



Uralac[®] polyester resins & Crelan[®] isocyanate crosslinkers for powder coatings

Product Overview Asia

Uralac[®] Crelan[®]





Shaping a sustainable coatings future together

Covestro is a leading supplier of high-quality, polyester powder coating resins and isocyanate crosslinkers for a wide range of end market applications. These products, when used in the right powder coating formulation, determine the specific properties of formulated powder coatings, which are typically applied by electrostatic spray. To achieve the required powder coating system with the needed requirements, you just select the right **Uralac®** polyester resin and/or **Crelan®** isocyanate crosslinker. These solutions are developed to address direct market demands, and also future end-market needs. So, whether you need a powder coating that is easy to spray and creates less waste, or one that resists scratches and bumps endured in everyday life, our resins cater to your requirements. By combining high-performance products with outstanding environmental responsibility, we offer the best possible solutions for people today – and for generations to come.

Commitment to the powder coating market

Covestro has pioneered the powder coating industry since the 1960s. Today, we continue to be one of the global market leaders thanks to our ongoing commitment to our customers and their markets, our consistent resin quality, and environmental responsibility. Our high quality formulas and consistent processes ensure that you receive reliable and stable products that offer superior properties, including flexibility, hardness, durability, resistance to heat and chemicals, anti-corrosion, and transfer efficiency.

Globally, our proven product quality is matched by the high professional standards of our technically experienced team, who are dedicated to providing our customers with unique solutions to their formulating challenges. For over 50 years, we have fostered strong and valuable customer relationships, which have supported the development of products that time over time meet and exceed market requirements.

Sustainability as a key focus

At Covestro, we see sustainability not just as an opportunity, but as a long-term business focus. Every day, we are dedicated to the development of new powder coating solutions that help make the planet a cleaner place and reduced ecological impact. Over the past few years, we have developed unique powder coating resins that allow for lower curing temperatures, which result in a smaller carbon footprint, and will open the door to new applications for powder coatings. In addition, with powder coating solutions we can shift away from traditional solvent-based coating technologies.



Resin development to address market trends

In order to keep on meeting evolving powder coating requirements across our global markets, we invest significantly in the development of our product portfolio. All of our product developments and improvements are focused on meeting specific market developments today and for the future. Our product portfolio supports a broad spectrum of market segments, that include a wide array of substrates from various metals and glass fiber pultrusions to heat-sensitive applications.



In line with this market-oriented development approach, Covestro supplies a comprehensive product range, including:

- Outdoor resins for general industry, architectural, superdurable and hyperdurable applications
- Low-temperature or fast-curing resins
- Corrosion resistant resins
- Resins for good esthetics
- Resins for low gloss coatings (dry blends or one shot matte)
- Isocyanate curing hydroxyl resins
- TGIC, HAA and epoxy curing carboxylated resins
- Glycidyl ester curing carboxylated resins
- Food contact carboxylated resins
- Epoxy-free carboxylated indoor resins
- Value-engineered resins
- Carboxylated resins for heat-sensitive substrates
- Isocyanate crosslinkers



Covestro will grow the market for coatings with more sustainable solutions that match the needs of these market segments:

- Architectural
- Automotive
- ACE/heavy machinery
- Furniture
- General industry
- Domestic appliances
- IT

Thinking globally, acting regionally

With five manufacturing centers located in the Netherlands, Spain, the United States, Taiwan and China Mainland, as well as marketing and sales hubs on three continents, we are never far from your business. What's more, our technical team is able to leverage global expertise to deliver valuable advice for your particular business. So wherever you are, and whatever your market or application is, our team is there to support you. To find out more about our powder coating solutions, contact your Covestro Account Manager, your Technical Application Manager, or visit **www.covestro.com**.



Covestro Coating Resins product portfolio for powder coatings

Uralac® resins for low gloss coatings (dry blends)

HAA	Industrial	P 3213/ P 3218
		P 835/ P 873
	Architectural	P 3223/ P 3228
		P 833/ P 870
		P 831/ P 870
	Architectural+	P 833/ P 880
	Superdurable	P 3233/ P 3238
		P 883/ P 6800
PT 910		P 8830/ P 8885
TGIC	Architectural	P 3485/ P 2240
	Architectural	P 4800/ P 2220
		P 4905/ P 2240
Hybrids		P 883/ P 6800
	Indoor	P 5881/ P 3150
		P 5881/ P 3050

Uralac® resins for low gloss coatings (one shot matte)

PUR	Industrial	P 1425/ P 1475, OSM
	Superdurable	P 1625/ P 1675, OSM
HAA	Industrial	P 8014/ P 8019, OSM

Uralac® resins for high pigment loading

Hybrid 60/40	Indoor	P 765, Hitone
HAA	Architectural	P 782, HiTone
		P 785, HiTone

Uralac® Veranda resins for epoxy replacement

HAA	Industrial	P 541, Veranda
		P 544, Veranda

Uralac® resins for food and drinking water applications

Hybrid 60 /40		F 5340, Food grade
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Uralac® resins for low bake/fast cure

Hybrid 70/30		P 3775, EasyCure
Hybrid 50/50	Indoor	P 3050, EnGain
		P 3150, EnGain
		P 3250, EnGain
HAA	Industrial	P 3213/ P 3218, EasyCure
		P 3214, EasyCure
		P 3215, EasyCure
	Architectural	P 3223/ P 3228, EasyCure
		P 3225, EasyCure
	Superdurable	P 3230, EasyCure
		P 3231, EasyCure
		P 3232, EasyCure
TGIC		P 3233/ P 3238, EasyCure
	Architectural	P 3226, EasyCure
		P 3227, EasyCure

Uralac® Corres resins for good corrosion resistance

Hybrid	Indoor	P 7630
HAA	Industrial	P 7604
	Architectural	P 7610
	Superdurable	P 7684
TGIC	Industrial	P 7620

Uralac® resins for good blanching resistance

HAA	Architectural	P 8240
		P 8250
		P 8253
	Superdurable	P 8855



Uralac® Hitone

High loading acceptance and excellent flow.
Indoor polyesters.





Uralac® Hitone

High loading acceptance and excellent flow.
Outdoor polyesters.





Uralac®

Resins with excellent resistance to blanching.
Outdoor polyesters.






Uralac® EasyCure


Low temperature or fast cure.
Indoor polyesters.





Uralac® EasyCure

Low temperature or fast cure.
Outdoor polyesters.





Uralac® EasyCure


Low temperature or fast cure.
Outdoor dry blend matte polyesters.






Uralac®


One shot matte, isocyanate systems.
Outdoor polyesters.





Uralac®

One shot matte, HAA systems.
Outdoor polyesters.





Uralac® Corres

Corrosion protection.
Indoor & outdoor polyesters.



Uralac® resins for HAA (β-Hydroxyalkylamide) cure

Carboxylated Powder Coating Resins	PRODUCT NAME	RATIO PE / HAA	SUITABLE FOR DRYBLEND	TRIBO*	ACID VALUE TM-2400	VISCOSITY TM-2727	Tg TM-2076	CURE CYCLE 160°C**	CURE CYCLE 180°C**	CURE CYCLE 200°C**	REMARKS
Industrial	Uralac® P 3210, EasyCure	95/5		•	32-38	10-50	54	10'	6'		Low bake, excellent flow, non blooming, Industrial type
	Uralac® P 3211, EasyCure	95/5		•	34-38	15-55	56	15'/155°C	6'		Low bake, excellent flow, non blooming, easy to process
	Uralac® P 3213, EasyCure	96/4	•	•	23-27	40-80	51	12'	6'		Low level HAA industrial grade for low bake or fast cure , can be used for dry blending low gloss with Uralac® P 3218
	Uralac® P 3215, EasyCure	95/5		•	34-38	25-65	63	10'	6'		EasyCure industrial grade for low or fast cure and good storage stability
	Uralac® P 3218, EasyCure	89/11	•	•	69-79	20-60	61	12'	6'		High level HAA industrial grade for low bake or fast cure, can be used for dry blending low gloss with Uralac® P 3213
	Uralac® P 541, Veranda	96/4		•	26-30	17-47	56		12'		Epoxy free hybrids alternative, limited outdoor durability, excellent staining resistance
	Uralac® P 7604, Corres	96/4		•	26-30	25-65	58		15'		GI resin, Same corrosion protection as pre-treatment or epoxy primer
	Uralac® P 8014, OSM	96/4			24-26	26-48	60		10'		Low AV resin for OSM combination with Uralac® P 8019
	Uralac® P 8019, OSM	90/10			66-74	20-55	58		10'		High AV resin for OSM combination with Uralac® P 8014
	Uralac® P 812	95/5		•	33-37	15-45	61		10'	6'	General purpose with good flexibility in thick layers
	Uralac® P 8390	96.5/3.5	•		22-26	40-80	63	17'	10'	6'	Low level HAA resin for general purpose
	Uralac® P 8392	96.5/3.5			22-26	70-120	66	17'	10'	6'	Low level HAA, good anti sagging and yellowing resistance
	Uralac® P 847	96/4			26-30	24-44	57	17'	10'	6'	General industrial grade HAA resin
	Uralac® P 8470	96/4			26-30	24-44	57	17'	10'	6'	General industrial grade HAA resin, without organic tin (unintentionally added)
	Uralac® P 873	90/10	•	•	69-79	18-38	57	15'			Low temperature /fast cure GI grade, suitable for low gloss in dry blend formulation with Uralac® P 835
Architectural	Uralac® P 2240	93/7	•	•	51-56	75-115	69	15'			Low temperature, fast cure for high Tg coatings, improved humidity resistance; Can be used in dryblend systems with Uralac® P 3485
	Uralac® P 2244	93/7	•		48-55	72-122	68	15'			High acid HAA resin, high Tg, good chemical resistance, suitable for dry blend matte
	Uralac® P 3220, EasyCure	93/7		•	49,5-53,5	10-50	55	12'	6'		Low bake, good flow, non blooming, good overall performance for architectural
	Uralac® P 3223, EasyCure	97/3	•		18-22	85-125	55	12'			Low level HAA architectural grade for low bake or fast cure, can be used for dry dry blending low gloss with Uralac® P 3228
	Uralac® P 3225, EasyCure	95/5			33-37	15-35	58	12'			Low bake/Fast cure, excellent flow, non blooming at cure, and architectural grade
	Uralac® P 3228, EasyCure	92/8	•		56-60	15-55	57	12'			High level HAA architectural grade for low bake or fast cure, can be used for dry blending low gloss with Uralac® P 3223
	Uralac® P 7610, Corres	96/4			26-30	30-60	58		15'		Architectural resin, Same corrosion protection as pre-treatment or epoxy primer
	Uralac® P 782, HiTone	96/4		•	26-30	22-62	58		12'		Superior flow and high loading capacity, low level crosslinker, architectural type
	Uralac® P 785, HiTone	95/5		•	34-36	10-40	60		10'		High Tg version of Uralac® P 780 , superior flow and high loading capacity
	Uralac® P 815	95/5		•	33-37	26-46	62		10'		General purpose with good exterior durability (architectural) and processebility
	Uralac® P 821	96.5/3.5		•	20-24	30-70	58		12'		Low level HAA for architectural purpose, excellent flow, improved powder stability compared to Uralac® P 823
	Uralac® P 8250, Non-blanching	95/5		•	33-37	15-55	60		12'		Architectural type with excellent resistance to blanching
	Uralac® P 8253, Non-blanching	95/5		•	33-37	30-70	63		12'		Architectural grade with excellent resistance to blanching and increased flexibility
	Uralac® P 8282	96.4/3.6		•	23-27	10-50	56		15'		Architectural grade with excellent degassing properties and excellent flow/appearance properties
	Uralac® P 833	97/3	•	•	19,5-22,5	36-96	62		10'		Low level HAA for architectural purpose, low gloss in dry blend formulation with Uralac® P 870
	Uralac® P 835	96.5/3.5	•	•	20-24	40-80	60		10'		Low level HAA for general purpose, dry blend low gloss in combination with Uralac® P 870
	Uralac® P 837	97/3	•	•	19-23	30-70	58	17'/170°C	10'	6'	Low level HAA resin, suitable for dry blend matte with Uralac® P 877
	Uralac® P 838	96.4/3.6		•	24-26	26-48	60		10'		Low level HAA for architectural purposes, good grindability, suitable for dry blend low gloss with Uralac® P 870
	Uralac® P 839	96/4		•	23-27	30-60	59		10'		Architectural type resin, good overall properties
	Uralac® P 855	95/5		•	33-37	26-46	59		10'		Fast cure, good yellowing resistance
	Uralac® P 865	95/5		•	33-37	12-32	56		10'		Good flow, architectural type
	Uralac® P 867	95/5		•	33-37	33-55	64		10'		Architectural type with improved powder stability, anti-drip, high Tg resin, good blanching resistance
	Uralac® P 870	93/7	•	•	50-54	30-55	58	15'			Low temperature architectural type, low gloss in dry blend formulation with Uralac® P 835 or Uralac® P 833
	Uralac® P 877	93/7	•	•	49,5-53,6	30-55	58	15'			Low temperature architectural resin, low gloss in dry blend formulation with Uralac® P 837
	Uralac® P 880	90/10	•	•	72-78	10-18	51		10'		Architectural+ type low gloss dry blend in combination with Uralac® P 800 or Uralac® P 833 , superdurable performance in light colors
	Uralac® P 895	95/5		•	32-38	5-45	57		15'		Good flow, improved exterior durability compared to Uralac® P 865

*Tribo chargeable when processed under controlled conditions
** Total oven time

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Uralac® resins for HAA (β-Hydroxyalkylamide) cure

Carboxylated Powder Coating Resins	PRODUCT NAME	RATIO PE / HAA	SUITABLE FOR DRYBLEND	TRIBO*	ACID VALUE TM-2400	VISCOSITY TM-2727	Tg TM-2076	CURE CYCLE 160°C**	CURE CYCLE 180°C**	CURE CYCLE 200°C**	REMARKS
Superdurable	Uralac® P 3230, EasyCure	93/7		•	50-54	20-30	50	12'	6'		Low bake, good flow, non blooming, superdurable type
	Uralac® P 3231, EasyCure	93/7		•	49,5-53,5	20-60	56	12'	6'		Low bake/ Fast cure, good flow, non blooming, superdurable type, higher Tg version Uralac® P 3230
	Uralac® P 3233, EasyCure	97/3	•		18-22	40-80	57	12'			Low level HAA superdurable grade for low bake or fast cure, can be used for dry dry blending low gloss with Uralac® P 3238
	Uralac® P 3238, EasyCure	92/8	•		46-60	15-45	64	12'			High level HAA superdurable grade for low bake or fast cure , can be used for dry blending low gloss with Uralac® P 3233
	Uralac® P 6800	94/6			41-46	25-65	64		15'		Superdurable type, low gloss in dry blend formulation with Uralac® P 883
	Uralac® P 7684, Corres	96/4			26-30	10-50	61		15'		SD resin, Same corrosion protection as pre-treatment or epoxy primer
	Uralac® P 800	96/4	•	•	26-30	21-41	61		15'		Superdurable type, good water & chemical resistance
	Uralac® P 883	97/3	•	•	18-22	27-57	63			10'	Superdurable low level HAA, low gloss in dry blend formulation with Uralac® P6800
	Uralac® P 8855, Non blanching	95/5			33-37	15-55	60		12'		Superdurable type with excellent resistance to blanching
	Uralac® P 886	95/5			33-37	9-29	60		15'	10'	Superdurable type, improved flexibility
	Uralac® P 8885	91,5/8,5	•	•	58-62	70-110	67	15'	6'		High level HAA superdurable grade for low bake or fast cure, can be used for dry blending low gloss with Uralac® P 8830

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** Total oven time

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Uralac® resins for TGIC (Triglycidyl Isocyanurate) Cure

Carboxylated Powder Coating Resins	PRODUCT NAME	RATIO	SUITABLE FOR DRYBLEND	TRIBO*	ACID VALUE TM-2400	VISCOSITY TM-2727	Tg TM-2076	CURE CYCLE 160°C**	CURE CYCLE 180°C**	CURE CYCLE 200°C**	REMARKS	
		PE / TGIC										
Industrial	Uralac® P 3217, EasyCure	93/7			32–36	15–45	58	12’		8’	4’	General industrial grade, low temperature/fast cure, good storage stability
	Uralac® P 3291, EasyCure	93/7		•	32–38	25–65	64	15’/140°C				General industrial grade, low temperature/fast cure, non blooming, suitable for heat sensitive substrate
	Uralac® P 3700	93/7			34–40	50–85	61	15’		10’	6’	General industrial grade, fast cure, suitable for textured surface
	Uralac® P 4600	94/6			28–32	30–60	62				10’	General industrial grade, low TGIC level resin
	Uralac® P 4607	94/6			28–32	30–60	62			15’	10’	General industrial grade, heat resistance resin, good yellowing resistance and over baking resistance
	Uralac® P 4612	93/7			32–36	20–60	64				10’	General industrial grade, high Tg, good flow and flexibility
	Uralac® P 4613	93/7		•	32–36	20–60	64				10’	General industrial grade, high Tg, good flow and flexibility, tribo enhanced version of Uralac® P 4612
	Uralac® P 4615	93/7			32–36	20–50	63				10’	Excellent boiling water resistance
	Uralac® P 4617	93/7			32–36	20–60	64			14’		Fast cure version of Uralac® P 4612
	Uralac® P 4618	93/7			32–36	20–60	64				10’	Enhanced resistance against contamination, high Tg, good flow and flexibility
	Uralac® P 4910	94/6			28–32	35–75	62			12’	8’	Fast cure version of Uralac® P 4900 for general industrial grade
	Uralac® P 7620, Corres	93/7			32–37	55-95	70				10’	GI resin, Same corrosion protection as pre-treatment or epoxy primer
Architectural	Uralac® P 2200	90/10	•		48–55	34–54	64			15’	8’	High crosslinking level, high coating Tg, suitable for dry blend matte
	Uralac® P 2240	90/10	•	•	51–56	75–115	69			10’	6’	High crosslinking level, high Tg, high coating Tg, good outdoor durability and mechanical properties
	Uralac® P 2244	90/10	•		48–55	72–122	68	15’		10’	6’	High Tg, good chemical resistance
	Uralac® P 2246	90/10	•		48–55	72–122	72			8’		Uralac® P 2244 with higher reactivity, better boiling water resistance, good paper releasing. Dry blend matte with Uralac® P 4905
	Uralac® P 2400	93/7			32–38	55-95	68				10’	Standard TGIC resin, good cure-flow balance, high Tg
	Uralac® P 3226, EasyCure	93/7			33–37	15–45	60	15’		8’		Architectural grade, low temperature cure with excellent flow, non blooming
	Uralac® P 3227, EasyCure	93/7			33–37	15-45	60	10’				Low bake/Fast cure, excellent flow, non blooming at cure, and architectural grade
	Uralac® P 3400	93/7			32–38	55-95	68				13’	Slow cure resin, very good flow, high Tg, economical resin
	Uralac® P 3900	93/7			32–38	40–70	65			15’	10’	Architectural grade, good flexibility, non blooming
	Uralac® P 4900	94/6			28–32	40–70	62			15’	10’	Good mechanical properties
	Uralac® P 4901	94/6		•	28–32	40–70	61			15’	10’	Tribo enhanced version of Uralac® P 4900
	Uralac® P 4905	96/4	•		18-22	75-115	63				12’	Low level TGIC, suitable for structure, suitable for dryblend matt with Uralac® P 2240
	Uralac® P 4907	93/7			32–36	20–60	64				10’	Architectural grade, good over baking resistance and excellent yellowing resistance
	Uralac® P 4908	92/8			40–44	10–40	64				10’	Architectural grade, can be used for heat transfer printing, excellent paper releasing
	Uralac® P 4915	93/7			33–37	50–80	69				12’	Architectural grade, good boiling water resistance
	Uralac® P 4924	93/7			32–38	55–95	68			10’		Architectural grade, high Tg, good yellowing resistance
	Uralac® P 5200	93/7			32–38	35-55	65			15’		Good flow-cure balance, high Tg and good exterior durability
	Uralac® P 5201	93/7		•	32–38	35-55	65			15’		Tribo enhanced version of Uralac® P 5200
	Uralac® P 5240	93/7			32–38	35–55	64				12’	Good balance between reactivity and flow, excellent outdoor durability
	Uralac® P 5241	93/7		•	32–38	35–55	64				12’	Tribo enhanced version of Uralac® P 5240
	Uralac® P 5300	93/7			32–38	35–55	64				15’	Excellent flow, high Tg
	Uralac® P 5301	93/7		•	32–38	35-55	64				15’	Tribo enhanced version of Uralac® P 5300

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** Total oven time

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Uralac® resins for TGIC (Triglycidyl Isocyanurate) Cure

Carboxylated Powder Coating Resins	PRODUCT NAME	RATIO PE / TGIC	SUITABLE FOR DRYBLEND	TRIBO*	ACID VALUE TM-2400	VISCOSITY TM-2727	TG TM-2076	CURE CYCLE 160°C**		CURE CYCLE 180°C**	CURE CYCLE 200°C**		REMARKS
Architectural	Uralac® P 5900	93/7			32–38	25–53	63			25'	15'		Architectural grade, slow cure, excellent flow
	Uralac® P 5901	93/7		•	32–38	25–53	63				10'		Excellent flow, good appearance
	Uralac® P 5959	93/7		•	32–38	25–53	63				15'		Architectural grade, slow cure, excellent flow
	Uralac® P 6300	93/7			33–37	65–105	69				12'		Architectural grade with good flow and high Tg
	Uralac® P 6310	93/7			32–36	20–60	65				10'		Architectural grade with good mechanicals
	Uralac® P 6313	93/7			32–36	25–45	64				10'		Architectural grade with good overall properties
	Uralac® P 6336	93/7			31–35	40–80	69				10'		Well yellowing resistance in gas baking, high Tg, good exterior durability
	Uralac® P 6337	93/7			31–35	40–80	69			10'			Architectural grade, fast reactivity
	Uralac® P 6401	93/7		•	32–38	26–46	60			20'	10'		High Tg version of Uralac® P 5401
	Uralac® P 6701	93/7		•	32–38	26–46	59	15'					Low temperature, fast cure combined with good flow, suitable for textured
	Uralac® P 6711	93/7		•	32–36	20–60	64				10'		Tribo enhanced version of Uralac® P 6310
	Uralac® P 6753	93/7			32–38	35–55	64				15'		Architectural grade, excellent flow, high Tg
Semi Superdurable	Uralac® P 3600	93/7			32–38	35–75	68				15'		Semi superdurable, better outdoor durability than Uralac® P 5300 / P 5200
Superdurable	Uralac® P 5500	90/10			46–54	37–67	60				15'		Superdurable type, high TGIC content, limited flexibility but good adhesion
	Uralac® P 6600	93/7			30–36	25–65	58				10'		Superdurable standard TGIC cure resin
	Uralac® P 6620	93/7			30–36	10–20	62				15'		Superdurable grade, high degassing limit with good flow
	Uralac® P 6625	93/7		•	32–36	20–40	62				15'		Tribo enhanced version of Uralac® P 6620

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** Total oven time

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Uralac® resins for Isocyanate cure

Hydroxylated Powder Coating Resins	PRODUCT NAME	RATIO PE / NCO	TRIBO**	HYDROXY VALUE TM-2432	VISCOSITY TM-2727	Tg TM-2076	CURE CYCLE 160°C**		CURE CYCLE 200°C**		REMARKS
Industrial	Uralac® P 1425, OSM	45/55		280-300	5-45	51				10'	High OHV resin, especially designed for One shot matte coatings with Uralac® P 1475
	Uralac® P 1475, OSM	82/18		41-45	70-100	58				10'	Low OHV resin, especially designed for One shot matte coatings with Uralac® P 1425
	Uralac® P 1630	85/15		27-33	35-95	62				10'	Low OHV resin, excellent flow, good flexibility and good yellowing resistance
Architectural	Uralac® P 6504	80/20		35-45	42-62	64				10'	Robust OH resin, high Tg
Superdurable	Uralac® P 1550	80/20		38-45	12-27	57				15'	Superdurable grade, high OHV resin, especially designed for hyperdurable combination with fluoropolymers
	Uralac® P 1580	70/30		75-90	8-28	52				15'	Superdurable type, anti-graffiti, very good flow, suitable for ACE
	Uralac® P 1625, OSM	45/55		220-240	20-30	51				10'	Superdurable grade, high OHV resin, especially designed for One shot matte coatings with Uralac® P 1675
	Uralac® P 1651	85/15		27-33	30-90	60				10'	Superdurable grade, low crosslinker content, high Tg
	Uralac® P 1675, OSM	86/14		28-32	15-45	54				10'	Superdurable grade, low OHV resin, especially designed for One shot matte coatings with Uralac® P 1625
	Uralac® P 1680	85/15		25-35	10-30	55				15'	Superdurable grade, low OHV resin, especially designed for low crosslinker content and robust properties

Uralac® resins for Epoxy resin cure

Carboxylated Powder Coating Resins Polyester / Epoxy	PRODUCT NAME	RATIO PE / EPOXY	TMA-FREE	SUITABLE FOR DRYBLEND	TRIBO*	ACID VALUE TM-2400	VISCOSITY TM-2727	Tg TM-2076	CURE CYCLE 160°C**		CURE CYCLE 180°C**	CURE CYCLE 200°C**	REMARKS
70/30	Uralac® P 2681	70/30	•		•	32-38	25-65	64				8'	High Tg, very good flow, good price performance resin for general purpose
	Uralac® P 3450	70/30	•			34-40	40-70	55		15'			Fast curing 70/30 hybrid, suitable for structure
	Uralac® P 3775, EasyCure	70/30	•		•	34-38	15-45	58		12'		6'	Fast cure, non-blooming, high flexibility
	Uralac® P 4035	70/30	•		•	32-38	20-40	58			10'	8'	General economical resin
	Uralac® P 4135	70/30	•		•	32-38	20-40	57			10'		Good price performance resin for general purpose, very good flow
	Uralac® P 4235	70/30	•		•	33-37	20-60	52			15'		Good price performance resin for general purpose, good appearance, suitable for textures
	Uralac® P 4236	70/30	•			33-37	10-50	60			10'		General economical resin, excellent appearance
	Uralac® P 5071	70/30			•	32-38	22-39	52			10'		Tribo enhanced version of Uralac® P 5070
	Uralac® P 5091	70/30			•	29-35	25-65	65				10'	70/30 hybrid resin, slow cure, excellent flow, high Tg
	Uralac® P 5179	70/30	•		•	33-37	21-41	59			18'	12'	Tribo enhanced version of Uralac® P 5178
	Uralac® P 7630, Corres	70/30	•			34-38	20-60	55			12'		Hybrid resin, same corrosion protection as epoxy primer, good flexibility
	Uralac® P 776, Hitone	70/30	•		•	33-39	20-50	62				12'	Tribo enhanced version of Uralac® P 775 , excellent flow with high pigment/fillers loading

* Tribo chargeable when processed under controlled conditions
** Total oven time

This overview gives the key properties of a broad selection of resins. The product specifications were correct at the time of printing but may change from time to time. We recommend that you contact your local Sales Office for comprehensive information on our full range of products.

Uralac® resins for Epoxy resin cure

Carboxylated Powder
Coating Resins
Polyester / Epoxy

	PRODUCT NAME	RATIO PE / EPOXY	TMA-FREE	SUITABLE FOR DRYBLEND	TRIBO*	ACID VALUE TM-2400	VISCOSITY TM-2727	Tg TM-2076		CURE CYCLE 160°C**	CURE CYCLE 180°C**	CURE CYCLE 200°C**	REMARKS
60/40	Uralac® P 2612	60/40				47–57	7–23	54			15'	10'	Excellent chemical resistance, good flow, medium curing speed, good pigment wetting, well gas resistance
	Uralac® P 4065	60/40				49–55	20–70	59			15'		General economical resin, good storage stability
	Uralac® P 4141	60/40				49–55	15–55	63		15'	10'	6'	60/40 hybrid resin, good flow, high Tg
	Uralac® P 4240	60/40	•		•	49.5-53.5	25-55	53			15'	10'	Slow cure, good flow
	Uralac® P 4260	60/40	•			49–55	20–70	62			15'		More stable Uralac® P 4065 , high Tg
	Uralac® P 5042	60/40				52-58	20–40	57			12'	8'	Slow cure, good flow and flexibility
	Uralac® P 5061	60/40	•		•	47–55	22–44	55				12'	Excellent flow, TMA free
	Uralac® P 5068	60/40			•	47–55	10–50	56				10'	60/40 hybrid resin, slow cure, excellent flow
	Uralac® P 5263	60/40			•	48-58	16-46	57				10'	Good flowing standard hybrid resin
	Uralac® F 5340, Food grade	60/40				48-58	7-27	50			15'		Non-technical grade, slow cure and external catalyst needed, suitable for FDA applications
	Uralac® P 6051	60/40				49–55	15–35	58				10'	60/40 hybrid resin, suitable for wheel hub primer
	Uralac® P 6060	60/40				52–58	20–40	56			18'	10'	Excellent flow and appearance, suitable for thin coating
	Uralac® P 6061	60/40			•	52–58	20–40	57			18'	10'	Tribo enhanced version of Uralac® P 6060 , excellent flow and appearance, suitable for thin coating
	Uralac® P 6062	60/40			•	41.5–45.5	20–60	61			15'		High Tg, good storage stability, good flow and appearance
	Uralac® P 6066	60/40				49–55	25–50	62			10'		Excellent flow with high pigment/fillers loading
	Uralac® P 6067	60/40				47–57	15–45	57				20'	Suitable for wheel hub primer, excellent performance
	Uralac® P 6069, EasyCure	60/40				48–58	10–40	55		15'	10'		Low temperature/fast cure hybrid resin, good flow
	Uralac® P 765, HiTone	60/40				48-58	10-60	60				10'	High Tg version of Uralac® P 760
	Uralac® P 766	60/40			•	48–58	10–60	64			17'	10'	Tribo enhanced version of Uralac® P 765
50/50	Uralac® P 2064	50/50				75–95	50–80	72		30'		10'	High Tg, good hardness, excellent mechanical properties
	Uralac® P 3050, EasyCure	50/50		•		70-85	20-50	67		3/150°C			High Tg grade for good storage stability, low bake or fast cure, suitable for heat sensitive substrates
	Uralac® P 3150, EasyCure	50/50				80-90	10-50	63		30'/135°C, 6'/160°C		4'	Low bake or fast cure resin with high Tg for indoor applications
	Uralac® P 3250, EasyCure	50/50		•		70-85	7-17	53		30'/135°C, 6'/160°C		4'	Low bake, suitable for low temperature curing systems and heat sensitive substrates
	Uralac® P 4052	50/50				75–85	5–25	57		15'	10'	6'	50/50 hybrid resin, excellent appearance
	Uralac® P 4055	50/50			•	68–76	20–50	58			10'		Economical resin, good flow and flexibility
	Uralac® P 4155	50/50	•		•	68–76	20–50	58			10'		Economical 50/50 hybrid resin
	Uralac® P 5127	50/50				69-79	18-38	58			10'		General purpose type, good flow and good storage stability
	Uralac® P 5980	50/50				69–79	18–38	58		15'			Low bake/fast cure version of Uralac® P 5127

* Tribo chargeable when processed under controlled conditions
** Total oven time

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TM-2400 Acid value, mg KOH necessary to neutralise the acidic constituents in 1g polyester resin
TM-2432 Mg KOH necessary to neutralise the quantity of acetic acid required to react with the hydroxyl groups in polyester 1g resin
TM-2727 Viscosity of PCR using the Brookfield CAP 2000+H Viscometer, reported in Pa.s
TM-2076 Glass transition temperature (°C), determined by differential scanning calorimetry at a heating rate of 5°C/min (DSC Mettler TA 3000)
TMA-free free from trimellitic anhydride (TMA)

Crelan® Isocyanate Crosslinkers

The Crelan® products from Covestro are a range of high – performance crosslinkers, used in polyurethane powder coatings.

The Crelan® isocyanates are used primarily in polyester/ polyurethane systems but also in Fluorocarbon resins/polyurethane and OH-Acrylic/ polyuratanesystems. The Crelan® products are manufactured in world – class facilities. They are available as small, almost colorless flakes which are easy to handle.

Crelan® product line for powder isocyanate hardners

Crelan® Blocking agent – free crosslinker	EMEA	APAC	NMA	BASIS	NCO [%] (APPROX.)	EEW (APPROX.)	CURE CYCLE**	Tg-VALUE	REMARKS
	AVAILABILITY								
EF 403	X	X	X	IPDI	13,5	310	10'-15' 200 °C	45-55 °C	This blocking agent – free crosslinker is based on uretdione chemistry. It emits neither blocking agents or water during the crosslinking reaction. When combined with suitable hydroxyl – bearing polyester resins, the low – melt viscosity of the hardener results in outstanding leveling, good outdoordurability, chemical resistance and gloss, in both clear and pigmented coatings. The EF 403 is very suitable for OSM-PU-systems.

Crelan® Caprolactam – blocked crosslinkers	EMEA	APAC	NMA	BASIS	NCO [%] (APPROX.)	EEW (APPROX.)	CURE CYCLE**	Tg-VALUE	REMARKS
	AVAILABILITY								
VP LS 2256	X	X	X	IPDI	14,6	280	10'-15' 180 °C	41-53 °C	This product is a caprolactam – blocked aliphatic – based isocyanate. Coatings based on this product are characterized by their excellent flow properties, excellent outdoordurability and high gloss in combination with good anti – corrosive properties in both clear and pigmented coatings. LS 2256 is very suitable for OSM-PU-systems.
UI	X	X		IPDI	11,5	365	10'-15' 190 °C	60-65 °C	This specialty product is based on a caprolactam – blocked aliphatic isocyanate. The product is charaterized by excellent flow properties, high flexibility, high gloss and good stability in outdoor weathering. UI is also used to improve the flexibility or chemical resistance of hybrid powder coatings when added in low concentrations to react with the rest OH-value of the polyester resin.
NI-2			X	IPDI	15,0	280	10'-15' 190 °C	55-60 °C	This product is a caprolactam – blocked aliphatic – based isocyanate which provides coatings with smooth, wet – look appearance at low film builds. NI-2 is developed for powder coatings with an excellent flow and corrosion resistance.
NW-5			X	H12MDI	14,0	335	10'-15' 170 °C	48-58 °C	This product is based on H12MDI and provides the formulator with smooth, higher performing films that require a lower deblocking temperature. NW-5 is a more reactive isocyanate with an out standing performance in flexibility, outdoor durability chemical resistance and corrosion properties.

** Total oven time, cure cycle is an indication and based on non catalysed resins, cure cycles can be shortend by the addition of a tin catalyst



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¹Please see the "Guidance on Use of Covestro Products in a Medical Application" document.

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