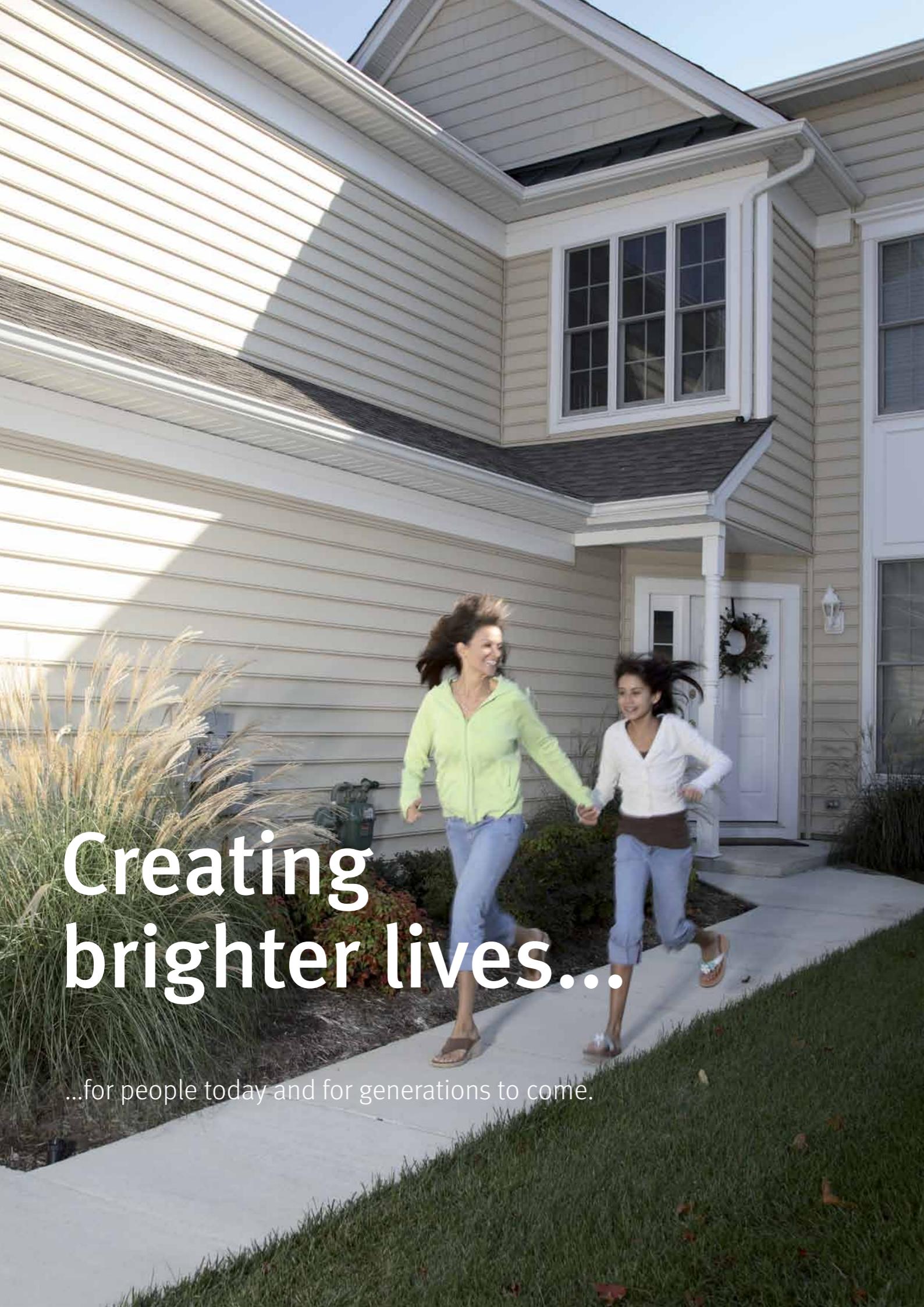




Advanced energy curable resins for

Coatings



Creating brighter lives...

...for people today and for generations to come.

Our business is all about improving people's lives. At DSM we want to make life brighter for people – today and in generations to come. We connect our unique skills in materials sciences to create solutions that nourish, protect and improve performance. And contribute to a more sustainable world.

Brighter future

Some companies see sustainability as a challenge, but we see it as an opportunity, with endless possibilities to work together for a brighter future. By exchanging ideas and collaborating openly, we are making a difference. Innovating to add value to people's lives, ensure profitability and protect the planet.

Bright Science

Bright Science is at the heart of it all. Based on our intimate knowledge of our markets and our deep materials science expertise across a wide range of applications. Our global network of industry specialists spend their working lives traveling the world and talking to customers and other players in the supply chains. Through these deep partnerships built on mutual trust, we create bespoke resins and technologies that enhance our customers' formulas and their customers' everyday experiences.

Brighter Living

This means Brighter Living for everyone. Now you can rest your wine glass on a beautifully lacquered coffee table without leaving a stain. Or apply mosquito spray before heading out into the sun, knowing it won't take the shine off your cabriolet's interior paint. That's the real beauty of Bright Science, brightening lives wherever and whenever it touches them.

DSM NeoResins

NeoResins is a specialty unit of DSM that draws upon its broad know-how and understanding of market and customer needs to develop innovative resin solutions that deliver the best performance in the coatings and graphic arts markets.

From our headquarters in the Netherlands, we provide resins for coatings and graphic arts markets around the globe. We support our customers with manufacturing sites in USA, Spain, Germany, Netherlands, and China. Our brand names are well known around the world, including NeoCryl™, NeoRez™, NeoPac™, NeoRad™, Hybrane™, Uralac™, Uracron™, Urathix™ and Uradil™.

Customers rely on us for a unique range of tailor-made, sustainable solutions based on water borne, UV, and solvent borne technologies. We are the largest producer of polyester resins in the world and one of the largest producers of specialty emulsions, ensuring a dependable supply of product that fits our customer's individual requirements.

We have a dedicated focus on people, profit and planet. As an example, we design resin systems with tomorrow's environmental requirements in mind, guided by our Product Stewardship principles, by an awareness of the need for continuity and by a strong sense of responsibility. We have an outstanding sustainability record in specialty resins that we continue to improve each day.

Our heritage

Our activities in Coatings and Graphic Arts have a long and rich heritage going back to the NeoResins Company, established in 1955 by the Stahl Finish Company of Peabody, Massachusetts, which DSM acquired in 2005. Since 2007, DSM NeoResins+ comprises the liquid business of DSM Coating Resins and the former NeoResins Company. Our powder coating activities are carried out under the name DSM Powder Coating Resins. Further information about our history can be found at www.dsm.com/en_US/html/dnr/History.htm



UV technologies

DSM has a broad portfolio of UV products ranging from 100%UV oligomers to waterborne UV dispersions and solid acrylics. Cured by ultraviolet light, they create exceptionally durable coatings on a variety of substrates. UV coatings are one of the most sustainable coating technologies, non-flammable and without solvents or Volatile Organic Compounds. In addition, the curing process doesn't require heating, thereby resulting in the lowest carbon footprint with high performance levels.



there will be no need to drive to and from a job while each coat of paint dries; it will cure so fast that four coatings can be applied in quick succession, saving valuable time and cutting unnecessary carbon travelling miles. And finally, our solid acrylics are available for enhancing the adhesion and flexibility performance of your UV formulations. These

coatings don't just look beautiful; they're stronger and more impact-resistant too. So your laminated kitchen top will withstand the day-to-day stains, knocks and bumps of family life. Your new laptop will survive the daily commute without a scratch. And the beautiful wooden flooring you've laid in your lounge will last, whatever life throws at it.

One of the most exciting areas of focus in this technology area is 100% UV. Because with 100% UV, liquid resin instantly turns into a solid state, the coating immediately reaching its final performance properties. UV is used in many industrial applications such as furniture coatings, parquet lacquers, plastic coatings, printings inks and high gloss paper coatings. UV is also a technology which still has many opportunities for innovation, not only to improve the performance in existing application areas, but also to take it to new fields. For example, we're developing decorative coatings and on-site applied floor lacquers; here UV will make painting a year-round, rather than seasonal activity. And



Urethane acrylates

	Dilution	Functionality	Viscosity (Pas 23°C)	Viscosity (Pas 60°C)	AV (mg KOH/g)	OHV (mg KOH/g)	Colour Gardner	Description	USA (TSCA)	Canada (DSL)	REACH	China	Philippines (PICCS)	Korea (ECL)	Australia (AICS)	Main benefit(s)	Applications	Adhesion	Flexibility	Hardness	Reactivity	Chemical resistance
NeoRad™ U-10-15H	15% HDDA	3	45	1,9	<1	<10	<1	Aliphatic urethane acrylate in 15% HDDA	●	●	●	●		●	●	Very good abrasion and scratch resistance General purpose	Topcoats Plastic coatings Flooring	+++	+++	+++	+++	+++
NeoRad™ U-10-15T	15% TPGDA	3	135		<1	<10	<1	Aliphatic urethane acrylate in 15% TPGDA	●	●	●	●		●	●	Very good abrasion and scratch resistance General purpose	Topcoats Plastic coatings Flooring	+++	+++	++	+++	+++
NeoRad™ U-20-12H	12% HDDA	2	65	2,1	<1	<10	<1	Aliphatic urethane acrylate in 12% HDDA	●	●	●	●		●		Excellent outdoor durability Excellent abrasion and scratch resistance	Topcoats Metal coatings Plastic coatings Flooring	+++	+++	++	++	+++
NeoRad™ U-25-20D	20% DPGDA	2	25		<1	<10	<1	Aliphatic urethane acrylate in 20% DPGDA	●	●	●	●		●		Excellent scratch resistance Good flexibility High Reactivity	Topcoats Plastic coatings Flooring	+++	++++	++	+++	+++
NeoRad™ U-25-19T	20% TPGDA	2	32		<1	<10	<2	Aliphatic urethane acrylate in 20% TPGDA	●	●	●	●		●		Excellent flexibility Very good scratch resistance High cure speed	Plastic coatings Flexible substrates	+++	++++	++	+++	+++
NeoRad™ U-30W		6	1,4		<8	80	<1	Water dilutable Aliphatic urethane acrylate	SNUR		●	●				Excellent wood highlighting Good intercoat adhesion Good adhesion to wood Easy formulation and viscosity adjustment with water	Wood primers Wood stains Spray coatings	++++	++	++	+++	+
NeoRad™ U-41		6	100		<1	38	<1	Hexafunctional aliphatic urethane acrylate	●		●					Excellent adhesion to plastics Excellent scratch resistance Very high hardness and reactivity	Plastic coatings Performance enhancer	+++	+	++++	++++	++++
NeoRad™ U-42		6	23		<1	40	<2	Hexafunctional aliphatic urethane acrylate	●		●					Excellent adhesion to plastics Excellent scratch resistance Very high hardness and reactivity	Plastic coatings Performance enhancer	+++	+	++++	++++	++++
NeoRad™ U-50-25H	25% HDDA	3	17		<1	<10	<2	Aromatic urethane acrylate in 25% HDDA			●					Good abrasion and scratch resistance General purpose	Wood coatings Flooring	+++	++	++	+++	+++
NeoRad™ U-60		2		4,1	<1	<10	<2	Aromatic urethane acrylate	●	●	●	●		●	●	High flexibility Good adhesion Good wear resistance	Wood coatings Flooring	++++	+++	++	++	+++
NeoRad™ U-61		2	2		<1	160	<3	Aromatic urethane acrylate	●	●	●	●		●	●	High flexibility Very good adhesion Excellent wear resistance	Wood primers Sealers	++++	++++	+++	+	+++
NeoRad™ U-6281		2	0,07		<3	30	<3	Urethane acrylate	●	●	●	●				Easy to matt Excellent compatibility with silicas Balanced properties	Topcoats	+++	+++	+++	++	+++
NeoRad™ U-70		6	29		<1	38	<2	Hexafunctional aromatic urethane acrylate	●		●	●			●	Excellent scratch resistance Very high hardness and reactivity	Plastic coatings Performance enhancer	+	+	++++	++++	++++

Polyester acrylates

	Dilution	Functionality	Viscosity (Pas 23°C)	Viscosity (Pas 60°C)	AV (mg KOH/g)	OHV (mg KOH/g)	Colour gardner	Description	USA (TSCA)	Canada (DSL)	REACH	China	Philippines (PICCS)	Korea (ECL)	Australia (AICS)	Main benefit(s)	Applications	Adhesion	Flexibility	Hardness	Reactivity	Chemical resistance
NeoRad™ P-10		2,5	35		<15	50		Polyester acrylate	●	●	●	●	●	●	●	Well balanced properties High flexibility	Wood coatings Metal coatings General purpose	+++	+++	++	+++	+++
NeoRad™ P-20		4	3		<5	60		Polyester acrylate	●		●	●				Good reactivity Low viscosity, low odour	Wood coatings Metal coatings General purpose	++	++	+++	+++	+++
NeoRad™ P-30		4	0,7		<20	70		Polyester acrylate			●	●			●	Very low viscosity High hardness	Wood coatings Metal coatings General purpose	++	+	+++	+++	++
NeoRad™ P-40		4		4	<20	10		fatty acid modified tetrafunctional polyester acrylate	●	●	●	●		●	●	Good pigment wetting Excellent reactivity	Pigmented coatings Wood (modifier)	++	++	+++	++++	++++
NeoRad™ P-60		6	9		<20	30		fatty acid modified hexafunctional polyester acrylate	●		●					Good pigment wetting Excellent reactivity	Pigmented coatings Wood (modifier)	++	+	++++	++++	++++
NeoRad™ P-61		6	68		<20	na		fatty acid modified hexafunctional polyester acrylate			●					Good pigment wetting Excellent reactivity	Pigmented coatings Wood (modifier)	++	+	++++	++++	++++

Amino modified acrylates

	Dilution	Functionality	Viscosity (Pas 23°C)	Viscosity (Pas 60°C)	AV (mg KOH/g)	OHV (mg KOH/g)	Colour gardner	Description	USA (TSCA)	Canada (DSL)	REACH	China	Philippines (PICCS)	Korea (ECL)	Australia (AICS)	Main benefit(s)	Applications	Adhesion	Flexibility	Hardness	Reactivity	Chemical resistance
NeoRad P-80		4	0,5		1	50	1	Amino modified polyether acrylate	●		●	●				Very good reactivity and cemical resistances	General purpose reactivity enhancer	+++	+	+++	++++	+++
NeoRad P-81		2	0,1		1	0	1	Amino modified polyether acrylate	●	●	●	●				Good reactivity Low viscosity	General purpose reactivity enhancer	+++	++	+++	++++	+
NeoRad P-82		4	3,5		1			Amino modified polyether acrylate			●					Excellent reactivity Medium viscosity	General purpose reactivity enhancer	+++	+	+++	++++	++++
NeoRad P-85		6	0,7		1	40	6	Amino modified polyether acrylate			●					Very good reactivity Good wood wetting	General purpose reactivity enhancer Pigmented coatings	+++	+	+++	++++	+++

Acrylated acrylics

	Dilution	Functionality	Viscosity (Pas 23°C)	Viscosity (Pas 60°C)	AV (mg KOH/g)	OHV (mg KOH/g)	Colour gardner	Description	USA (TSCA)	Canada (DSL)	REACH	China	Philippines (PICCS)	Korea (ECL)	Australia (AICS)	Main benefit(s)	Applications	Adhesion	Flexibility	Hardness	Reactivity	Chemical resistance
NeoRad™ A-20	50% BuAc	high	0,5		<17	150	5	Acrylated acrylic in 50% BuAc			●					Excellent resistances Fast curespeed Spray applicable	Plastic coatings Metal coatings	++	+	++++	++++	++++

Epoxy acrylates

	Dilution	Functionality	Viscosity (Pas 23°C)	Viscosity (Pas 60°C)	AV (mg KOH/g)	OHV (mg KOH/g)	Colour gardner	Description	USA (TSCA)	Canada (DSL)	REACH	China	Philippines (PICCS)	Korea (ECL)	Australia (AICS)	Main benefit(s)	Applications	Adhesion	Flexibility	Hardness	Reactivity	Chemical resistance
NeoRad™ E-10		2	2000		<2	240	<1	BisphenolA epoxy acrylate	●	●	●	●	●	●	●	High reactivity Excellent solvent resistance High gloss	Wood coatings Metal coatings General purpose	+	+	++++	+++	++++
NeoRad™ E-10-20T	20% TPGDA	2	35		<2	200	<1	BisphenolA epoxy acrylate in TPGDA	●	●	●	●	●	●	●	Medium high viscosity High reactivity Good chemical resistances	Wood coatings Metal coatings General purpose	+	+	++++	+++	++++
NeoRad™ E-10-30T	30% TPGDA	2	8		<2	170	<1	BisphenolA epoxy acrylate in TPGDA	●	●	●	●	●	●	●	Medium high viscosity High reactivity Good chemical resistances	Wood coatings Metal coatings General purpose	+	+	++++	+++	++++
NeoRad™ E-10-50T	50% TPGDA	2	0,5		<2	120	<1	BisphenolA epoxy acrylate in TPGDA	●	●	●	●	●	●	●	Low viscosity Excellent solvent resistance High gloss	Wood coatings Metal coatings General purpose	+	+	++++	+++	++++
NeoRad™ E-10-20G	20% GPTA	2	105		<2	200	<1	BisphenolA epoxy acrylate in GPTA	●	●	●	●	●	●	●	Medium viscosity Excellent solvent resistance High gloss	Wood coatings Metal coatings General purpose	+	+	++++	+++	++++
NeoRad™ E-10-20H	20% HDDA	2	8,5		<2	200	<1	BisphenolA epoxy acrylate in HDDAw	●	●	●	●	●	●	●	medium viscosity Excellent chemical resistance High gloss	Wood coatings Metal coatings General purpose	+	+	++++	+++	++++
NeoRad™ E-20		1,7		3	<3	230	<3	Modified bisphenolA epoxy acrylate	●	●	●	●		●	●	Good reactivity Good pigment wetting	Pigmented coatings Metal coatings	++	++	+++	++	+++
NeoRad™ E-30		3	25		<10	180	<10	Soy oil epoxy acrylate	●	●	●	●	●		●	Good pigment wetting Good adhesion Good flow and levelling	Wood coatings Metal coatings Pigmented coatings	+++	+++	++	+++	+++

Water-borne urethane dispersions for coatings applications

	Molecular weight (kDalton)	Viscosity (mPas) @ 23°C	Solids (%)	Appearance	OH Value (mg KOH/g)	Acid Value (mg KOH/g)	pH	Labeling	Labeling	REACH (Europe)	TSCA (US)	DSL (Canada)	IECSC (China)	AICS (Australia)	ENCS (Japan)	PICCS (Philippines)	ECL (Korea)	Main feature	Reactivity	Flexibility	Solvent resistance	Adhesion	Non yellowing	Tack free before cure
NeoRad™ R-440	high	100 - 600	40	bluish	na	na	7.5 - 9	free	Aliphatic Acrylated Urethane	●	●		●					Good flexibility, non yellowing, good block resistance	+++	++++	+++	+++	++++	++++
NeoRad™ R-441	low	100 - 500	39	bluish	na	na	6.5 - 7.5	free	Aliphatic Acrylated Urethane Oligomer	●	●					●		Good wood wetting, high transparency, good resistances	+++	+	+++	++++	+++	+
NeoRad™ R-447	high	max 150	35	bluish	na	na	7.5 - 9	Xi	Aliphatic Acrylated Urethane/acrylate	●	●							Excellent chemical and stain resistances in clear and pigmented topcoats, good block and scratch resistance	++++	+	++++	++++	++++	++++
NeoRad™ R-448	high	60	40	white	na	na	7.5 - 9	free	Aliphatic Acrylated Urethane Oligomer	●								Excellent chemical resistances	++++	+	++++	++++	++++	+
NeoRad™ R-449	high	50	40	white	na	na	8	Xi	Aliphatic Acrylated Urethane Oligomer	●	●							Excellent chemical and stain resistances in pigmented topcoats, highlighter pen resistant	++++	+	++++	++++	++++	+
NeoRad™ R-450	high	30-150	35	white	na	na	7-8	free	Aliphatic Acrylated Urethane Oligomer	●	●							Good abrasion and stain resistance, good wood wetting, high transparency	+++	+++	++	+++	++++	++++
NeoRad™ R-452	high	25	38	white	na	na	7.5	Xi	Aliphatic Acrylated Urethane Oligomer	●	●							Excellent chemical and stain resistances in pigmented topcoats	++++	+	++++	++++	++++	++++
NeoRad™ R-501	high	30-150	42.5	white	na	na	8	free	Aliphatic Acrylated Urethane Oligomer	●	●							Excellent outdoor durability, good overall properties	+	++++	+	++++	++++	++++
NeoRad™ R-465	high	80	35	white	na	na	8.3	Xi	Aliphatic Acrylated Urethane Oligomer	●								High flexibility, good resistances	++++	++++	++++	+++	++++	++++
Halwedrol™ UV-14/40W	high	30 - 160	40	white	na	na	7 - 8.5	Xi	Aliphatic Acrylated Urethane	●								Fast drying, high resistances	+++	+	++++	++	++++	++++
Halwedrol™ UV-20/40W	high	30 - 160	40	white	na	na	7 - 8.5	Xi	Aliphatic Acrylated Urethane	●	●	●						Fast drying, sandable before cure, good adhesion	+++	+++	+	++++	++++	++++
Halwedrol™ UV-65/40W	low	30 - 200	40	bluish	na	na	7 - 8.5	Xi	Aliphatic Acrylated Urethane Oligomer	●								Very good wood highlighting, outdoor durable	+++	+	++	++++	++++	+
Halwedrol™ UV-TN-6711	high	30 - 160	40	white	na	na	7 - 8.5	Xi	Aliphatic Acrylated Urethane/acrylate	●								Economical UV system, medium resistances	++	++	+	+++	++++	++++
NeoRad™ R-1500	high	200-1000	32	white	na	na	6.5 - 8.5	free	Aliphatic Acrylated Urethane	●	●							Matt & soft touch	++	+	++	+++	++++	++++

Solid acrylics for coating applications

	Molecular weight (kDalton)	Viscosity (mPas) @ 23°C	Viscosity (mPas) @ 60°C	Colour	OH Value (mg KOH/g)	Acid Value (mg KOH/g)	Tg (°C)	Labeling	REACH (Europe)	TSCA (US)	DSL (Canada)	IECSC (China)	AICS (Australia)	ENCS (Japan)	PICCS (Philippines)	ECL (Korea)	Main feature	Reactivity	Flexibility	Solvent resistance	Adhesion	Non yellowing	Pigment wetting
NeoCryl™ B-300	16	950 **)	na	Off white	0	1	45	MMA/BMA copolymer	●	●	●	●	●		●	●	Excellent solubility in monomers Excellent adhesion properties	na	++	++++	++++	++	+++
NeoCryl™ B-302	5	700 **)	na	Off white	0	4	80	Methacrylic copolymer	●	●	●				●		Excellent solubility in monomers, improves adhesion and impact resistance	na	+	++++	++++	++	++++
NeoCryl™ B-722	55	3450 *)	na	white	0	6,5	43	EA/MMA copolymer	●	●	●	●	●	●	●	●	Good impact modifier, good adhesion promoter	na	+++	+++	++++	++	+++
NeoCryl™ B-810	54	1900 *)	na	White	0	7	59	BMA/MMA copolymer	●	●	●	●	●	●	●	●	Improved outdoor durability	na	++	++++	+++	++	+
NeoCryl™ B-813	40	18000 *)	na	White	0	10	64	EMA copolymer	●	●	●		●	●	●	●	Plastisizer resistant, good adhesion	na	++	++++	++++	++	+
NeoCryl™ B-819	40	1200 *)	na	White	65	16	49	Acrylic/Styrene copolymer	●	●		●	●		●	●	Suitable for pigment grinding	na	++	++++	+++	++	++
NeoCryl™ B-890	12,5	1300 *) 16000 **)	na	Off white	25	75	85	Modified MMA/BMA	●	●		●	●		●	●	Excellent adhesion and scratch resistance	na	+	++++	+++	++	+++
NeoCryl™ B-891	35	2500 *)	na	White	0	13	77	BMA/MMA copolymer	●	●	●	●	●	●	●	●	Excellent scratch resistance	na	+	++++	+++	++	+

*) 30% solution in HDDA ***) 40% solution in HDDA

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