 2-[2-hydroxy-ethoxy]-ethyl ester	liquid	260, 345	liquid at room temperature	> 50	> 50
Darocur® MBF		liquid	255, 325	liquid at room temperature	> 50	> 50

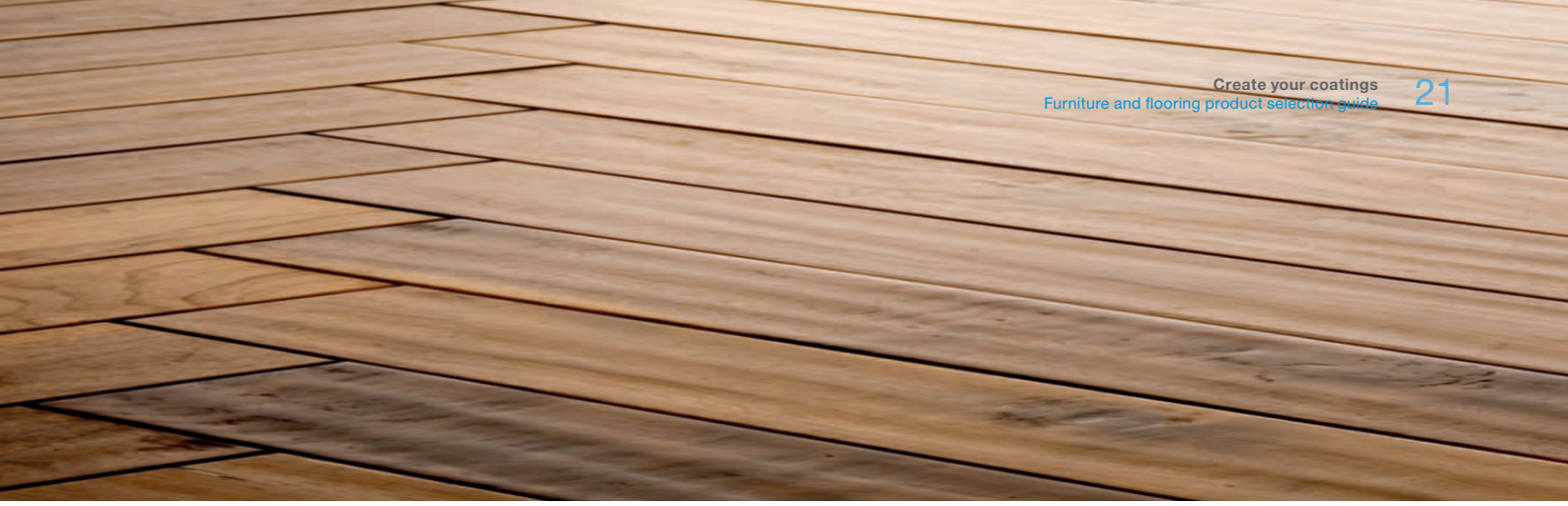
Solubility in Laromer® TPGDA [%]	Description and applications
> 50	low yellowing, medium volatility, highly efficient for surface curing; acrylate clear top-coats for wood and metal; main use in clear varnishes and as co-initiator in pigmented systems, especially recommended for outdoor application
> 50	with good solvent properties, highly suitable for blends with other photoinitiators, highly efficient for surface curing slightly more reactive than Irgacure® 184; acrylate clear top-coats for wood and metal, main use in clear varnishes and as co-initiator in pigmented systems, especially recommended for outdoor application
15	superior reactivity over α-hydroxyketone such as Irgacure® 184 or Darocur® 1173, low sensitivity to oxygen inhibition, low emission/odor after curing; especially suitable for pigmented UV-inks and in thin clear coatings
20	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 acrylate clear top-coats for metal and plastics, also in water-based UV-dispersions
> 50	low yellowing, low viscosity provides advantage lowering the viscosity of formulation, highly efficient for surface curing synergistic effect with amines; clear coatings for metal and plastics, especially suitable to be used for dispersions in water-based UV-dispersions
> 50	highly efficient in surface-curing low emission, low residual odor, lowest yellowing after curing PVC floors, wood parquet/furniture, plastic coatings
> 50	low yellowing after curing/aging, excellent surface-curing properties (stain resistance), enable development of clearcoat with superior adhesion; floor coatings, wood parquet/furniture, plastic and metal coatings

HDDA = hexane diol diacrylate TPGDA = tripropyleneglycol diacrylate TMPTA = trimethylolpropane triacrylate

Radiation-curing systems

Irgacure®, Darocur®, Lucirin® photoinitiators

Product	Structure	Appearance	UV/VIS absorption peaks [nm] in methanol	Melting point [°C, ISO 1218, DIN 53736]	Solubility in n-butyl acetate [%]	Solubility in Laromer® HDDA [%]
acyl phosphine oxides + blends						
Lucirin® TPO		solid	295, 380, 393	87 - 93	25	20
Lucirin® TPO-L		liquid		liquid at room temperature	> 50	> 50
Irgacure® 2100		liquid	275, 370	liquid at room temperature	> 50	> 50
Irgacure® 819		solid	360, 365, 405	127 - 133	6	5
Irgacure® 819 DW		liquid	360, 365, 405	liquid dispersion	n/a	n/a
Darocur® 4265	MAPO / α-hydroxyketone	liquid	240, 290, 380	liquid at room temperature	> 50	> 50
Irgacure® 2022	BAPO / α-hydroxyketone	liquid	246, 282, 370	liquid at room temperature	> 50	> 50
benzophenones						
Darocur® BP		solid	256, 340	47-49		40
benzildimethylketal						
Irgacure® 651		solid	254, 337	64 - 67	> 50	40



Solubility in Laromer® TPGDA [%]	Description and applications
15	good solubility in common UV systems, significantly lower through-cure performance than Irgacure® 819, low yellowing, low odor; main use in clear and pigmented coatings and optical fibers
> 50	easy to incorporate, low yellowing, photosensitivity at longer wavelength; especially suitable for pigmented coatings
> 50	limited yellowing after curing improved through cure and reactivity over Lucirin® TPO, photosensitivity at longer wavelength; especially suitable for pigmented coatings
5	low odor, low volatility, photosensitivity at longer wavelength; main use in white pigmented/colored inks and coatings, UVA-stabilized coatings and glass-fiber reinforced materials, thick-section curing
n/a	easy to incorporate into water-based UV systems, low odor, low volatility, photosensitivity at longer wavelength
> 50	good solubility in common UV systems, Darocur® 4265 can be incorporated into water-based systems, photosensitivity at longer wavelength; transparent or pigmented wood finishes
> 50	lower through-cure performance than Irgacure® 819, well balanced ratio of surface and through curing, lower degree of photo bleaching, photosensitivity at longer wavelength; especially suitable for pigmented formulations, thick-section curing
37	low initial yellowing, low oxygen inhibition, performance can be significantly improved in combination with amine synergists (e.g., tertiary amine and amine-modified acrylates; where expectations are moderate with regard to final color and odor requirements
25	yellowing after curing tends to limit use, to primer or intermediate coats; fillers and topcoats based on UPES/styrene for wood or wood substitutes

HDDA = hexane diol diacrylate TPGDA = tripropyleneglycol diacrylate TMPTA = trimethyolpropane triacrylate

Solvent-based systems

Acronal® acrylic resins

Product	Type of resin	Physical form	Key properties and applications
acrylic resins for solvent-based systems			
Acronal® 4 F	poly n-butyl acrylate	liquid	soft acrylic resin, resistant to light and aging, for plasticizing cellulose nitrate and chlorine-containing binders for coatings with good flexibility and excellent adhesion
Acronal® 4 L approximately 50 % in ethyl acetate		solution in ethyl acetate	polymer of butyl acrylate, dissolved in acetate; soft acrylic resin, resistant to light and aging, for plasticizing cellulose nitrate and chlorine-containing binders for coatings with good flexibility and excellent adhesion
Acronal® 700 L approximately 50 % in ethyl acetate	copolymer of n-butyl acrylate and vinyl isobutyl ether		copolymer of vinyl isobutyl ether and n-butyl acrylate, dissolved in ethyl acetate; soft acrylic resin, resistant to light and aging, for plasticizing cellulose nitrate and chlorine-containing binders for coatings with good flexibility and excellent adhesion

Acronal®

Acronal® acrylic resins are used particularly in combination with nitrocellulose systems for wood coatings. Combined with chlorinated binders such as Laroflex® MP grades, they yield coatings which are very resistant to hydrolysis for a variety of wood applications. When combined with suitable film-forming agents, they improve the adhesion of primers.

Acronal® F + L

Acronal® F + L are used for the production of solvent-based coatings in nitrocellulose and acid-curing systems.

Solids by weight [%]	Viscosity [mPa·s, 25 °C]	Glass transition temperature Tg [DSC] °C	Iodine color number	Flash point [°C]
99	50 % in ethyl acetate	- 40	0 - 1	150
50	1.6 - 2.6	- 40	NA	- 6
51	500 - 800	NA	0 - 2	- 4

Solvent-based systems

Joncryl® acrylic polyols

Product	Appearance	Key properties	Solids by weight [%]	Viscosity [mPa·s, 25 °C]	Solvent
SGO acrylic polyol					
Joncryl® 804	clear solid resin	fast drying, high hardness, low OH %	> 98.5	solid	na
Joncryl® 581	clear solid resin	100 % solids polyol used in both 2K urethane and acid-curable coatings offering good chemical resistance and hardness	100.0	solid	na
Joncryl® 587	clear solid resin	good outdoor durability, high gloss and gloss retention	100.0	solid	na
Joncryl® 902	clear solution	good outdoor durability; good chemical and solvent resistance	75.0	9	n-butyl acetate
SGO fast-curing acrylic polyol					
Joncryl® 909	clear solution	excellent early hardness development and fast drying time, excellent gloss and color retention, good chemical resistance and outstanding durabillity	68.0	6,500	n-butyl acetate
Joncryl® 915	clear solution	low-VOC, fast drying and lower polyisocyante demand, polyol	77.0	7,500	
Joncryl® 945	clear solution	low VOC capability 340 g/l, very fast hardness development, excellent gloss, gloss retention and chemical resistance	78.0	4,500	n-butyl acetate

SGO (Solid-Grade Oligomer) Joncryl® polymers

SGO Joncryl® polymers are fast-curing high solids with fast early and final hardness characteristics.

Joncryl® polyols

Joncryl® polyols can be used with a wide range of polyisocyanates from the Basonat® product ranges (see page 28).

OH number [on solids - %]	Hydroxyl number [on solids]	Glass transition temperature Tg [DSC] °C	Description and applications
1.3	45	60	high equivalent weight for low NCO demand, can be used to formulate low-cost two-component urethane coatings, solid form provides cost benefit and formulator versatility, can also be used as a modifier
4.7	155	62	solid polyol suitable for high-quality furniture and flooring coatings in solvent-based systems
2.8	94	60	conventional-solids workhorse polyol, very fast drying with long pot life and excellent UV and chemical resistance, solid form provides cost benefit and formulator versatility
3.4	112	20	medium-solids resin solution with exceptional wear resistance suitable for stair and flooring coatings
3.5	117	25	offers early hardness development and through curing with balanced pot life, good gloss retention, durability and chemical resistance make it suitable for a variety of industrial applications
2.9	95	13	low VOC with low polyisocyanate demand and low odor for industrial coatings
5.4	180	15	high solids acrylic polyol with exceptionally fast early and final hardness development and lower VOC, useful as a sole resin or a modifier, recommended for industrial maintenance finishes, high chemical resistance

Crosslinkers

Luwipal® and Plastopal® amino resins

Product	Key properties	Etherifying alcohol	Solvent	Solids by weight [%]
melamine-amino resins				
Luwipal® 044	developed for application in acid-curable coatings where it is – contrary to traditional melamine-formaldehyde resins – extraordinarily highly reactive; when higher temperatures are applied the curing speed even exceeds that of urea-formaldehyde resins	-	butanol/ ethanol	96.0
Luwipal® 063	developed for use in combination with water-thinnable alkyd or acrylic resins for the formulation of highly reactive baking finishes. Combined with solvent-containing resins, it can also be used to formulate conventional baking finishes	-	solvent-free	70.0
Luwipal® 066	developed to formulate acid-curable finishes as well as baking finishes. Because of the low viscosity, this resin is particilarly suited for high-solids coatings. Also particularly suited as a crosslinking component for coil-coating and can coatings	-	solvent-free	96.0
Luwipal® 066 LF	developed to formulate acid-curable finishes as well as baking finishes. Because of the low viscosity, this resin is particilarly suited for high-solids coatings. Also particularly suited as a crosslinking component for coil-coating and can coatings	-	solvent-free	95.0
Luwipal® 069	developed for use as a crosslinker for both water-based coatings based on alkyd resins or acrylic dispersions and, e.g., in combination with saturated polyesters, for solvent-based coatings for coil coating	n-butanol	methanol/ ethanol	81.0
Luwipal® 070	developed for use as a crosslinker for both water-based coatings based on alkyd resins or acrylic dispersions and, e.g., in combination with saturated polyesters, for solvent-based coatings for coil coating	n-butanol	methanol/ ethanol	81.0
urea-amino resins				
Plastopal® H 85 B	contains little free formaldehyde (max. 0.3 %) and low amounts of solvent, it is especially suitable for use in low-odor acid-curable coatings: the resin contains a maximum of 5 % n-butanol; this has advantages in some countries with regard to the labeling of goods	n-butanol	butanol/ ethanol	88.0
Plastopal® H 73 IB	used in highly reactive baking and rapidly curing acid-curable finishes; it contains very little free formaldehyde and releases little formaldehyde during curing	isobutanol	isobutanol	61.0
Plastopal® EBS 400 I	cured films are pale. fast to light and relatively flexible; if necessary. the flexibility can be increased by adding a polymer dispersion that is resistant to acids (Luhydran® S 938 T)	isobutanol	isobutanol	61.0
Plastopal® BTB	Plastopal® BTB can be used as sole binder; adding up to 10 % of a Plastopal® EBS resin reduces curing time without notably impairing the flexibility of the cured film	n-butanol	butanol	61.0

Luwipal®

Luwipal® are melamine-formaldehyde high-solids resins with varying degrees of baking reactivity providing high-performance durable coatings in combination with alkyd and water-based resins from the Joncryl® or Luhydran® ranges.

max. free formaldehyde [%]	Viscosity [mPa·s, 25 °C]	Platinum-cobalt color number	Baking reactivity	Reactivity with acids	Description and applications
0.1	2.0 - 5.0	< 50	high	high	coatings based on Luwipal® 044 have very high mechanical resistance (scratch and abrasion) and chemical resistance water, alcohol, coffee and household cleaners; suitable for both furniture and flooring coatings
0.6	0.5 - 0.8	≤ 50	high	low	a highly reactive resin which can be used as a crosslinker for highly reactive water-based coatings based on acrylic dispersions for furniture foils and decroative foils and sheets
0.6	2.0 - 6.0	≤ 50	low	high	a highly reactive resin which can be used as a crosslinker for acid-curable systems and water-based coatings based on acrylic dispersions for furniture foils and decroative foils and sheets
0.3	2.0 - 6.0	≤ 50	low	high	a low-formaldehyde highly reactive resin which can be used as a crosslinker for acid-curable systems and water-based coatings based on acylic dispersions for furniture foils and decorative foils and sheets
1.5	2.5 - 3.5	≤ 50	medium	medium	a medium-reactive resin with a very low level of free formaldehyde which can be used as a crosslinker for both water-based coatings based on alkyd resins or acrylic dispersions and in combination with saturated polyesters for a wide variety of furniture foil applications
1.0	6.0 - 10	≤ 50	high	high	for highly reactive coatings for furniture foils and decorative foils or sheets. Luwipal® 070 is soluble in a wide range of diluents used in the coatings industryfor both water- and solvent-based formulations
0.3	3.0 - 6.0	≤ 50	low	medium	for use in acid-curable wood finishes, a large proportion of acid has to be added to the resin; a suitable catalyst is p-toluenesulfonic acid in proportions of up to 5 %, expressed in terms of the total binder; with lower additions of acid, the reactivity is relatively low; films based on Plastopal® H 85 EB have high gloss even in white pigmented acid-curable coatings
0.4	4.0 - 7.0	≤ 50	high	high	films are outstandingly fast to light, hard and resistant to abrasion, particularly suitable for parquet floor coatings
≤ 1.0	1.4 - 1.7	≤ 50	medium	high	for use in acid-curable wood coatings, a large proportion of acid has to be added to the resin
≤ 0.5	1.6 - 2.4	≤ 50	medium	high	films are outstandingly fast to light, hard and resistant to abrasion; therefore, acid-curable coatings based on Plastopal® BTB are particularly suitable for parquet floor coatings

Plastopal®

Plastopal® are urea-formaldehyde resins consisting of urea, formaldehyde and an ethenification alcohol, distinguished by viscosity, molecular weight, ethenification reactivity and type of solvent. Can be used in acid-curable and water-based systems.

Crosslinkers

Basonat® polyisocyanates

Product	Key properties and applications
highly reactive aromatic polyisocyanates	
Basonat® TU 67 MP/X	Basonat® TU grades can be used for primers; they have excellent light stability and gloss retention as hardeners for 2K polyurethane wood coatings; Basonat® TU grades are often combined with aliphatic polyisocyanates such as Basonat® HB 175 MP/X for exterior applications.
Basonat® TU 75 E	
aliphatic HDI biurets	
Basonat® HB 100	Basonat® HB polyisocyanates are used to formulate particularly lightfast and weather-resistant coatings; aliphatic polyisocyanates are sometimes even used in primers for difficult substrates, e.g., various plastics, when composites are to be coated.
Basonat® HB 275 B	
aliphatic HDI isocyanurates	
Basonat® HI 100	Basonat® HI aliphatic polyisocyanates for lightfast and weather-resistant 2K polyurethane coatings; compatibility with polyester resins containing hydroxyl groups
Basonat® HI 190 B/S	
Basonat® HI 290 B	solution of Basonat® HI 100; Basonat® HI grades are used to formulate particularly lightfast and weather-resistant exterior coatings, crosslinkable with most hydroxy-acrylic resins, e.g., Joncryl® grades, and hydroxy polyesters
IPDI trimers	
Basonat® IT 170 B	good light stability with excellent chemical resistance, suitable for crosslinking most hydroxylic acrylates, polyester and polyether resins
water-dilutable HDI polyisocyanates*	
Basonat® HA 200	low-viscosity polyisocyanates which facilitate the increase of solids content in conventional solvent-based coatings and thus allow for the reduction of VOCs
Basonat® HA 300	
Basonat® HW 100	solvent-free, allowing for VOC-free coatings formulations for interior furniture and flooring applications, crosslinkable with most hydroxy-acrylic resins, e.g., Joncryl® grades, and hydroxy polyesters
Basonat® HW 180 PC	excellent gloss retention and light stability with good chemical resistance; emulsifiable in water with good stability, long pot life and broad formulation latitude
Basonat® LR 9046	Basonat® HI and Basonat LR aliphatic polyisocyanates for lightfast and weather resistance 2K polyurethane coatings; compatibility with polyester resins containing hydroxyl groups
Basonat® LR 9056	excellent gloss retention and light stability with good chemical resistance; emulsifiable in water with good stability, long pot life and broad formulation latitude, easy to incorporate

Basonat®

Basonat® grades are polyisocyanate hardeners for high quality 2K systems for both solvent- and water-based coatings.

Solids by weight [%]	Viscosity [mPa·s, 25 °C]	Solvent	NCO [%]
67	1,200 - 2,000	methoxypropyl acetate/xylene 1:1	11.5 - 12.3
75	1,200 - 2,000	ethyl acetate	12.9 - 13.7
100	2,500 - 4,000	solvent-free	22 - 23
75	100 - 180	n-butyl acetate	16 - 17
100	2,500 - 4,000	solvent-free (allowing for broad range solvents)	21.5 - 22.5
90	450 - 600	n-butyl acetate/Solvesso®1 100 1:1	19.3 - 20.3
90	400 - 600	n-butyl acetate	19.3 - 20.3
70	300 - 900	butyl acetate	11.6 - 12.6
100	500 - 900	solvent-free	18.5 - 21.5
100	200 - 400		19 - 20
100	2,000 - 6,000	-	16.5 - 17.5
80	450 - 850	solvent free	13 - 14
100	900 - 1,500	solvent-free (allowing for broad range of solvents)	22.5 - 23.5
100	1,500 - 3,000	-	17.5 - 18.5

* This range of polyisocyanates allows for the reduction of solvents used in the coatings system allowing for VOC-free or low-VOC formulations.

Additives

Light stabilizers and waxes

Product	Product type	Solvent-based coatings	Water-based coatings	Physical form	Active component* [%]	mineral spirit/ toluene	xylene/ methyl-isobutyl ketone	methylamyl ketone/ methylethyl ketone
benzotriazoles								
Tinuvin® 99-2	benzotriazole	■■		liquid	95	> 50 > 50	> 50 > 50	> 50 > 50
Tinuvin® 99-DW	benzotriazole dispersion		■■	liquid	24			
Tinuvin® 1130	benzotriazole	■■	■	liquid	88	> 50	> 50	> 50
hydroxyphenyl triazines								
Tinuvin® 400	triazine	■■		liquid	85	> 50 > 50	> 50 > 50	> 50 > 50
Tinuvin® 400-DW	triazine dispersion		■■	liquid	20			
Tinuvin® 477	triazine	■■		liquid	80	> 50 > 50	> 50 > 50	> 50 > 50
Tinuvin® 477-DW	triazine dispersion		■■	liquid	20			
HALS								
Tinuvin® 123-DW	N-OR HALS dispersion		■■	liquid	30			
Tinuvin® 292	HALS	■■	■	liquid	100	> 50 > 50	> 50 > 50	> 50 > 50
Lignostab® 1198	HALS	■	■■	solid	100			> 20
Tinuvin® 5100	N-OR HALS	■■		liquid	100	> 50 > 50	> 50 > 50	> 50 > 50
blends								
Tinuvin® 5050	benzotriazole/ HALS	■■		liquid	100	> 50 > 50	> 50 > 50	> 50 > 50
Tinuvin® 5060	benzotriazole/ NOR HALS	■■		liquid	100	> 50 > 50	> 50 > 50	> 50 > 50
Tinuvin® 5151	benzotriazole/ HALS	■■	■	liquid	92	> 50 > 50	> 50 > 50	> 50 > 50
Tinuvin® 5460	triazine/NOR HALS	■■		liquid	92	> 50 > 50	> 50 > 50	> 50 > 50
benzophenone								
Chimassorb® 81	benzophenone	■		solid	100	> 50		

Product	Product type	Key properties	Appearance	Solids by weight [%]
Joncryl® Wax and other specialities				
Zinc Oxide Solution #1	additive	water resistance, drying, hardness	clear solution	25.0
Joncryl® Wax 35	additive	improves scratch, slip and block resistance	semitranslucent emulsion	34.5

Solubility/miscibility at 20 °C [g/100g]				Description and applications
butyl acetate/ ethyl acetate	ethyl Cellosolve®2 ketone/ butyl Cellosolve®2 acetate	butyl carbitol/ Texanol®3	water	
> 50 > 50	> 50 > 50	> 50 > 50	< 0.01	UV absorber for standard industrial and DIY solvent-based coatings, i.e., for wood furniture and parquet applications
			**	UV absorber dispersion for water-based coatings
> 50	> 50	> 50	< 0.01	UV absorber suitable for solvent- and water-based systems
> 50 > 50	> 50 > 50	> 50 > 50	< 0.01	UV absorber for industrial solvent-based and UV coatings especially for flooring applications (acrylates, PUR and epoxies, non-yellowing in alkaline environment)
			**	UV absorber dispersion for water-based coatings (PUR and epoxies, non-yellowing in alkaline environment)
> 50 > 50	> 50 > 50	> 50 > 50	< 0.01	UV absorber with extended UV-A ray absorbance, suitable for high-performance solvent-based wood coatings
			**	UV absorber suitable for high-performance water-based wood coatings and for coatings providing efficient protection of substrates sensitive to UV-A rays
			**	N-OR HALS dispersion for water-based coatings for improved gloss and color retention
> 50 > 50		> 50 > 50	< 0.01	general-purpose HALS minimizing surface defects such as cracking and gloss loss (not suitable for acid-catalyzed systems)
> 20	> 20	> 20	22	lignin-stabilizing HALS that prevents color change of natural, tinted or stained pale wood species (to be used in wood-impregnating primers)
> 50 > 50			< 0.01	non-basic N-OR HALS for improved coating durability
> 50 > 50	> 50 > 50	> 50 > 50	< 0.01	general-purpose blend of UV absorber and basic HALS suitable for a wide range of exterior coating applications
> 50 > 50	> 50 > 50	> 50 > 50	< 0.01	blend of UV absorber and non-basic N-OR HALS suitable in particular for long-oil alkyd-based wood coating applications
> 50 > 50	> 50 > 50	> 50 > 50	< 0.01	universal UV absorber and HALS blend that can be used in a variety of solvent- and water-based applications
> 50 > 50	> 50 > 50	> 50 > 50	< 0.01	blend of UV absorber and non-basic N-OR HALS suitable in particular for concrete floor coating applications
44			< 0.01	UV absorber suitable for solvent-based systems providing only UV-B ray protection

pH [25 °C]	Viscosity [mPa·s, 25 °C]	Melting point of wax, [°C]	Description and applications
11.4	5	NA	crosslinker for carboxy-functional acrylics to improve early resistance properties
9.8	25	130	polyethylene wax to improve scratch resistance, slip and block resistance

** water-miscible additive dispersion

Surface-modifying and dispersing agents

Product	Chemical nature	Incorporation	Dosage* [%]	Active content** [%]	Solvent-based coatings
Efka® defoamers					
Efka® 2010	solution of defoaming substances	before or after processing	0.1 - 0.7		■
Efka® 2020	solution of defoaming substances	before or after processing	0.1 - 0.7		■
Efka® 2022	solution of defoaming substances	before or after processing	0.1 - 1.0		■
Efka® 2035	solution of defoaming substances	final production	0.5 - 1.0		■
Efka® 2550	modified polydimethyl siloxance	grinding stage/final production	0.1 - 0.3	100	
Efka® 2580	modified polydimethyl siloxance	at any stage of the production process	0.1 - 1.0	100	
Efka® 2720	solution of defoaming substances	before or after processing	0.1 - 10.0		■
Efka® 2721	solution of defoaming substances	at any stage of the production process	0.5 - 1.0		

Water-based coatings	Solvent-free/ UV coatings	Silicone-free	Silicone-containing	Description and applications
		■		acid-curing and NC curtain coatings systems, unsaturated polyester and gelcoats
		■		acid-curing and NC curtain coating systems, unsaturated polyester and gelcoats
			■	polyurethane curtain coatings and baking enamels
			■	physically drying systems and medium- to long-oil air-drying alkyds
■			■	water-based coatings and pigment concentrates where high shear processing or application exists
■			■	water-based acrylic, low-PVC and baking systems; water-based pigment concentrates
		■		unsaturated polyester, epoxy and polyurethane systems
	■	■		UV- and EB-curing systems

* w/w on total formulation ** Typical values, not intended as specification

Surface-modifying and dispersing agents

Product	Chemical type	Incorporation	Dosage* [%]	Active content** [%]	Solvent-based coatings
Efka® slip and leveling agents					
Efka® 3030	organically modified polysiloxane	any stage	0.1 - 0.3	52	■
Efka® 3031	organically modified polysiloxane	any stage	0.1 - 0.3	52	■
Efka® 3033	organically modified polysiloxane	any stage	0.1 - 1.0	15	■
Efka® 3035	organically modified polysiloxane	any stage	0.1 - 0.5	52	■
Efka® 3236	solvent-free modified polysiloxane	after thinning	0.04 - 0.4	100	■
Efka® 3288	organically modified polysiloxane	any stage	0.02 - 0.3	100	■
Efka® 3299	organically modified polysiloxane	any stage	0.05 - 0.3	100	■
Efka® 3580	polysiloxane	after or prior to processing	0.1 - 1.0	100	■
Efka® 3883	polysiloxane modified with unsaturated terminal groups	end of process	0.2 - 1.0	70	
Irgaflow® 100	fluorine-modified polyacrylate	before, after or during processing	0.5 - 1.0	50	■
Irgaflow® 110	fluorine-modified polyacrylate	before, after or during processing	0.1 - 0.5	70	■

Water-based coatings	Solvent-free/ UV coatings	Silicone-free	Silicone-containing	Description and applications
■			■	improve slip and mar resistance, very compatible
	■		■	solvent-based metal, wood and paper coatings including UV-curing
			■	improve surface flow, excellent compatibility in clear coat
■	■		■	solvent- and water-based coatings, baking enamels, unsaturated PE including UV-curing
	■		■	solvent-based wood finishes, industrial coatings and solvent-free floor coatings
■	■		■	strong slip and surface smoothness effect for high-gloss industrial coatings
■	■		■	strong slip and surface smoothness effect for high-gloss industrial coatings
■	■		■	anti-cratering and leveling agent for water-based coatings
	■			UV-curing systems for wood, plastic and paper coatings, reactive
	■			solvent-based industrial and wood coatings; improved leveling and defoaming performance compared to Efka® 3777
	■			solvent-based industrial and wood coatings; higher leveling and anti-crater efficiency than Irgaflow® 100; improved leveling and defoaming performance compared to Efka® 3600

* w/w on total formulation ** Typical values, not intended as specification

Surface-modifying and dispersing agents

Product	Chemical nature	Active content* [%]	Amine value*	Acid value*	Solvent-based
Efka® high-molecular-weight dispersants (HMWD)					
Efka® 4010	modified polyurethane polymer, new generation	51	6	12	■
Efka® 4046	modified polyurethane polymer	40	19		■
Efka® 4047	modified polyurethane polymer	35	17		■
Efka® 4330	acrylic block co-polymer CFRP**	70	28		■
Efka® 4340	acrylic block co-polymer CFRP**	55	4		■
Efka® 4560	modified polyacrylate polymer	40	25		
Efka® 4580	modified polyacrylate polymer	40	19		
Efka® 4585	acrylic block-co-polymer CFRP**	50	20		

Product	Chemical nature	Active content* [%]	Amine value*	Acid value*	Solvent-based	Water-based
Efka® low-molecular-weight dispersants (LMWD)						
Efka® 5054	carboxylic acid salts	52	51	53	■	
Efka® 5210	acidic polyester polyamide	100		270	■	

Water-based	Industrial coatings	Wood coatings	Description and applications
	■	■	extremely suitable for dispersing TiO_2
	■		widely applicable dispersing agent for organic and inorganic pigments
	■		high-quality industrial finishes including automotive OEM and refinish
	■	■	solvent-based industrial and decorative coatings; well suitable for the manufacture of pigment pastes with very broad compatibility ranging from polar to very non-polar systems
	■		solvent-based high-end applications; industrial and automotive systems, good performance in CAB-modified systems but also with 2K PU and 2K epoxy
■		■	water-based decorative and industrial coatings, pH-independent; broad compatibility; suitable for resin-containing and resin-free pigment concentrates
■	■	■	high-end industrial and automotive coatings; suitable for resin-containing and resin-free pigment concentrates
■	■	■	high-end water-based coatings, industrial and automotive; broad compatibility with different binder systems, pH-independent suitable for VOC-free applications

Dosage: Starting point recommendations are based on the surface areas of pigments. The recommendation is for active dispersant on pigment.
Incorporation: Dispersant should be added to the millbase prior to the addition of the pigment.

Industrial coatings	Wood coatings	Description and applications
		low- to medium-polar systems; also for bentonite gels
■	■	all types of industrial coatings for inorganic pigments; dispersion of extenders and fillers in composites (sheet and bulk molding compounds)

* Typical values, not intendend as specification

** Controlled free radical polymerisation

Surface-modifying and dispersing agents

Product	Chemical nature	Active content* [%]	Amine value*	Acid value*	Solvent-based
Efka® FAME (Fatty-Acid-Modified Emulsifiers)					
Efka® 6220	fatty-acid-modified polyester	100	35	22	■

Product	Chemical nature	Active content* [%]	Water-based coatings
Dispex® ionic dispersants for inorganic pigments			
Dispex® GA40	ammonium polyacrylate co-polymer	40	■
Dispex® N40	sodium polyacrylate	40	■

Product	Appearance	Solids by weight [%]	pH [25 °C]	Viscosity / mPa·s [25 °C]	Acid value [on solids -NV]	Glass transition temperature Tg [DSC] °C
Joncryl® HPD resin solutions for water-based coatings – acrylic resin solutions						
Joncryl® HPD 71-E	clear solution	31.0	8.5	200	221	120
Joncryl® HPD 96-E	clear solution	31.0	8.5	2,000	233	105
Joncryl® 8078	clear solution	32.0	8.3	1,750	224	101

Product	Chemical nature	Active content* [%]	Chemistry type**	Water-based coatings
Viscalex® rheology modifiers – acrylic resin solutions				
Viscalex® AT88	anionic polyacrylate co-polymer	60	LDP	■
Viscalex® HV30	anionic polyacrylate co-polymer	30	ASE	■
Viscalex® VG2	anionic polyacrylate co-polymer	30	ASE	■
Rheovis® 112	anionic polyacrylate co-polymer	40	HASE	■
Rheovis® 162	anionic polyacrylate co-polymer	35	HASE	■

* Typical values, not intendend as specification

** ASE: alkali-swellable emulsions; AS: alkali-swellable; LDP: liquid dispersion polymers; HASE: hydrophobically modified alkali-swellable emulsions

Water-based	Industrial coatings	Wood coatings	Description and applications
■	■	■	improve compatibility and color acceptance of universal colorants in base paints

High-PVC paints	Low-PVC paints	Average molecular weight	Supplied pH
■	■	4000	7.5
■		4000	7.5

Mw	Key properties	Description and applications
17,000	excellent viscosity stability, pigment wetting and color development	very-low-VOC MEA-neutralized resin solution of Joncryl® HPD 671
16,500	excellent viscosity stability, pigment wetting and color development	very-low-VOC ammonia-neutralized resin solution for highly concentrated pigment dispersions
8,500	pigment wetting, resolubility, compatibility, flow (ammonia solution of Joncryl® 678)	acrylic solution-stable pigment pastes

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