



## Dispersions

Bayhydrol® Bayhydur® Baybond®  
Bayhytherm® Desmodur®  
Impranil® Impraperm® Dispercoll®







Bayhydrol® Bayhydur® Baybond® Bayhytherm® Desmodur® Impranil® Impraperm® Dispercoll®



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## Covestro – leading in material solutions

As the world's leading manufacturer of aliphatic and aromatic polyisocyanates, Covestro offers an extensive range of innovative products and solutions for the coatings and adhesives industries. As your customers become more demanding in their expectations for the quality, durability, workability and sustainability of your products, we can help you to turn these challenges into a competitive advantage. That is what drives us to push the boundaries of what is possible.

The key to creating added value for you, our customers, as well as for society and the environment is innovation. At Covestro, we innovate not only to address the key global challenges of population growth, urbanization, climate change, digitalization and increasing mobility; we innovate to have a sustainable business that enables us to live up to our business purpose of "making the

world a brighter place." In the final analysis, this comes down to developing sustainable solutions that take the entire life cycle of a product into account. We are increasing our on-site efficiency, e.g., by recycling salt and water in our production plants. We are expanding our resource base, e.g., by turning CO<sub>2</sub> into a raw material in the manufacturing of plastics. And we are developing materials that are more energy-efficient and save natural resources.

In our Coatings, Adhesives, Specialties (CAS) segment, we systematically develop and supply aliphatic and aromatic isocyanates and their derivatives as well as polyurethane dispersions. Our raw materials are used for coatings, adhesives, sealants and specialty products, such as elastomers, high-quality films, 3D printing products, cosmetics, textiles and medical products.

The main application areas are in the automotive, transportation, infrastructure, construction, wood processing and furniture industries. In this segment our innovative efforts are focusing on enhancing efficiency, improving quality, boosting sustainability and environmental aspects such as reducing solvent content.

We are proud of over 80 years of groundbreaking innovations. But we are not defined by our past. Even with decades of experience behind us, Covestro remains a young enterprise. In a corporate world that can often be dull and uninspiring, we want to act in a curious, courageous, and colorful way: trying out new things, questioning established ways, and pushing boundaries – for your benefit.



# Aqueous dispersions – an innovative and eco-friendly platform

## **Pioneering polyurethane chemistry**

Ever since the Otto Bayer's discovery of the polyisocyanate polyaddition process in 1937, Bayer – now Covestro – has pioneered polyurethane chemistry. 50 years ago, Bayer – now Covestro – developed the first applications using polyisocyanates for the coatings and adhesives sectors. We work closely with our customers to systematically advance the state of the art in polyurethane technology. Using market-oriented research and development, we specifically adapt our product portfolio to our customers' increasingly stringent requirements. Together with you, we want to continue our successful journey along this path.

## **High-performance waterborne portfolio**

As one of the leading producers of coating and adhesive raw materials, we offer a comprehensive range of high-grade raw materials for polyurethane coatings and adhesives. The demand for ecological technology is steadily growing and has greatly accelerated the shift away from solvent-borne coatings and adhesives to 100% solids and waterborne systems. With our ecological technology platform we offer a wide variety of aqueous dispersions for the coatings and adhesives market. Our mission is to provide competitive advantages for our customers: eco-friendly products with superior quality and performance to enable highly efficient coating and bonding processes. We are continuously developing innovative dispersions to complement our range of waterborne products based on a variety of chemistries – polyurethane, polyacrylate, and polyester dispersions.



Depending on your requirements and cost-performance demands, we can offer the most attractive formulation option based on a 1K or 2K system.

#### **Main application areas**

The most important areas of application for our waterborne coating raw materials are wood and furniture coatings, metal and plastic coatings for industrial applications, high-grade floor coatings, automotive OEMs, transportation vehicle and refinishing coatings and textile coatings. Moreover, we offer specialty products for glass fiber sizes and applications in the paper and printing ink industries.

As a fast-growing and highly promising segment for waterborne coatings technology, UV-curing polyurethane dispersions combine fast curing with excellent coating properties. Firmly established in wood coatings and growing in plastics coatings, we are continuously extending our range to include additional applications.

Our waterborne adhesive raw materials are first choice in heat-activated bonding applications from 3-D film lamination in the furniture industry and heat lamination for car interior trims to bonding footwear. Besides the classical foam bonding market, more and more applications are now emerging for our waterborne contact adhesives.

Why not check out our waterborne product lines: Bayhydrol® and Bayhytherm® for coating applications, Dispercoll® for adhesives applications, Impranil® for textile applications, and Baybond® for glass fiber sizes. In combination with our polyisocyanate crosslinkers Desmodur® and Bayhydur® we offer superior system solutions for 2K or 1K stoving applications.



## What we do

As a world-leading polymer and material science company, we inspire innovation and drive growth through profitable products and technologies that benefit society and reduce the impact on the environment.

## Who does all this?

It's our people! And the way we work together as one global team following a set of six elementary principles – value creation, sustainability, innovation, focus on people, safety, and fair play. This is our formula for success.



## What this means for our Coatings, Adhesives & Specialties business

### Quality & supply security

Our products are of outstanding quality and we offer supply security – worldwide.

Covestro, the world's leading manufacturer of aliphatic and aromatic polyisocyanates, offers an extensive range of raw materials and services for the coatings and adhesives industry. This allows the very latest technology to be used extremely effectively for a variety of applications.

Our global setup enables you to increase your competitive advantage.

### What we offer:

- A global network of research & development centers where our staff are dedicated to offering solutions for the coatings and adhesives industry.
- A unique setup and worldwide network of state-of-the-art production sites ensuring short lead times and supply chain flexibility.
- Outstanding product quality through fulfilling the requirements of state-of-the-art quality, environmental and safety (HSEQ) as well as energy management standards; we are proud of having enjoyed ISO 9001, ISO 14001, ISO 18001 and ISO 50001 certifications for many years.

Covestro is your reliable partner for polyurethane chemistry.



### Solutions to enhance your process efficiency

Nowadays, the quality demands made on industrial processes are very high. This is equally true of the cost-cutting requirements. However, both goals can be achieved by increasing process efficiency. At Covestro, we have a wide range of solutions designed to enhance your process efficiency. Why not take advantage of our know-how? These solutions will benefit your bottom line.

### Sustainability

Sustainability is at the heart of the Covestro strategy. We inspire innovation and drive growth through profitable products and technologies that benefit society and reduce the impact on the environment.

Our coatings, adhesives and specialty products and solutions contribute to sustainability through:

- **Food contact**

Any comment on food or drinking water contact for products exclusively refers to the regulation quoted in the table: please request a Declaration of Compliance before use. For any such uses which require compliance

with another judicial area or national legislation, the corresponding legal assessment needs to be performed prior to any application of a product in the field.

- **Saving energy – fast and smart**

Polyurethane systems represent a benchmark in productivity and process efficiency in many industries. We strive to further push the limits of efficiency by developing game-changing new solutions.

- **Reducing waste**

We offer solutions such as innovative 1K technologies that enable our value chain partners to use materials more efficiently and reduce waste.

- **Cutting emissions**

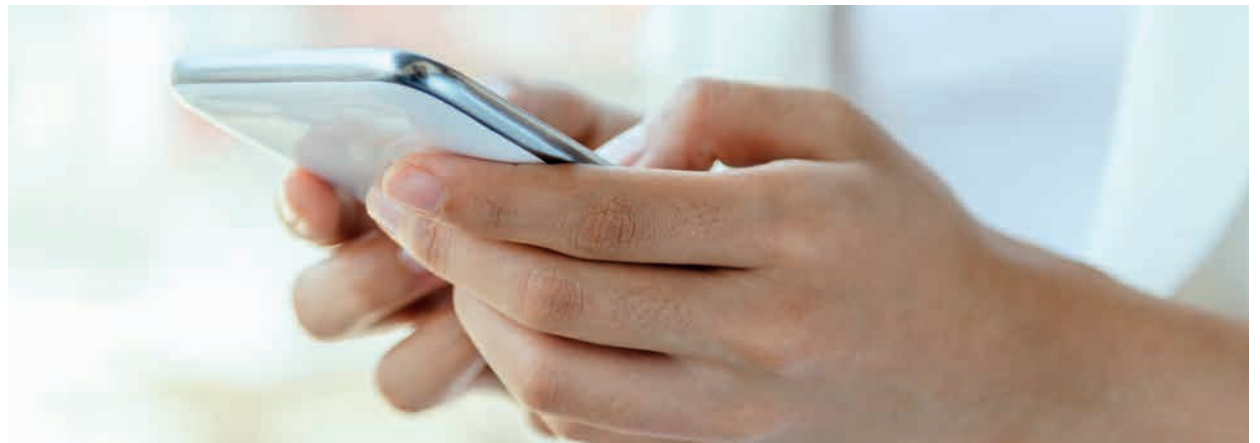
Bayhydur® and Desmodur® grades are key enablers for low-emission solutions in the coatings and adhesives industries – waterborne and high solids/100% solids!

- **Responsible management of natural resources**

Highly durable PU-based coatings and adhesives significantly extend the lifetime of a coated product and thus help to prolong resource use.

- **Closing the loop (circularity)**

Through economically viable products made from bio-based raw materials – with no deterioration in performance – we help our customers and value chain partners to reduce their carbon footprint and offer solutions that incorporate renewable building blocks.



# Bayhydrol® A

Building blocks for high-end & low-VOC water-based coatings systems that match solvent-borne performance.



## Primary acrylic polyol dispersions for waterborne 1K and 2K PUR & 1K PUR stoving systems

	NON-VOLAT. CONTENT APPROX. [%]	NEUTRALIZATION AGENT	OH CONTENT [%] ON SOLIDS	T <sub>g</sub> APPROX. [°C]	MFT [°C]	COMMENTS
<b>Bayhydrol® A 2846</b>	40	NH <sub>3</sub>	1.5	65	64	Self-crosslinking resin for 1K and cost-effective 2K coatings, fast drying, good chemical resistance, high hardness and long pot life.
<b>Bayhydrol® A 2427</b>	42	NH <sub>3</sub>	2.0	88	> 80	In 1K as well as in 2K formulations, fast drying, good adhesion to plastics.
<b>Bayhydrol® A 2457</b>	41	NH <sub>3</sub>	2.5	56	26	Good chemical resistance, outstanding water resistance.
<b>Bayhydrol® A 242</b>	42	NH <sub>3</sub>	4.0	29	< 0	Good chemical resistance.
<b>Bayhydrol® A 2546</b>	41	NH <sub>3</sub>	4.8	64	18	Outstanding chemical and water resistance, suitable for construction applications and also for fast sanding sealers.
<b>Bayhydrol® A 2865 XP</b>	<b>NEW</b> 40	NH <sub>3</sub>	–	78	> 80	Bayhydrol® A 2865 XP has been developed for combination with semi-crystalline PUR dispersions for adhesive applications.

## PES- or PC-modified secondary acrylic polyol dispersions for waterborne 2K PUR & 1K PUR stoving systems

	NON-VOLAT. CONTENT APPROX. [%]	NEUTRALIZATION AGENT	CO-SOLVENT CONTENT [%] IN SUPPLY FORM	OH CONTENT [%] ON SOLIDS	T <sub>g</sub> APPROX. [°C]	COMMENTS
<b>Bayhydrol® A 2861</b>	53	DMEA	PnB 1.2	3.5	–27	Mainly for air- and forced-drying coating systems with very high flexibility.
<b>Bayhydrol® A 2139/2</b>	47	DMEA	BDG 2.5	3.8	14	Fatty acid-modified, high gloss.
<b>Bayhydrol® A 2227/1</b>	42	DMEA	BG 7.0	3.8	29	For topcoats and primers with low co-solvent content (< 5%) and very good overbaking resistance.
<b>Bayhydrol® A 2058</b>	42	DMEA	BG 2.0	4.8	–2	Elastic, good adhesion to plastics, low VOC content.



# Bayhydrol® A



**Secondary acrylic polyol  
dispersions for waterborne  
2K PUR & 1K PUR stoving  
systems**

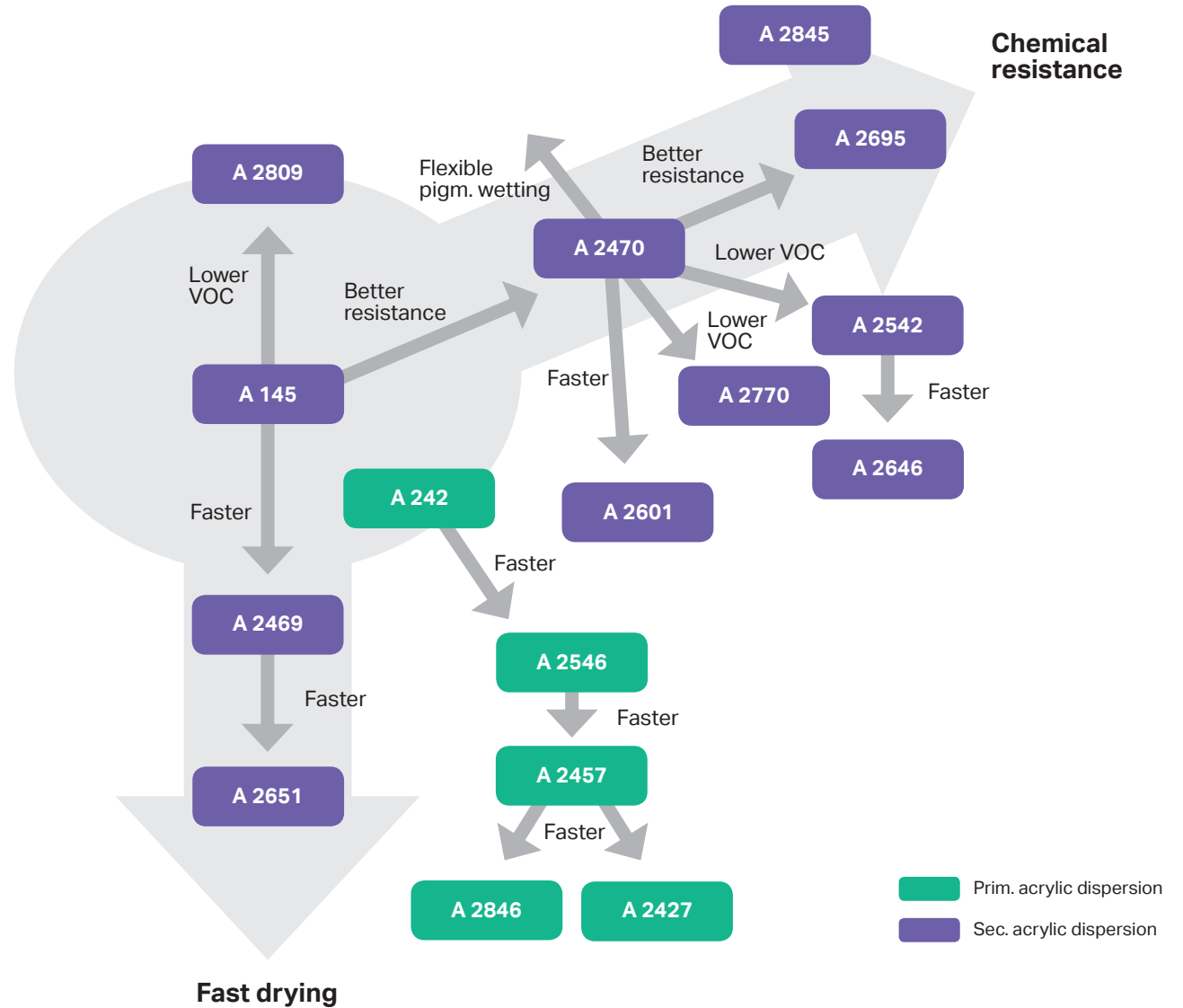
	NON-VOLAT. CONTENT APPROX. [%]	NEUTRALIZATION AGENT	CO-SOLVENT CONTENT [%] IN SUPPLY FORM		T <sub>g</sub> APPROX. [°C]	COMMENTS
				OH CONTENT [%] ON SOLIDS		
<b>Bayhydrol® A 2469</b>	45	DMEA	PnB 7.9	2.5	33	High gloss, cost-effective.
<b>Bayhydrol® A 2651</b>	41	DMEA	PnB 3.4	3.0	54	Fast drying, high chemical resistance, excellent grain accentuation ("Anfeuerung") on wood.
<b>Bayhydrol® A 145</b>	45	DMEA	SN 4/BG 4	3.3	36	Suited for high gloss, clear and pigmented topcoats and primers.
<b>Bayhydrol® A 2809</b>	48	DMEA	PnB 2.0	3.3	16	Suitable for high gloss, clear and pigmented topcoats and primers, low VOC. Good adhesion and good levelling properties.
<b>Bayhydrol® A 2542</b>	50	Triethanolamine	PnB 1.1	3.8	17	High gloss, good chemical and mechanical resistance, outstanding water resistance. Not recommendable for spray applications.
<b>Bayhydrol® A 2646</b>	50	Triethanolamine	PnB 1.1	3.8	15	Faster drying version of A 2542 with similar property profile. Not recommendable for spray applications.
<b>Bayhydrol® A 2470</b>	45	DMEA/ Triethanolamine	SN 4/PnB 4	3.9	59	For high-performance clear-/topcoats in various applications, excellent gloss, chemical & weathering resistance.
<b>Bayhydrol® A 2601</b>	45	DMEA/ Triethanolamine	SN 4/PnB 4	3.9	50	High gloss, high chemical resistance, very fast drying & curing, but with long pot life.
<b>Bayhydrol® A 2770</b>	44	DMEA	PnB 3.6	3.9	47	Low-VOC version of A 2470, faster drying.
<b>Bayhydrol® A 2845</b>	40	DMEA	PnB 3.2	4.5	31	High gloss, good chemical and weather resistance, low thermoyellowing, low VOC.
<b>Bayhydrol® A 2695</b>	41	DMEA/ Triethanolamine	PnB 7.2	5.0	53	For clear-/topcoats with high hardness, very high chemical and weather resistance, for primers and fillers with excellent corrosion protection properties.

# Bayhydrol® A

Building blocks for high-end & low-VOC water-based coating systems that match solvent-borne performance.

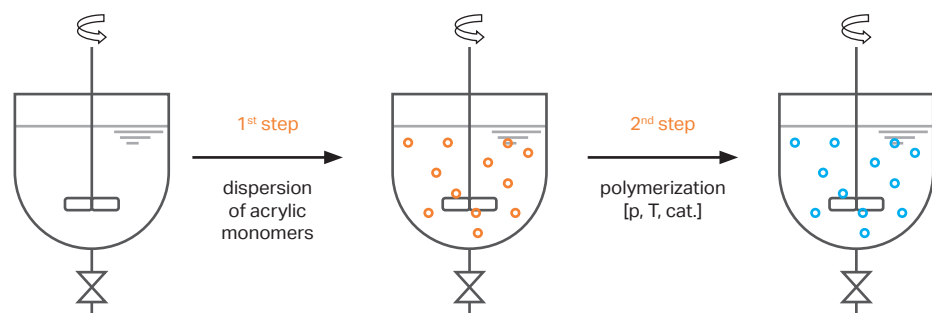
## Benefits of Bayhydrol® A types:

- Drying Speed
- Hardness
- Chemical and weather resistance





## Manufacturing procedures for acrylic primary dispersions



### Advantages

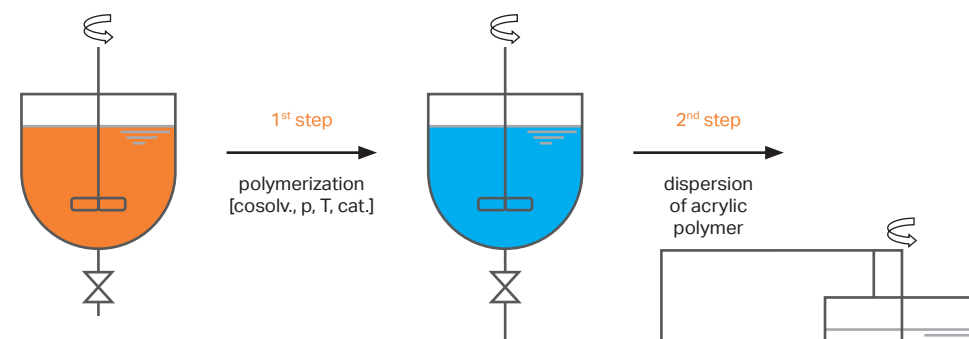
- No co-solvent necessary
- Quick drying properties
- Manufacturing process simple & cheap

### Disadvantages

- Little control of polymerization process
- High molecular weight
- In many cases bad levelling
- Low gloss, higher haze

Primary dispersion

## Manufacturing procedures for acrylic secondary dispersions



### Advantages

- Very good process control/ variations possible
- Effective emulsification of hydrophobic PIC
- Low molecular weight
- High gloss, low haze

### Disadvantages

- Co-solvent necessary
- Equipment & process more complex

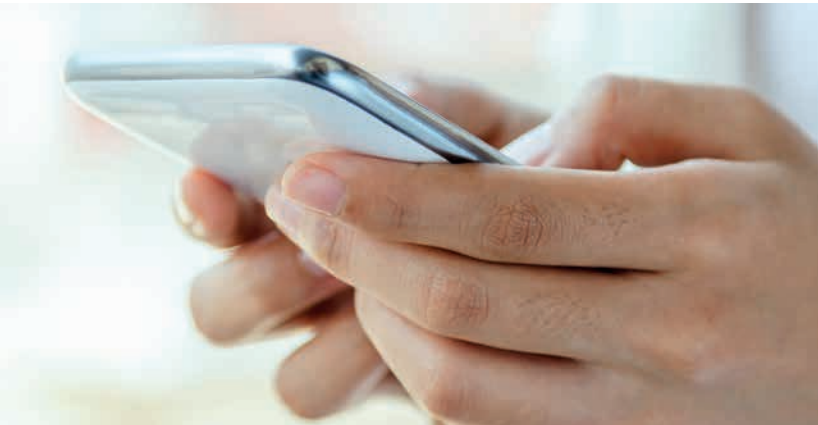
Secondary dispersion

# Bayhydrol® U

Elastic and durable OH-functional polyurethane dispersions for waterborne 2K coatings & 1K PUR stoving systems.  
Bayhydrol® U is manufactured without use of organic co-solvents.

## Aqueous polyurethane-polyol dispersions for waterborne 2K & 1K PUR stoving systems

	NON-VOLAT. CONTENT APPROX. [%]	NEUTRALIZATION AGENT	OH CONTENT [%] ON SOLIDS	T <sub>g</sub> APPROX. [°C]	COMMENTS
<b>Bayhydrol® U 2698</b>	52	DMEA	1.5	−40	Pure version of former Bayhydrol® U 355.
<b>Bayhydrol® U 2750</b>	41	DMEA	3.6	16	For high gloss, clear and pigmented topcoats and primers, outstanding weather resistance, marked self-healing effect after scratching.
<b>Bayhydrol® U 2755/1</b>	35	DMEA	3.0	60	Very fast drying, high hardness & chemical resistance. Excellent grain accentuation on wood. No odor. Near zero-VOC formulations possible.
<b>Bayhydrol® U 2757</b>	52	DMEA	1.8	−18	For plastic coatings incl. soft-feel, universal adhesion profile on plastics, good hydrolysis resistance, long pot life. Product also suitable for natural wood appearance.
<b>Bayhydrol® U XP 2766</b>	37	DMEA	4.0	51	Very high gloss for clearcoats and pigmented topcoats, fast drying, chemical resistance and hardness development, low thermoyellowing.
<b>Bayhydrol® U 2787</b>	41	DMEA	0.7	−37	For plastic coatings and also for highly haptic softfeel coatings. High shear stability, good hydrolysis and chemical resistance.





## Bayhydrol® UH

Fast-drying polyurethane dispersions for tough, durable and elastic waterborne coatings. Excellent for 1K formulations. Bayhydrol® UH is manufactured without use of organic co-solvents.



### Aqueous high molecular weight polyurethane dispersions for waterborne 1K PUR coatings

	NON-VOLAT. CONTENT APPROX. [%]	NEUTRALIZATION AGENT	MFT [°C]	T <sub>g</sub> APPROX. [°C]	COMMENTS
<b>Bayhydrol® UH 240</b>	40	Na salt	0	-50	For soft-feel coatings and flexibilization of 1K & 2K industrial coatings.
<b>Bayhydrol® UH 340/1</b>	40	Na salt	0	-45	Highly elastic for the flexibilization of hard PAC and PUR dispersions and 1K industrial coatings. For soft-feel coatings with excellent soft-touch effect.
<b>Bayhydrol® UH 650</b>	50	Na salt	0	-3	Air- and forced-drying basecoats for two-layer plastic coatings, combination resin for soft-feel coatings.
<b>Bayhydrol® UH 2305</b>	50	Na salt	0	-50	Highly elastic dispersion for primers and soft-feel coatings.
<b>Bayhydrol® UH 2660/1</b>	40	Na salt	0	-35	Combination resin for soft-feel coatings, improved stability against hydrolysis, solvents and suntan lotions.
<b>Bayhydrol® UH 2558</b>	37	TEA	24	-60	High hardness and abrasion resistance, tough and elastic, well suited for 2K applications.
<b>Bayhydrol® UH 2648</b>	35	TEA	0	-45	For the formulation of water-thinnable 1K- and 2K coatings with broad adhesion profile on different substrates, especially for plastic. Very suitable as flexibilizing co-binder. Well suited for metallic coating systems, fillers and topcoats.
<b>Bayhydrol® UH 2648/1</b>	35	DMEA	0	-45	For the formulation of water-thinnable 1K- and 2K coatings with broad adhesion profile on different substrates, especially for plastic. Very suitable as flexibilizing co-binder. Well suited for metallic coating systems, fillers and topcoats.
<b>Bayhydrol® UH 2606</b>	35	EDIPA	45	-45	Broad adhesion profile, high hardness and toughness, well suited for 2K formulations.
<b>Bayhydrol® UH 2952/1</b>	40	DMEA	0	-40	For metallic basecoats and primers, excellent stability against hydrolysis.

# Bayhydrol® UH



Fatty acid-modified polyurethane dispersions for waterborne 2K & 1K PUR coatings	NON-VOLAT. CONTENT APPROX. [%]	NEUTRALIZATION AGENT	MFT [°C]	T <sub>g</sub> APPROX. [°C]	COMMENTS
Bayhydrol® UH 2592	45	EDIPA	2	30	Oxidative drying. Co-solvent, drier and anti-skin agent not intentionally added. Wood exterior, industrial coatings with low VOC, excellent corrosion protection, primers and high-gloss topcoats, crosslinking with e.g. polyisocyanates possible, calculated OH-content: approx. 2% (on solids).
Bayhydrol® UH 2557	35	TEA	38	-8	Self-crosslinking, fatty acid-modified, pure waterbased alternative to former Bayhydrol® UH 2342, good abrasion resistance, good black-heel mark resistance.
Bayhydrol® UH 2593/1	35	TEA	60	103	Self-crosslinking, fatty acid-modified, good black-heel mark resistance and high hardness, improves drying speed as co-binder.
Bayhydrol® UH 2874	40	EDIPA	40	45	Oxidatively drying, developed for parquet coatings, excellent chemical and black-heel mark resistance, strong physical drying, 2K performance in 1K.
Bayhydrol® eco UH 2884 <b>NEW</b>	50	–	< 0	-42	First bio-based polyurethane dispersion for automotive softfeel coatings.
Bayhydrol® UH 2891	40	–	17	-55	Recommended for the formulation of elastomeric construction coatings, especially in terms of its high elongation, strong tensile strength, low water absorbtion and good weather stability

\* Calculated minimum content of carbon derived from bio-based raw material like fat and fatty acids. Confirmed by <sup>14</sup>C-Measurements according to ASTM D 6866:2008

# Bayhydrol® UA

**PAC-mod. aqueous  
high molecular weight  
polyurethane dispersion**

	NON-VOLAT. CONTENT APPROX. [%]	NEUTRALIZATION AGENT	MFT [°C]	T <sub>g</sub> APPROX. [°C]	COMMENTS
Bayhydrol® UA 2856 XP	35	DMEA	0	-45	For air- and forced-drying metallic basecoats, highly flexible stone chip primers, good shear stability, less sensitive against co-solvents.

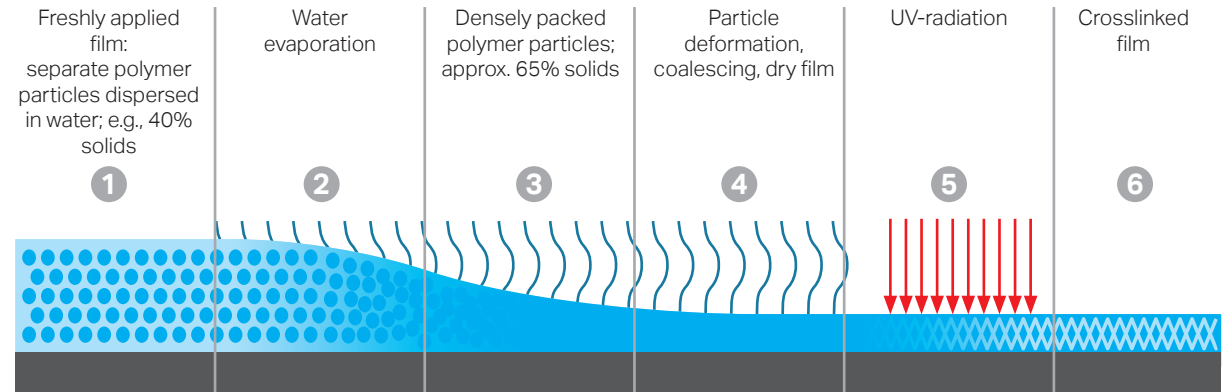




# Bayhydrol® UV

Bayhydrol® UV waterborne UV-curing resins

The most promising technology among the various environmentally friendly wood and plastic coating systems are UV-curing PU dispersions, and coatings based on them are growing very fast in the wood market. Their key property is their similarity to conventional PU coatings so that equal performance can be achieved using comparable application methods at similar or faster drying times.



## Radiation curing polyurethane dispersions

	NON-VOLAT. CONTENT APPROX. [%]	VISCOSITY AT 23°C APPROX. [mPa · s] D = 40 s <sup>-1</sup>	T <sub>g</sub> APPROX. [°C]	COMMENTS
Bayhydrol® UV 2282	39	160	−30	High chemical resistance, good grain wetting, physical drying, for all-around use (multicoat), does not contain intentionally added organotin compounds.
Bayhydrol® UV 2317/1	NEW 37	350	−29	High wet-film transparency, good grain wetting, physical drying, does not contain intentionally added organotin compounds.
Bayhydrol® UV 2280/1	NEW 39	60	76	Outstanding physical drying, good standard product for pigmented coatings.
Bayhydrol® UV 2687/1	NEW 45	150	53	PUR emulsion. Grain wetting, high solids, good adhesion, especially for clear coats.
Bayhydrol® UV 2689/2	NEW 42	100	−35	Highest crosslinking density, low physical drying, especially for wood and clear coats or single layer metallic coats. High gloss, high chemical resistance and high scratch resistance, does not contain intentionally added organotin compounds.
Bayhydrol® UV 2720/1	40	< 200	−23	Combines physical drying and highest crosslinking density, especially for pigmented systems, thermoformable before UV, does not contain intentionally added organotin compounds.
Bayhydrol® UV XP 2775	40	< 300	32	Excellent chemical and stain resistance, in white pigmented topcoats or matt clearcoats, does not contain intentionally added organotin compounds.
Bayhydrol® eco UV 2877	NEW 40	90	48	Self-crosslinking UV-curable polyurethane dispersion. Fast water release, high chemical resistance and shadow curing. Bio-based content calculated on supply form approx. 35%.

\* Calculated minimum content of carbon derived from bio-based raw material like fat and fatty acids. Confirmed by <sup>14</sup>C-Measurements according to ASTM D 6866:2008

# Bayhytherm® Bayhydur® BL Baybond®

The key to high coatings performance in 1K stoving applications



## Thermally activated waterborne poly- urethane crosslinker for 1K waterborne stoving systems

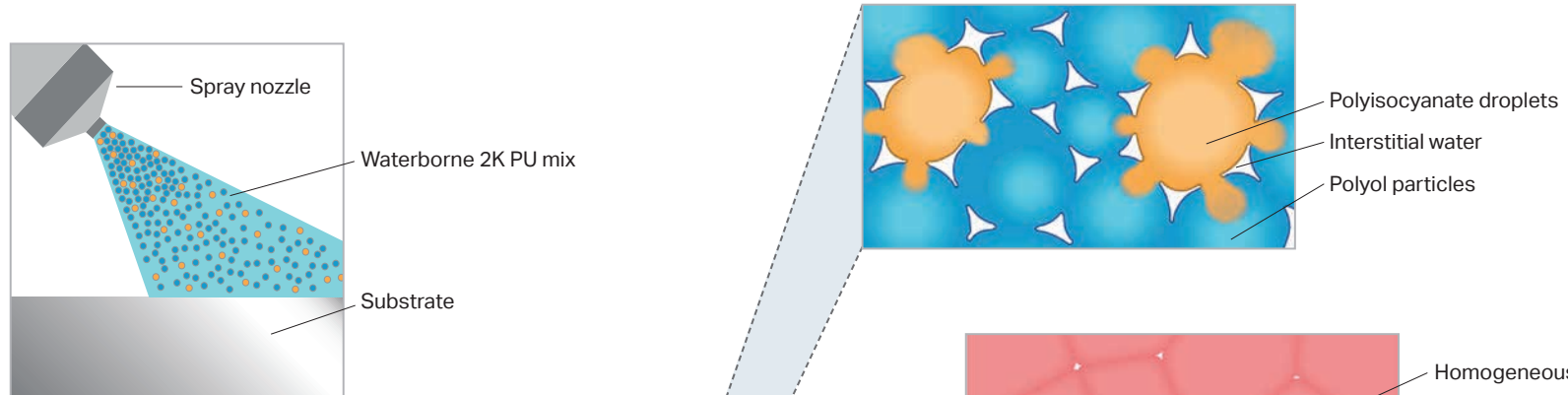
	TYPE	BLOCKING AGENT	SUPPLY FORM APPROX. [%]	VISCOSITY AT 23°C APPROX. [mPa · s]	CALCULATED BLOCKED NCO CONTENT ON SUPPLY FORM/ (RESIN) APPROX. [%]	EQUIVALENT WEIGHT APPROX.	COMMENTS
Bayhydur® BL XP 2706	HDI/IPDI	DMP	40 in water	< 2,500	3.3/(8.2)	1,275	High reactive, good chemical resistance, lowest thermal yellowing, neutralized with DMEA.
Bayhydur® BL 2867 <span>NEW</span>	HDI	DMP	38 in water	< 1,500	4.4/(11.5)	960	High reactive, lowest thermal yellowing, high flexibility and outstanding adhesion.
Bayhydrol® BL 2781	HDI	MEKO	37 in water	3,250	3.5/(9.5)	1,200	High flexibility, good adhesion, neutralized with DMEA.
Bayhydur® BL 5335	H <sub>12</sub> MDI	MEKO	35 in water/MPA/X	< 200	2.5/(7.1)	1,680	High flexibility, caustic resistance, limited UV stability.
Baybond® XL 6366	HDI	MEKO	45 in water	< 200	4.3/(12.5)	975	High solid content, high flexibility.
Baybond® XL 1187 <span>NEW</span>	HDI	MEKO	30 in water	< 200	2.9/(9.8)	1,450	High particle size, flexible and non ionic character.
Baybond® XL 825	HDI	ε-CAP	30 in water	< 200	3.0/(10.0)	1,400	Low thermal yellowing, improved impact strength, adhesion and flexibility.
Baybond® XL 7270	HDI	ε-CAP	30 in water	< 100	4.2/(13.1)	1,000	Low thermal yellowing, improved impact strength, adhesion and flexibility, food contact acc. to EU 10/2011.*
Baybond® XL 3674	HDI	ε-CAP	30 in water	< 200	3.2/(10.7)	1,310	Food contact acc. to EU 10/2011.*

## Self-crosslinking urethane dispersion for 1K waterborne stoving systems

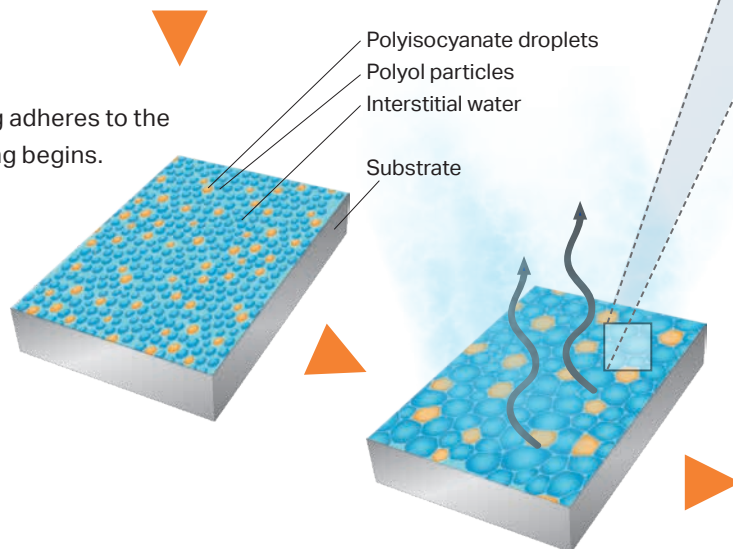
	TYPE	BLOCKING AGENT	SUPPLY FORM APPROX. [%]	VISCOSITY AT 23°C APPROX. [mPa · s]	COMMENTS
Bayhytherm® 3246/1 <span>NEW</span>	HDI	DMP	46 in water/PnB/SN 100	800	For OEM primer surfacers, also for general industrial coatings.

# Process of 2K waterborne film formation

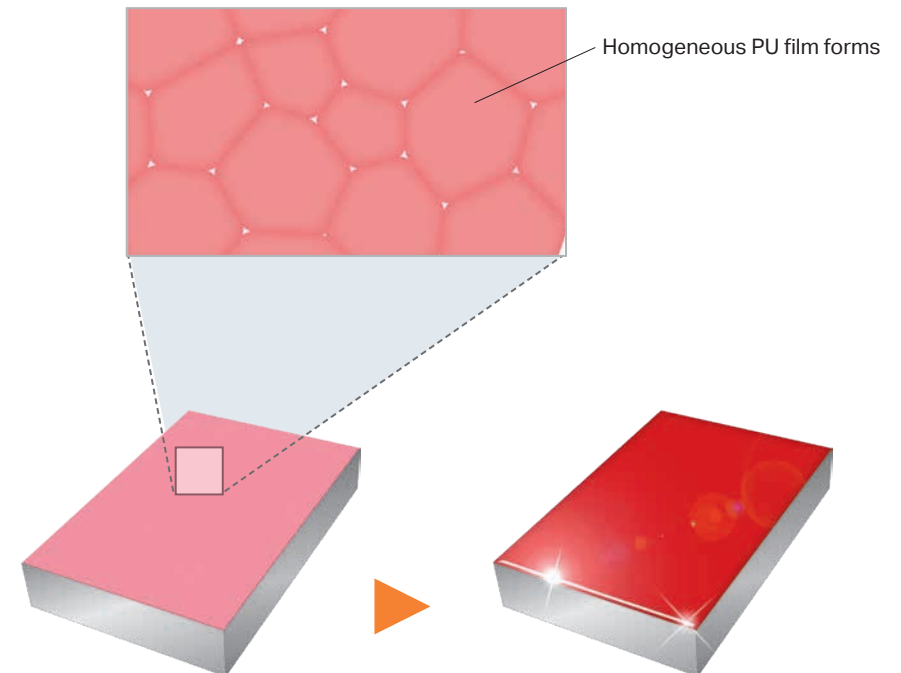
1. The waterborne 2K PU mix, the PIC-in-polyol emulsion, is sprayed on.



2. The wet coating adheres to the substrate, drying begins.



3. Polyol particles and polyisocyanate droplets coalesce and react. The film begins to form. Interstitial water evaporates.



4. A touch-dry film forms. Physical drying is complete, and chemical hardening is well underway.

5. Curing is complete. The result is a top-quality coating.



## Bayhydur® family

The key to easy and reliable application of waterborne two-component polyurethane systems. Bayhydur® ultra qualities perform with < 0.1% monomer content.

Hydrophilic-modified polyisocyanates	TYPE	SUPPLY FORM APPROX. [%]	VISCOSITY AT 23°C APPROX. [mPa · s]	NCO CONTENT ON SUPPLY FORM APPROX. [%]	EQUIVALENT WEIGHT APPROX.	FUNCTIONALITY APPROX.	COMMENTS
Bayhydur® ultra 3100	HDI	100	2,800	17.4	240	3.1	Polyether-modified, standard, versatile and economical.
Bayhydur® ultra 304	HDI	100	4,000	18.2	230	3.8	Polyether-modified, versatile use and improved mixing. Excellent water and weathering resistance.
Bayhydur® ultra 305	HDI	100	6,500	16.2	260	4.0	Polyether-modified, easiest mixing and high gloss.
Bayhydur® ultra 307	HDI	100	6,000	20.3	207	3.4	Ionically modified (sulfonic acid) hardener with low monomer content. Highest chemical resistance, easy mixing. Indoor air quality compliant and very fast curing.
Bayhydur® XP 2451/1	HDI	100	800	20.3	205	3.0	Polyether-modified, low viscosity, suitable for pure water-based formulations, indoor-air-quality-compliant.
Bayhydur® ultra 2487/1	HDI	100	5,400	20.6	205	3.4	Ionically modified (sulfonic acid), highest chemical resistance.
Bayhydur® XP 2547	HDI	100	650	22.5	185	3.0	Ionically modified (sulfonic acid), highest chemical resistance, low viscosity, suitable for pure water-based formulations.
Bayhydur® XP 2655	HDI	100	3,500	20.8	205	3.2	Ionically modified (sulfonic acid), highest chemical resistance, easy mixing.
Bayhydur® ultra 2700	HDI	65 in PGDME	75	10.6	400	4.0	Ready-to-use hardener based on Bayhydur® 305, easiest mixing and high gloss.
Bayhydur® 2858 XP	HDI/IPDI	70 in PGDA	500	13.3	315	3.4	Ionically modified (sulfonic acid) ready to use hardener, fast drying, easy mixing, high hardness, high chemical resistance and long pot life.
Bayhydur® 401-70 MPA/X	IPDI	70 in MPA/X	600	9.4	440	2.9	Polyether-modified, standard, fast drying, good chemical resistance.
Bayhydur® 401-60 PGDA	IPDI	60 in PGDA	1,100	8.0	525	2.9	Supply form of Bayhydur® 401-70 without aromatic solvents.
Bayhydur® XP 2759	IPDI	70 in MPA	6,500	11.0	380	3.1	Ionically modified (sulfonic acid), fast drying, easy mixing, high chemical resistance.
Bayhydur® eco 701-90 <span>NEW</span>	PDI	90 in PGDA	5,000	17.9	230	3.6	Ionically modified (sulfonic acid) crosslinker for 2K WB coatings containing 61% renewable carbon (on supply form). Highest chemical resistance, easy mixing and high gloss.
Bayhydur® quix 306-70	HDI/TDI	70 in MPA	250	13.5	311	3.3	Fastest drying and high chemical resistance specially designed for wood coatings.

## Desmodur® N family

Best in class: lowest viscosity polyisocyanate crosslinkers.

Low viscous polyisocyanates	TYPE	SUPPLY FORM APPROX. [%]	VISCOSITY AT 23°C APPROX. [mPa · s]	NCO CONTENT ON SUPPLY FORM APPROX. [%]	EQUIVALENT WEIGHT APPROX.	FUNCTIONALITY APPROX.	COMMENTS
<b>Desmodur® N 3400</b>	HDI uretdione	100	150	21.8	195	2.5	Extremely low-viscosity crosslinker for waterborne and solvent-borne 2K PUR coatings, also for moisture-curing 1K PUR systems, for topcoats in many construction applications.
<b>Desmodur® ultra N 3600</b>	HDI trimer	100	1,200	23.0	185	3.2	Low-viscosity crosslinker for lightfast 2K PUR coatings (high solids/waterborne, e.g., in combination with Bayhydur® types) for automotive refinish, automotive OEM and industrial applications, also for structural coatings and topcoats, recommendable for aliphatic cast systems.
<b>Desmodur® N 3900</b>	HDI trimer	100	730	23.5	180	3.2	Low-viscosity crosslinker for lightfast 2K PUR coatings (high solids/waterborne, e.g., in combination with Bayhydur® types) for automotive refinish, automotive OEM, transportation and plastics finishing applications, recommendable for aliphatic cast systems.
<b>Desmodur® XP 2565</b>	IPDI allophanate	80 in BA	2,800	12.0	350	2.5	Crosslinker for weatherstable, fast-drying high solids and waterborne 2K PUR coatings, e.g., in combination with Bayhydur® types, for automotive refinish and transportation applications.
<b>Desmodur® XP 2860</b> <span>NEW</span>	HDI allophanate	100	500	20.0	215	2.5	Flexible, low-viscosity crosslinker for weather-stable high solids and waterborne 2K PUR coatings (e.g., in combination with Bayhydur® or Desmodur® types), especially for industrial, automotive refinishing, transportation and plastic coatings, recommendable for flexible aliphatic cast systems.
<b>Desmodur® XP 2840</b>	HDI uretdione/trimer	100	500	23.0	185	3.0	Low-viscosity crosslinker for waterborne and solvent-borne 2K PUR coatings, also for moisture-curing 1K PUR systems.

# Flexibilizing polyisocyanates

	TYPE	SUPPLY FORM APPROX. [%]	VISCOSITY AT 23°C APPROX. [mPa · s]	NCO CONTENT ON SUPPLY FORM APPROX. [%]	EQUIVALENT WEIGHT APPROX.	FUNCTIONALITY APPROX.	COMMENTS
<b>Desmodur® N 3800</b>	HDI trimer	100	6,000	11.0	380	3.8	For highly elastic coatings with excellent weather resistance, combination with suitable polyisocyanates allows adjustments of the elasticity using the same polyol mill base, specially suitable for plastic coating systems, for topcoats in many construction applications.





# Impranil®

Waterborne, anionic/nonionic aliphatic and aromatic polyurethane dispersions for coating textiles, environment-friendly. Suitable for all common textile coating processes in the fields of sports, clothing, fashion articles, technical items, and general protective equipment.



## Aqueous PUR dispersions for textile coatings

	TYPE	NON-VOLAT. CONTENT APPROX. [%]	LIGHT-FASTNESS DIN 75202	RESISTANCE TO HYDROLYSIS	100% MODULUS DIN 53504 [MPa]	TENSILE STRENGTH DIN 53504 [MPa]	ELONGATION AT BREAK DIN 53504 [%]	MELTING RANGE [°C]	COMMENTS
<b>Impranil® DLP-R</b>	Polyester	50	7	+	0.9	10	1,100	200–220	Very soft product with good adhesion to different substrates; mainly used as tie-coat.
<b>Impranil® DLN-SD</b>	Polyester	40	7	0	1.7	35	950	175–200	Soft, dry hand; good washing resistance when crosslinked; good film forming; excellent composting behavior.
<b>Impranil® DLN W 50</b>	Polyester	50	7	0	1.7	35	950	175–200	Soft, dry hand; good washing resistance when crosslinked; good film forming; excellent composting behavior and suitable for mechanical foaming.
<b>Impranil® DLS</b>	Polyester	50	7	0	2.5	30	850	170–180	High flexibility, suitable for mechanical foaming.
<b>Impranil® DLV/1</b>	Polyether/ Polycarbonate	40	7	++	1.7	25	750	200–220	Very good resistance to hydrolysis; crosslinkable; good alcohol resistance; dry and skin-like touch; excellent washing resistance.
<b>Impranil® DLU</b>	Polyether/ Polycarbonate	60	7	++	2.0	30	700	200–230	High solids content, outstanding resistance to hydrolysis, excellent mechanical foaming, high scratch resistance.
<b>Impranil® DLH</b>	Polyester	40	7	0/+	4.2	50	850	165–175	Low melting point; high flexibility; high lightfastness.
<b>Impranil® DLC-F</b>	Polycarbonate	40	7	++	6.0	50	360	215–225	Excellent resistance to hydrolysis, good resistance to ageing, high scratch resistance and alcohol resistance.
<b>Impranil® DL 2611</b>	Polyester	40	7	+	18	40	130	200–220	Dry hand and transparent finish with good hydrolysis and abrasion resistance.

0 = moderate      + = good  
0/+ = satisfactory    ++ = excellent

# Impranil®



## Aqueous PUR dispersions for textile coatings

	TYPE	NON-VOLAT. CONTENT APPROX. [%]		RESISTANCE TO HYDROLYSIS		TENSILE STRENGTH DIN 53504 [MPa]		MELTING RANGE [°C]	COMMENTS
			LIGHT-FASTNESS DIN 75202		100% MODULUS DIN 53504 [MPa]		ELONGATION AT BREAK DIN 53504 [%]		
<b>Impranil® DL 1554</b>	Polyester	60	7	0	3.0	26	750	200–220	High flexibility; excellent mechanical foaming; high solids content.
<b>Impranil® DL 1537</b>	Polyester	60	7	+	2.0	15	850	200–210	Good resistance to hydrolysis, good adhesion, high solids content, soft handle. Perfectly suited for direct coating to apply high dry add-on in one coat.
<b>Impranil® DL 3040</b>	Polyester	40	7	0	5.0	40	800	175–200	Flexible, semi-crystalline, dry, tough.
<b>Impranil® DL 2772</b>	Polyester	40	7	0	2.5	40	800	175–200	Semi-crystalline, good alcohol resistance, good elongation, works perfectly in combination with SBR latex for glove coating to increase washing resistance and cut resistance.
<b>Impranil® DLC-T</b>	Polyester/ Polycarbonate	35	7	++	5.5	6	500	150–160	Good printability, good hydrolysis resistance after crosslinking, gives matt finish on different substrates such as PVC, PU, TPU or TPO.
<b>Impranil® DL 519</b>	Polyester	40	7	0	7.0	40	550	180–200	Finish for synthetics; flexible, dry touch, alcohol resistance.
<b>Impranil® DL 1069</b>	Polyether	50	7	+	1.6	20	1,000	220–240	High elasticity, good abrasion resistance; good flex resistance.
<b>Impranil® DL 2077</b>	Polycarbonate	35	7	++	25.0	25–30	150–200	220–230	Very hard, excellent hydrolysis resistance.
<b>Impranil® DAH</b>	Polyether	35	4	+	1.0	10	750	150–170	Soft aromatic tie coat with very good adhesion to various substrates.

0 = moderate      + = good  
 0/+ = satisfactory    ++ = excellent

# Impranil® / Impraperm®



## Aqueous PUR dispersions for textile coatings

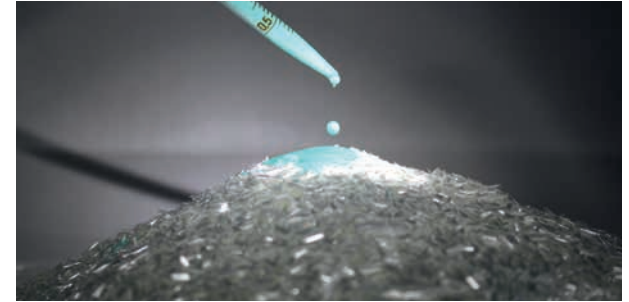
		NON-VOLAT. CONTENT APPROX. [%]		RESISTANCE TO HYDROLYSIS		TENSILE STRENGTH DIN 53504 [MPa]		MELTING RANGE [°C]	
	TYPE		LIGHT-FASTNESS DIN 75202		100% MODULUS DIN 53504 [MPa]		ELONGATION AT BREAK DIN 53504 [%]		COMMENTS
<b>Impranil® DL 1380</b>	Polyester	60	7	0	1.2	25	1,200	210–220	Very soft and comfortable haptic feeling; excellent film building ability; good adhesion on conventional fabrics such as cotton, polyester etc.; suitable for mechanical foaming, high solids content.
<b>Impranil® DAA</b>	Polyether	40	3	+	0.5	1	> 2,000	140–160	Very soft aromatic PUD for dry lamination.
<b>Impranil® DLI</b>	Polyester	50	7	0	2	37	950	190–200	Nonionic, high flexibility, suitable for mechanical foaming.
<b>Impranil® DL 1016</b>	Polyester	50	7	+	2.4	30	750	170–180	Improved hydrolysis resistance, high flexibility, suitable for mechanical foaming.
<b>Impranil® DL 1116</b>	Polyester	59	7	+	1.4	25	1,000	210–220	Improved hydrolysis resistance, very soft and comfortable haptic feeling; excellent film building ability; good adhesion on conv. fabrics such as cotton, polyester etc.; suitable for mech. foaming and textile printing, high solids content.
<b>Impranil® eco DLS</b> <span>NEW</span>	Polyester	50	7	0	2.5	30	800	170–180	Flexible and mechanical foamable polyurethane dispersion with a bio-mass content of 56%.
<b>Impranil® eco DL 519</b> <span>NEW</span>	Polyester	40	7	0	9	40	450	180–200	Finish for synthetic leather with a bio-mass content of 43%.
<b>Impranil® eco DLP/R</b> <span>NEW</span>	Polyester	50	7	0	2	25	800	180–200	Finish for synthetic leather with a bio-mass content of 65%.
<b>Impraperm® DL 5249</b> <span>NEW</span>	Polyester	32	7	+	3.2	22	620	220–240	Skin coat for wind-proof, water-proof and vapour-permeable textile coatings.
<b>Impraperm® DL 5310</b> <span>NEW</span>	Polycarbonat	30	7	+	2.1	5.2	460	170–180	Tie coat for wind-proof, water-proof and vapour-permeable textile coatings.

0 = moderate      + = good  
0/+ = satisfactory    ++ = excellent



## Baybond®

Generally used in manufacturing glass fiber sizes, Baybond® grades display good compatibility with silanes and the following additives: adhesion promoters, slip agents, antistatic agents and flexibilizers.



Products for glass fiber sizings	TYPE	HYDROPHILIC CHARACTER	SOLIDS APPROX. [%]	pH-VALUE APPROX.	HYDROLYTIC RESISTANCE	100% MODULUS [N/mm <sup>2</sup> ]	TENSILE STRENGTH [N/mm <sup>2</sup> ]	ELONGATION AT BREAK [%]	THERMOSTABILITY	T <sub>g</sub> [°C]
Baybond® PU 406	Polyether	Nonionic	34	6.5	+++	3.7	20	700	++	-72
Baybond® PU 7269	Polyether	Ionic/nonionic	30	8.5	+++	1.0	4	700	++	-62
Baybond® PU 2728	Polycarbonate-polyether	Ionic/nonionic	59	8.0	++++	3.1	25	900	+++	-69
Baybond® PU 330	Polyester	Ionic/nonionic	30	7.3	+	0.5	1	2,000	+	-56
Baybond® PU 401-A	Polyester	Ionic/nonionic	50	7.5	++	3.0	51	1,200	++	-51
Baybond® PU 407	Polyester	Ionic/nonionic	40	7.0	++	2.7	40	1,200	++	-46
Baybond® PU 409	Polyester	Ionic/nonionic	50	7.5	++	2.0	10	1,000	+++	-48
Baybond® PU 411 XP	Polyester	Ionic/nonionic	40	7.0	++	3.0	20	1,000	++++	-46
Baybond® PU 415	Polyester	Ionic/nonionic	45	7.0	+	–	–	–	++	-47
Baybond® PU 2569	Polyester	Ionic/nonionic	41	8.5	++	1.5	8	1,300	++	-45
Baybond® PU 2277	Polyester	Ionic/nonionic	40	7.5	++	2.1	28	1,250	++	-49

+ = average    ++ = good    +++ = very good    ++++ = excellent

Thermally activated PUR dispersions for glass fiber sizings	TYPE	HYDROPHILIC CHARACTER	BLOCKING AGENT	SOLIDS APPROX. [%]	pH-VALUE APPROX.	DEBLOCKING TEMPERATURE [°C]
Baybond® PU 405	Polyether	Ionic/nonionic	ε-CAP	30	7.0	170°C
Baybond® PU 403	Polyester	Ionic/nonionic	MEKO	39	7.0	150°C

# Baybond®



## Thermally activated crosslinkers for glass fiber sizings

	TYPE	HYDROPHILIC CHARACTER	BLOCKING AGENT	SOLIDS APPROX. [%]	pH-VALUE APPROX.	DEBLOCKING TEMPERATURE [°C]
Baybond® XL 825	HDI	Ionic/nonionic	ε-CAP	30	7.0	170
Baybond® XL 6366	HDI	Ionic/nonionic	MEKO	45	8.0	150
Baybond® XL 1187	HDI	Nonionic	MEKO	30	5.5	150

## PUR dispersions for glass fiber sizings compliant to 2011/10/EU for food contact\*

	TYPE	HYDROPHILIC CHARACTER	SOLIDS APPROX. [%]	pH-VALUE APPROX.	HYDROLYTIC RESISTANCE	100% MODULUS [N/mm²]	TENSILE STRENGTH [N/mm²]	ELONGATION AT BREAK [%]	THERMOSTABILITY	T <sub>g</sub> [°C]
Baybond® PU 404 XP	Polyester	Nonionic	50	7.0	++	2.1	37	1,300	++	-49
Baybond® PU 571	Polyether	Nonionic	34	6.5	+++	3.7	20	700	++	-72
Baybond® PU 1810/1	Polyester	Nonionic	50	6.0	+++	2.2	26	1,000	++	-47

+ = average ++ = good +++ = very good ++++ = excellent

## Thermally activated PUR crosslinkers for glass fiber sizings compliant to 2011/10/EU for food contact\*

	TYPE	HYDROPHILIC CHARACTER	BLOCKING AGENT	SOLIDS APPROX. [%]	pH-VALUE APPROX.	DEBLOCKING TEMPERATURE [°C]
Baybond® XL 7270	HDI	Ionic/nonionic	ε-CAP	30	7.7	170
Baybond® XL 3674	HDI	Ionic/nonionic	ε-CAP	30	9.0	170

\* See page 9

# Dispercoll® U

Aqueous, anionic dispersions of high molecular weight polyurethanes. Dispercoll® U grades are especially suitable for the manufacturing of heat-activated adhesives with outstanding bonding properties on most synthetic and natural materials.

## PUR dispersions for adhesive applications

PUR dispersions for adhesive applications	NON-VOLAT. CONTENT APPROX. [%]	VISCOSITY [mPa · s]	RECOMMENDED MIN. BONDLINE TEMP. [°C]		COMMENTS	
			CRYSTALLIZATION TENDENCY			
	Dispercoll® U 8755	45	< 1,000	++	80–100	Especially suitable for heat activation above 80°C, gives high heat resistance also when used without crosslinker.
	Dispercoll® U 2849 XP	50	< 2,000	–	80–100	Suitable for adhesive applications with improved climate resistance.
	Dispercoll® U 42	50	150–800	–	80–100	Soft and flexible polymer film, especially suitable for wet-bonding of textile substrates, suitable for lamination of packaging films.
	Dispercoll® U 2710	45	< 1,000	+	65–75	Especially suitable for heat activation bonding applications with high initial heat resistance, e.g., footwear sole bonding, high shear stability.
	Dispercoll® U 2612	50	50–800	+	65–75	Especially suitable for heat activation bonding applications with high initial heat resistance, e.g., for footwear sole bonding.
	Dispercoll® U 53	40	50–600	++	60–70	Raw material for the formulation of heat-activated adhesives for use in, for example, the furniture and automotive industries.
	Dispercoll® U 54	50	40–600	+	60–70	Raw material for the formulation of heat-activated adhesives for use in, for example, the furniture, automotive and especially the footwear industries.
	Dispercoll® U 56	50	50–900	+	55–65	Especially suitable for bonding at low heat activation temperatures in the furniture and automotive industries.
Dispercoll® U XP 2702	47	< 1,000	+	55–65	Especially suitable for latent-reactive adhesives in conjunction with deactivated aliphatic isocyanates.	
Dispercoll® U 58/1	NEW	50	< 1,200	+	50–70	Especially suitable for heat activation bonding applications with high initial heat resistance, e.g., footwear sole bonding, good tack properties.
Dispercoll® U 2824 XP	40	50–1,000	+	50–60	Suitable for heat activation bonding at low temperature, i.e. packaging lamination, polymer contains carboxyl groups that can be crosslinked with polycarbodiimide crosslinker.	
Dispercoll® U 2682	50	< 1,000	0	50–60	Lower molecular weight crystallizing polyurethane dispersion, especially suitable for applications at low heat activation temperatures in the furniture and automotive industries and for packaging lamination, good wetting properties due to low melt viscosity.	
Dispercoll® U XP 2643	40	< 1,000	–	> RT	Especially suitable for bonds at low to moderate temperatures, even at room temperature, polymer contains carboxyl groups that can be crosslinked with polycarbodiimide crosslinker, suitable for packaging film lamination.	
Dispercoll® U 62	NEW	48	< 1,000	+	50–70	Especially suitable for heat-activated 1c footwear adhesives in conjunction with polycarbodiimide crosslinker.
Dispercoll® U 64	NEW	42	< 1,000	+	RT–75	Especially suitable for wet adhesive application with spray-mix coagulation and also suitable heat activation bonding.
Dispercoll® U 66	NEW	48	< 1,000	–	55–75	Especially suitable for adhesive application with improved climate resistance at low heat activation temperatures.



# Dispercoll® C

Aqueous anionic dispersions of a 2-chlorobutadiene polymer with varying crystallization tendency. Dispercoll® C dispersions are suitable for the formulation of aqueous contact adhesives. Dispercoll® C adhesives can be used to substitute solvent-borne contact adhesives in a wide range of applications with no loss of performance, while at the same time bringing great improvements with respect to environmental, handling and workplace safety issues.

## CR dispersions for adhesive applications

	NON-VOLAT. CONTENT APPROX. [%]	pH VALUE APPROX.	CRYSTALLIZATION	GEL CONTENT	COMMENTS
Dispercoll® C 84	55	13	Very fast	Very low	Fast bond formation, good contactability and high bond strength.
Dispercoll® C XP 2694	28	9	Very fast	Very low	Immediate tack if sprayed to foam or textiles, Dispercoll® C XP 2694 is typically used for the production of sprayable foam adhesives.
Dispercoll® C 2325	55	12	Fast	Medium-low	Fast bond formation, good contactability and high bond strength, good heat resistance in formulations with Dispercoll® S and high crosslinking density with isocyanate crosslinker, excellent storage stability.
Dispercoll® C 74	58	13	Medium	Medium	Good heat resistance and long open time.
Dispercoll® C VP LS 2372/1	58	13	Very slow	Medium-low	Good contactability and good wet tack, good adhesion to unpolar substrates, high crosslinking density with isocyanate crosslinker, Dispercoll® C VP LS 2372/1 is typically used as blend component to improve wet tack, excellent storage stability.

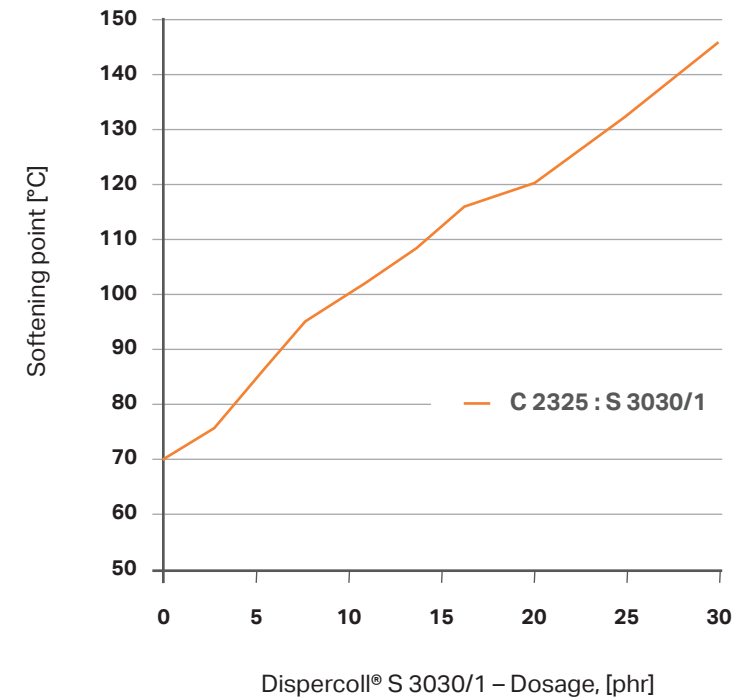




# Dispercoll® C Dispercoll® S



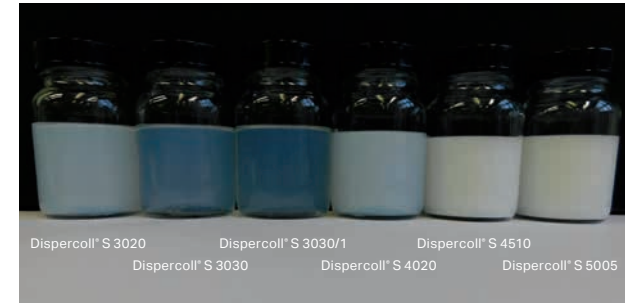
## Heat resistance



Excellent heat resistance of formulations with Dispercoll® C 2325 and Dispercoll® S 3030/1

# Dispercoll® S

Nano SiO<sub>2</sub> dispersions with small particle size. Formulated with a Dispercoll® C grade in combination with ZnO, the Dispercoll® S grades can act as thickener. For improved drying behavior and initial tack the grades with high solids content should be preferred. The effect on rheology, HCl stability as well as reinforcing effect and heat resistance is higher with low particle size Dispercoll® S. Dispercoll® S can also be used as an additive for other polymer dispersions such as Dispercoll® U.



## Nano SiO<sub>2</sub> dispersions as additives for Dispercoll® C and other polymer dispersions

	pH VALUE APPROX.	NON-VOLAT. CONTENT APPROX. [%]	PARTICLE SIZE [nm]	SPEC. SURFACE [m <sup>2</sup> /g]	DENSITY [g/cm <sup>3</sup> ]	EFFECT ON REINFORCEMENT	EFFECT ON RHEOLOGY	COMMENTS
Dispercoll® S 5005	9	50	55	50	1.390	o	o	For Dispercoll® C contact adhesives for flexible substrates such as leather and textiles.
Dispercoll® S 4510	10	45	30	100	1.340	o	o	
Dispercoll® S 4020	10	40	15	200	1.295	++	++	For Dispercoll® C contact adhesives with high strength and heat resistance.
Dispercoll® S 3030	9	30	30	300	1.208	+++	+++	
Dispercoll® S 3030/1	11	30	8	350	1.208	+++	+++	
Dispercoll® S 3020	3	30	15	200	1.208	++	++	For 1K spray adhesives boosting the wet bonding performance (even for foam/wood) by lower pH value.

+ = medium    +++ = very high  
o = low        ++ = high









# Crosslinking technologies for PU adhesive dispersions

## Bonding technologies

## Waterborne 2K technology

## Latent reactive 1K technology (waterborne)

## 1K crosslinking with carbodiimide (waterborne)

Crosslinker	Hydrophilic modified polyisocyanate (e.g., Desmodur® ultra DN)	Surface-deactivated solid polyiso- cyanate (e.g., Dispercoll® BL XP 2514)	Hydrophilic modified polycarbodiimide (Desmodur® XP 2802)
Processing	2-component	1-component	1-component
Potlife of mixture	6 to 8 hours	3 to 6 months	3 to 6 months
Open time of dried adhesive layer	6 to 8 hours	> 6 months	< 1 hour
Curing speed	Hours to days	Hours to days	Minutes to hours

# Dispercoll® Desmodur® Bayhydur®

Crosslinkers for adhesives applications. Desmodur® ultra/  
Bayhydur® ultra qualities perform with < 0.1% monomer content.

## Crosslinkers for latent reactive polyurethane adhesives

	TYPE	NON-VOLAT. CONTENT [%]	T <sub>g</sub> [°C]	NCO CONTENT APPROX. [%]	COMMENTS
<b>Dispercoll® BL XP 2514</b>	Aqueous TDI-dimer suspension	40 in water		9.0	Crosslinker suspension for latent-reactive PUD.
<b>Desmodur® Z 2589</b>	Micronized IPDI-isocyanurate	100	65	17.0	IPDI-trimer powder for preparation of crosslinker-suspensions for latent-reactive PUD.

## Crosslinkers for adhesive dispersions

	TYPE	NON-VOLAT. CONTENT [%]	VISCOSITY AT 23°C APPROX. [mPa · s]	NCO CONTENT APPROX. [%]	COMMENTS
<b>Desmodur® ultra DN</b>	Hydrophilic modified isocyanate	100	1,250	21.8	Low hydrophilicity.
<b>Desmodur® ultra DA-L</b>	Hydrophilic modified isocyanate	100	3,000	20.0	Low hydrophilicity.
<b>Bayhydur® ultra 3100</b>	Hydrophilic modified isocyanate	100	2,800	17.4	High hydrophilicity, in compliance with U.S. FDA's guideline "Title 21 CFR:" Section 175.105 "Adhesives".*
<b>Bayhydur® ultra 304</b>	Hydrophilic modified isocyanate	100	4,000	18.2	High hydrophilicity, in compliance with U.S. FDA's guideline "Title 21 CFR:" Section 175.105 "Adhesives".*
<b>Desmodur® XP 2802</b>	Aqueous dispersion of hydrophilic polycarbodiimide	40 in water	30	approx. 1 mmol –N = C = N –/g	Crosslinker for carboxylate functionalized dispersions, suitable for 2K formulations with long pot life.

\* See page 9

## Crosslinker for CR dispersions

	TYPE	NON-VOLAT. CONTENT [%]		NCO CONTENT APPROX. [%]		COMMENTS
			VISCOSITY AT 23°C APPROX. [mPa · s]			
Bayhydur® 401-70 MPA/X	IPDI-based hydrophilic polyisocyanate	70 in MPA/X	600	9.4		Used in CR-dispersion formulations, yields a high chemical crosslinking density to achieve excellent heat resistance, featuring very long pot life even at high pH, excellent storage stability.

## Legend

### Solvents

AMP	Aminomethyl propanol
BA	Butyl acetate
BDG	Butyl diglycol
BG	Butyl glycol
DPGDA	Dipropylen glycol diacetate
EA	Ethyl acetate
IB	Isobutanol
MPA	Methoxypropylacetate
MPA/X	Methoxypropylacetate/Xylene
PGDME	Dipropylenglycol dimethyl ether
PGDA	Propylene glycol diacetate
PnB	Propylenglycol-n-butylether
SN	Solvent naphtha
X	Xylene

### Neutralization agents

DMEA	Dimethyl ethanol amine
EDIPA	Ethyl diisopropyl amine
NH <sub>3</sub>	Ammonia
TEA	Triethyl amine

### Isocyanates

TDI	Toluylene diisocyanate
HDI	Hexamethylene diisocyanate
IPDI	Isophorone diisocyanate
H <sub>12</sub> MDI	Dicyclohexylmethane diisocyanate

### Dispersions

PAC	Polyacrylate
PES	Polyester
PUR	Polyurethane

### Blocking agents

DMP	Dimethylpyrazol
MEKO	Methyl ethyl ketoxime
ε-CAP	Caprolactam

# Fast-lane access to polyurethane innovations

At Covestro, innovation is in our DNA. Ever since Otto Bayer discovered polyurethanes in 1937, we have been driving polyurethane innovations in coatings and adhesives as well as in other application areas. As our partner, you enjoy fast-lane access to polyurethane innovations, and can help us in developing the next generation of polyurethanes to meet the industry's upcoming challenges and needs.

What can we offer you?

- Powerful know-how on both established and new polyisocyanates, as well as on new polyurethane hybrid technologies.
- The prospect of new application technologies to enable efficient processes.
- More sustainable, biomass- or CO<sub>2</sub>-based materials that do not sacrifice high performance.

**Join us to shape the future!**









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Edition: 2019 · Order No.: COV00086495 · Printed in Germany

