

## **Raw materials for high performance adhesives and sealants**

A broad portfolio for adhesive  
and sealant formulations



# Portfolio overview

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## Raw materials for solvent-borne and solvent-free adhesives

### Polyisocyanates

Desmodur®

### Polyester polyols

Baycoll™, Desmophen®, NeoRez®

### Polyether polyols

Acclaim®, Multranol®, Desmophen®

### Chlorinated rubber

Pergut®

### Acrylic resins

NeoCryl® B

### Polyurethane prepolymers

Desmodur® E

### Silane-terminated polyurethanes

Desmoseal® S



## Raw materials for water-borne adhesives

### Polyurethane dispersions

Dispercoll® U, NeoRez® R

### Polyacrylic dispersions

NeoCryl® A

### Polychloroprene dispersions

Dispercoll® C

### Polyisocyanates

Bayhydur®, Desmodur®

### Polycarbodiimides

Desmodur®

### Polyaziridine

Crosslinker CX

### Nano-silica dispersions

Dispercoll® S





## Raw materials for solvent-borne and solvent-free adhesives



Crosslinkers



Resins





# Aliphatic polyisocyanate crosslinkers for reactive solvent-borne & solvent-free adhesives

PDI & HDI based crosslinkers for high performance 2K adhesive formulations with UV stability and excellent resistance properties. Desmodur® ultra grades contain <0.1% residual monomer and enable adhesive manufacturers to offer improved industrial hygiene standards to their customers.

Low monomer PDI-based crosslinkers	Non-volatile content [wt.%]	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Average Functionality	Comments
Desmodur® CQ ultra N 7300	100	~21.9	~9,500	~3.7	~68% bio-based carbon, standard crosslinker for 2K PU adhesives

HDI-based crosslinkers	Non-volatile content [wt.%]	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Average Functionality	Comments
Desmodur® ultra N 31100	100	~19.5	~550	~2.5	Low viscosity crosslinker, low functionality
Desmodur® ultra N 3900	100	~23.5	~730	~3.2	Balance of low viscosity crosslinker and high functionality
Desmodur® N 3600	100	~23.0	~1,200	~3.2	Low viscosity crosslinker
Desmodur® N 3300 A	100	~21.8	~3,000	~3.5	Standard crosslinker for 2K PU adhesives
Desmodur® ultra N 3700	100	~20.0	~16,000	~3.9	High functional crosslinker for fast curing 2K PU adhesives





# Aliphatic polyisocyanate crosslinkers for reactive solvent-borne & solvent-free adhesives



HDI & IPDI based crosslinkers for high performance 2K adhesive formulations with UV stability and excellent resistance properties.

HDI-based crosslinkers	Non-volatile content [wt.%]	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Average Functionality	Comments
Desmodur® N 3400	100	~21.8	~150	~2.5	Uretdione structure suitable for 1 & 2K applications
Desmodur® N 3200	100	~23	~2,500	~3.5	Biuret with lower viscosity profile, lower functionality
Desmodur® N 100 A	100	~22	~10,000	~3.8	Biuret with high compatibility to polyesters and better as moisture cure resin
Desmodur® N 3500	100	~19.5	~35,000	>5	High functional crosslinker for fast curing 2K PU adhesives

IPDI-based crosslinkers	Non-volatile content [wt.%]	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Average Functionality	Comments
Desmodur® Z 4470 BA	~70 in BA	~11.9	~600	~3.5	Isocyanurate for excellent chemical resistance

IPDI / HDI blended crosslinkers	Non-volatile content [wt.%]	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Average Functionality	Comments
Desmodur® NZ 300	100	~21.5	3000	~3.0	Unique blend to reduce VOC and bring fast drying





# Specialty and aromatic crosslinkers for reactive solvent-borne adhesives

TDI & HDI based crosslinkers for balancing application performance and reaction speed. Desmodur® ultra grades contain <0.1% residual monomer and enable adhesive manufacturers to offer improved industrial hygiene standards to their customers.

TDI-based crosslinkers	Non-volatile content [wt.%]	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Average Functionality	Comments
Desmodur® RC	~35 in EA	~7	~3	~7.0	TDI isocyanurate for rapid curing, high heat resistance, bonding of rubber materials
Desmodur® ultra IL EA	~51 in EA	~8	~700	~4.5	TDI isocyanurate crosslinker
Desmodur® ultra L 75	~75 in EA	~13.3	~1,600	~2.7	TDI/TMP adduct, universal crosslinker for solvent-borne adhesives

TDI/HDI-based crosslinkers	Non-volatile content [wt.%]	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Average Functionality	Comments
Desmodur® ultra RN	~40 in EA	~7.2	~11	~7.2	TDI isocyanurate for rapid curing, high heat resistance, bonding of rubber materials
Desmodur® HL EA	~60 in EA	~10.5	~1,100	~4.4	Highly functional HDI/TDI isocyanurate

Tris (p-isocyanatophenyl) thiophosphate crosslinker	Non-volatile content [wt.%]	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Average Functionality	Comments
Desmodur® RFE	~27 in EA	~7.2	~3	~7.2	Universal primer, good adhesion on glass / rubber with crystalline polyurethane adhesives

EA: Ethyl acetate



# Aliphatic prepolymers for reactive solvent-borne, solvent-free and hotmelt adhesives



Prepolymers based on aliphatic diisocyanates can be used to formulate adhesives and sealants with high requirements regarding discoloration stability. Desmodur® ultra grades contain < 0.1% monomer content.

HDI-based prepolymers	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Functionality	Equivalent weight [g/mol]	Polyol	Comments
Desmodur® ultra E 30500	12.5	4,250	2	335	Polyether	Largely linear NCO prepolymer for elastic weather resistant adhesives; rubber crumb applications
Desmodur® ultra E 30600	6	2,500	4	700	Polyether	High functional prepolymer for 2K adhesive applications
Desmodur® E 30700	11	1,350	2.7	380	Polyester	Flexible polyester with very good compatibility
Desmodur® N 3800	11	6,000	3.8	382	Adduct	Weatherable, used to impart flexibility in two component systems

IPDI-based prepolymer	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Functionality	Equivalent weight [g/mol]	Polyol	Comments
Desmodur® VP LS 2371	3.7	9,800	2	1,100	Polyether	1K weatherable sealant
Desmodur® E 40480	2	7,000	2.8	1,100	Polycarbonate	80% solids in MPA, 1K weatherable sealants, can be combined with oxazolidines







# Aromatic polyisocyanates for reactive solvent-borne & solvent-free adhesives

Mondur® MA technology delivers exceptional performance and convenience by combining the best of both worlds – liquid handling and 4,4' MDI reactivity. As compared to the low-temperature storage issues of traditional 4,4 MDI, processors have enhanced reactivity and effortless storage.

MDI Allophanates	NCO content [wt.%]	Viscosity @ 25°C [mPa*s]	Equiv. Wt.	Typical Funct.	Comments
Mondur® MA 2603	~16.0	1050	263	2	Flexible prepolymer for lamination
Mondur® MA 2300	~23.0	450	183	2	Lower freeze point compared to Mondur® PF
Mondur® MA 2902	~29.0	145	145	2	High NCO content



Product	Minimum Storage Temperature °F (°C)	Storage Life
Mondur® MA 2300	50 (10)	6 months
Mondur® MA 2603	59 (15)	6 months
Mondur® MA 2902	77 (25)	6 months
Mondur® MB (Molten)	107 (42)	3 weeks
Mondur® MB (Fused)	5 max (41 max)	3 months
Mondur® CD	77 (25)	3 months
Mondur® MLQ	77 (25)	6 months



# TDI-prepolymers for engineered sealants and flexibilizers; Blocked TDI-prepolymers for flexibilizing epoxies



TDI-prepolymers are highly flexible lending themselves useful in applications such as sealants and flexibilizers in 1K TDI moisture cure adhesives. Blocked TDI-prepolymers deblock by reacting with primary amines in epoxy formulations, providing flexibility while the phenol group enhances cure rate.

TDI-based prepolymers	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Functionality	Equivalent weight [g/mol]	Comments
Desmodur® E 14	~3.3	~6,800	~2.5	~1,270	For 1K sealants. Can be combined with oxazolidines
Desmodur® ultra E 15	~4.4	~7,000	~2.0	~955	Low monomer content (<0.1), for 1K sealants. Can be combined with oxazolidine

Blocked TDI-based prepolymer	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Equivalent weight [g/mol]	Comments
Desmocap® 14 CNB	~2.7	~25,000	1556	Reactive flexibilizer for epoxy resins, ~29% bio-based carbon
Desmocap® 11 A	~2.4	~90,000	1751	Reactive flexibilizer for epoxy resin, and for liquid and solvent-free PUR systems
Desmocap® 12 A	~2.0	~33,000	2155	Reactive flexibilizer for epoxy resin, and for liquid and solvent-free PUR systems





# Silane terminated polyurethanes for solvent-free adhesives and sealants

Silane-terminated polyurethanes combine the toughness of a polyurethane with the versatility of a silane-based curing mechanism, yielding excellent cohesive strength and robust adhesion properties. The innovative combination enables solutions that span from flexible sealants to high-strength structural adhesives.

## Silane-terminated aliphatic polyurethane prepolymers

	Viscosity @ 23°C [mPa*s]	Molecular weight	Comments
Desmoseal® S XP 2774	50,000	Very high	For low modulus sealants with very high elongation. Starting formulation available which has been classified according to ISO 11600-F-25
Desmoseal® S XP 2636	40,000	High	For low modulus sealants and elastic adhesives with high elongation
Desmoseal® S 2876	25,000	Medium	For elastic adhesives and high-modulus sealants with medium elongation
Desmoseal® S XP 2749	5,100	Low	For adhesives with high hardness without added plasticizer



# Aromatic prepolymers for solvent-free moisture cure and hot-melt adhesives



Aromatic prepolymers, engineered through precise isocyanate-polyol reactions, offer customizable isocyanate functionality allowing for precise control over application viscosity, curing profile and end-product mechanical properties.

MDI-based prepolymers	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Functionality	Equivalent weight [g/mol]	Comments
Desmodur® E 23500	~3.5	~12,000	~2.0	~1201	Fast reactivity, lower modulus sealants with higher elongation
Desmodur® E 21300	~5.6	~8250 (@50°C)	~2.0	~750	Precursor for low monomer 1K PUR hot melts
Desmodur® E 743	~8.0	~2500	~2.0	525	Produces 1K highly resilient, rubbery-like firms that have high abrasion resistance
Desmodur® MP-101	~10.0	~2500	~2.0	~422	Cures with moisture to a clear film, used to formulate 1K binders and 2K sealants and elastomers
Mondur® 1453	~16.5	~6400	~2.0	~255	Used in binder, and 2K adhesives and sealant formulations
Mondur® 501	~19	~1300	~2.0	~221	Isocyanate-terminated (MDI) polyester prepolymer
Desmodur® E 744	~23.5	~600	~2.0	~179	Used in 2K coating and adhesive applications, good toughness and elasticity

Self-catalyzing MDI prepolymers	NCO content [wt.%]	Viscosity @ 23°C [mPa*s]	Functionality	Equivalent weight [g/mol]	Comments
Desmodur® E 23 A	~16.5	~1600	~2.1	~273	1K wood bonding (D4), 2K flexible packaging adhesives
Desmodur® E 28	~16.5	~6400	~2.8	~255	1K wood bonding (D4), 2K adhesives
Desmodur® E 29	~24.0	~220	~2.2	~175	1K primer for flooring applications







# Acrylic beads

Solid NeoCryl® B acrylic beads are utilized for the formulation of hotmelt adhesives.

Acrylic beads	Acid value [mg KOH/g]	Viscosity @ 150°C 50 wt% in polyol <sup>1</sup> [mPa*s]	Tg [°C]	Molecular weight [g/mol]	Comments
NeoCryl® B-725	~6	~5	~61	~50,000	Solid BMA copolymer, easy solubility
NeoCryl® B-810	~7	~4	~59	~55,000	Solid BMA copolymer, easy solubility
NeoCryl® B-885	~5.5	~9	~85	~45,000	Solid MMA copolymer, good chemical resistance

<sup>1</sup>e.g. ARCOL® POLYOL PPG 1000 | Covestro





# Powder of chlorinated rubber-based raw materials for solvent-borne adhesives



Fast-drying fine-powdered chlorinated polymers for solvent-borne contact adhesives for simple 1K application and improved adhesion between metals (steel) and rubber. All grades of our adhesive raw materials based on chlorinated rubber are supplied with a low content of toluene ( $\leq 2.5\%$ ) and extremely low content of  $\text{CCl}_4$  ( $< 0.005\%$ ).

Fine powder of chlorinated rubber	Type	Solution <sup>1</sup> Viscosity @ 23°C [mPa*s]	Chlorine content [% by weight]	Comments
Pergut® S 20	Polyisoprene	~20	$\geq 64.5$	Primer preparation or as additive for SB-CR contact adhesives to improve i.e. initial bond strength and chemical resistance
Pergut® S 40	Polyisoprene	~42	$\geq 64.5$	Additive for SB-CR contact adhesives to improve setting rate
Pergut® S 90	Polyisoprene	~92	$\geq 64.5$	Additive for SB-CR contact adhesives to improve setting rate and binder for adhesives, e.g. for swimming pools
Pergut® S 130	Natural rubber	~150	$\geq 64.5$	Primer and adhesion promotor for rubber to metal bonding
Pergut® S 170	Polyisoprene	~165	$\geq 64.5$	Primer and adhesion promotor for rubber to metal bonding

<sup>1</sup>18.5% in Toluene

# Monomeric MDI, HDI, IPDI, H<sub>12</sub>MDI and derivatives



Monomeric diisocyanates are used as building blocks for polyurethane prepolymers. MDI delivers state-of-the-art performance for PU adhesives. Aliphatic diisocyanates are used as building blocks for polyurethane dispersions and prepolymers. HDI, H<sub>12</sub>MDI, and IPDI deliver on special performance requirements such as UV- or hydrolytic stability.

MDI diisocyanates and derivatives	Type	NCO content [wt.%]	Viscosity @ 25°C [mPa*s]	Comments
Mondur® MLQ	2,4 MDI	~33.6	~12	MDI mixture with high 2,4'-MDI isomer (~55%) for prepolymers with reduced viscosity and monomer content
Mondur® CD	MDI adduct	~29.5	~35	Modified monomeric MDI, liquid at room temperature, storage-stable at low temperatures
Mondur® MB (molten/fused)	4,4' MDI	~33.6	~4 @40°C	High 4,4'-MDI isomer content ( $\geq 98\%$ ), solid at room temperature. Additional supply forms available (i.e. fused, flakes)
Mondur® PF	MDI adduct	~32.0	~600	Modified monomeric 4,4'-MDI

Aliphatic diisocyanates and derivatives	Type	NCO content [wt.%]	Viscosity @ 25°C [mPa*s]	Comments
Desmodur® H	HDI	$\geq 49.7$	3	For polyurethane polymers with higher flexibility and weathering resistance
Desmodur® I	IPDI	$\geq 37.5$	10	For polyurethane polymers with optical clarity, higher hardness and chemical resistance
Desmodur® W	H <sub>12</sub> MDI	$\geq 31.8$	30	For polyurethane polymers with optical clarity, weathering resistance and excellent mechanical properties
Desmodur® WP-260	H <sub>12</sub> MDI Quasi-Prepolymer	26.4	<500	Typical uses include tooling resins, potting, encapsulation, and decorative applications



## Aromatic polyisocyanates for reactive solvent-borne & solvent-free adhesives

Polymeric MDI (pMDI) grades offer enhanced storage stability and functionality for high strength adhesives with excellent durability. Used as component in 2K reactive adhesives or as building blocks for polyurethane prepolymers (100% solids).

Polymeric MDI products	Non-volatile content [wt.%]	Viscosity @ 25°C [mPa*s]	Functionality	Equivalent weight	Comments
Mondur® 448	~27.7	~140	~2.2	~152	Modified Polymeric MDI, low vapor pressure, low functionality
Mondur® 489	~30.7	~700	~3.0	~137	High functionality
Mondur® 582	~32.0	~55	~2.5	~131	2,4'-enriched Polymeric MDI, lower vapor pressure, extended open time
Mondur® 1488	~32.4	~26	~2.3	~130	2,4'-enriched Polymeric MDI, lower vapor pressure, extended open time
Mondur® MR Light	~31.5	~200	~2.8	~133	Polymeric MDI, lower functionality and vapor pressure
Mondur® MR-5	~32.5	~70	~2.4	~129	Polymeric MDI, higher monomer content, lower functionality and vapor pressure
Mondur® MRS	~31.5	~200	~2.8	~131	2,4'-enriched Polymeric MDI, lower vapor pressure, extended open time
Mondur® MRS-2	~33.0	~25	~2.3	~127	2,4'-enriched Polymeric MDI, lower vapor pressure, extended open time
Mondur® MRS-4	~32.5	~40	~2.4	~129	2,4'-enriched Polymeric MDI, lower vapor pressure, extended open time, low temp. stability



## Polyether polyols for reactive solvent-borne & solvent-free adhesives

Polyether polyols are utilized as building blocks for NCO- and silane-terminated prepolymers in adhesive and sealant applications.

Polyether Polyols	Functionality	OH value [mg KOH/g]	Viscosity @ 25°C [mPa*s]	Molecular weight [g/mol]	EO Tip
Arcol® LG-650	3	~ 650	~820	~260	No
Arcol® LHT-112	3	~112	~280	~1500	No
Arcol® LHT-240	3	~238	~250	~710	No
Arcol® PPG-425	2	~263	~70	~430	No
Arcol® PPG-725	2	~147	~120	~763	No
Arcol® PPG-1000	2	~111	~160	~1000	No
Multranol® 8175	3	~370	~322	~450	No
Multranol® 9158	3	~470	~475	~475	No
Multranol® 9198	2	~515	~55	~218	No
Softcel® U-1000	3	~168	~240	~1000	No

Low-Monol Polyols	Functionality	OH value [mg KOH/g]	Viscosity @ 25°C [mPa*s]	Molecular weight [g/mol]	EO Tip
Acclaim® 2200	2	~56	~340	~2000	No
Acclaim® 3300N	2.8	~58	~507	~2730	No
Acclaim® 4200	2	~28	~980	~4000	No
Acclaim® 6300	3	~28	~1369	~6000	No
Acclaim® 8200	2	~14	~3189	~8000	No

# Polyether polyols for reactive solvent-borne & solvent-free adhesives



Polyether polyols are utilized as building blocks for NCO- and silane-terminated prepolymers in adhesive and sealant applications.

Flexible Polyols	Functionality	OH value [mg KOH/g]	Viscosity @ 25°C [mPa*s]	Molecular weight [g/mol]	EO Tip
Arcol® 11-34	3	~35.5	~850	~4740	Yes
Arcol® E-351	2	~40.0	~520	~2800	Yes
Arcol® F-3022	3	~56.0	~480	~3000	No
Arcol® F-3040	2.8	~56.0	~525	~2,805	No
Arcol® F-3222	3	~52.6	~520	~3240	Yes
Arcol® LG-56	3	~57.0	~490	~3000	No
Arcol® LG-42	3	~41.0	~715	~4100	No
Arcol® PPG-2000	2	~56.0	~340	~2000	No
Arcol® PPG-3025	2	~37.0	~600	~3000	No
Arcol® PPG-4000	2	~28.0	~980	~4000	No
Hyperlite® E-824	3	~36.0	~830	~4680	Yes
Multranol® 3900	3	~35.0	~790	~4800	Yes
Multranol® 3901	3	~28.0	~1160	~6000	Yes
Multranol® 9111	2	~28.0	~820	~4000	Yes
Multranol® 9132	2.6	~42.0	~585	~3473	No
Multranol® 9139	3	~28.0	~1150	~6000	Yes
Multranol® 9190	2	~28.0	~900	~4000	Yes
Multranol® 9199	3	~37.0	~1100	~4550	Yes
Softcel® VE-1800	2.35	~99.8	~300	~1321	No

Amine-Based Polyols	Functionality	OH value [mg KOH/g]	Viscosity @ 25°C [mPa*s]	Molecular weight [g/mol]	EO Tip
Multranol® 4050	4	~630	~19,000	~360	No
Multranol® 4063	4	~460	~18,000	~490	Yes
Multranol® 8114	4	~395	~8800	~570	Yes
Multranol® 8120	4	~360	~25,000	~620	No
Multranol® 8174	4	~400	~25,200	~561	No
Multranol® 9138	3	~700	~785	~240	No
Multranol® 9168	4	~60	~685	~3740	No
Multranol® 9170	3	~350	~310	~481	No
Multranol® 9181	4	~770	~36,000	~290	No



## Waterborne performance

Raw materials for high performance water-borne adhesive formulations



Crosslinkers



Resins



# A broad portfolio of raw materials for waterborne adhesives



Acrylic & PU  
dispersions  
Polychloroprene

NeoCryl®  
NeoRez®  
Dispercoll®




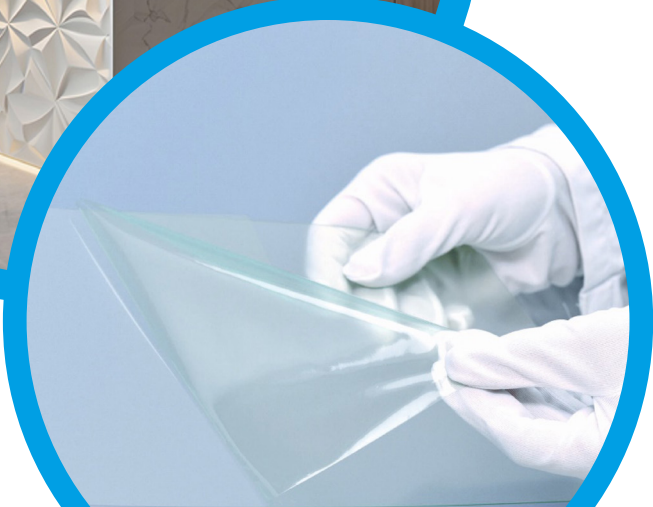
Water-compatible  
crosslinker

Desmodur®  
Bayhydur®  
Crosslinker®

 **Heat activation bonding**

 **Contact bonding**

 **Continuous lamination**





# Polyurethane dispersions for adhesive applications

Products are available with crystalline or amorphous backbones. Crystalline resins are distinguished by rapid development of bond strength in the heat activation bonding processes. Bond strength increases rapidly as the adhesive layer cools and recrystallizes. Amorphous dispersions exhibit room temperature tack and are especially useful for the lamination of flexible films.

Polyester-based polyurethane dispersions	Non-volatile content [wt.%]	Polyester (PE) Polycarbonate (PC)	Amorphous or Semi-crystalline	Crystallization velocity	Recommended min. bondline temp [°C]	Comments
Dispercoll® U 42	~50	PE	Amorphous	N/A	80-100	Flexible, high molecular weight, high transparency & elasticity
Dispercoll® U 53	~40	PE	Semi-crystalline	++	60-70	High initial green strength, fine particle size
Dispercoll® U 54	~50	PE	Semi-crystalline	+	60-70	Longer hot-tack life
Dispercoll® U 56	~50	PE	Semi-crystalline	+	55-56	Low activation temperature, excellent adhesion
Dispercoll® U 58/1 PLUS	~50	PE	Semi-crystalline	O	50-70	Excellent initial heat & hydrolysis resistance, high initial tack
Dispercoll® U 66	~48	PC/PE	Amorphous	-	55-75	High climate resistance at low heat activation temperatures
Dispercoll® U 84	~40	PE	Semi-crystalline	++	not relevant	For wet adhesive application with spray-mix coagulation
Dispercoll® U 2612	~50	PE	Semi-crystalline	+	65-75	High initial heat resistance
Dispercoll® U 2682	~50	PC/PE	Semi-crystalline	++	50-60	Low molecular weight, low melt viscosity, for compostable adhesives according to DIN EN 13432 and ASTM D 6400-04
Dispercoll® U 2710	~45	PE	Semi-crystalline	+	65-75	High initial heat resistance, high shear stability, brushability
Dispercoll® U 2849	~50	PE	Amorphous	-	80-100	High climate resistance, higher reactivity
Dispercoll® U 8755	~45	PE	Semi-crystalline	++	80-100	High heat resistance also without crosslinker, heat activation > 80°C

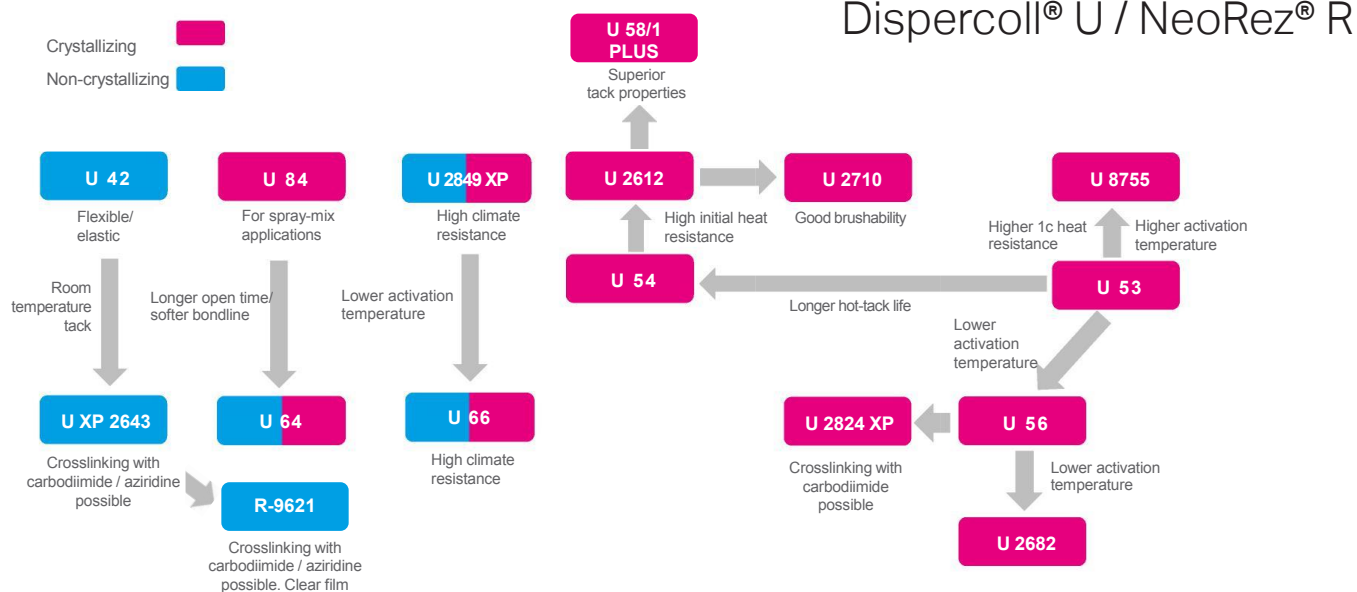
++ : very fast

+ : fast

O : medium

-- : low

# Polyurethane dispersions for adhesives



## Polyurethane dispersions and crosslinker for the formulation of 1K adhesives



Polyurethane dispersions with carboxylic functional groups are suited for the manufacturing of 1K water-borne reactive adhesives with incorporated carbodiimide crosslinker with a pot-life of up to several months.

Polyurethane dispersions with carboxylic groups	Non-volatile content [wt. %]	Viscosity @ 23°C [mPa*s]	MFFT (°C)	Comments
Dispercoll® U XP 2643	~40	<1000	<0	Non-crystallizing, suitable for low temperature bonding (≥ RT), Polyether-backbone
NeoRez® R-551	~36	~350	<0	Water-clear & light stable, good climate resistance also without crosslinker.
NeoRez® R-9621	~38	~175	<0	Slowly crystallizing, aliphatic-polyester PUD that and provides excellent clarity / ink reception. Good adhesion to PVC, PETg and foil.
NeoRez® R-600	~33	~100	<0	Provides adhesion to a variety of hard-to-adhere to plastic substrates (polycarbonate, BOPP).
NeoRez® R-9340	~40	~850	<0	Aliphatic polyester with low activation temperature (55 °C) that provides adhesion to ABS, polyester, and PET.

Carboxylic acid crosslinkers	Non-volatile content [wt. %]	Typical dosage [phr PUD]	Viscosity @ 23°C [mPa*s]	Comments
Desmodur® 2802	~40	3 – 10 (depends on resin acid #)	~100	Utilized in combination with carboxyl groups containing dispersion polymers (PU or PAC dispersions) to formulate water-borne reactive systems with long pot life, suitable for ambient and forced drying, fast bonding, high moisture resistance
Crosslinker CX-100	100	3 – 5	~250	Hardener for 2K waterborne systems. Can improve adhesion



# Polyurethane dispersions acrylic latexes for adhesive applications

Polyurethane dispersions and acrylic latexes are used in wide variety of adhesive applications from construction to lamination. These resins can be used in difficult-to-adhere to substrates either by themselves, combined together, or with our Dispercill U products.

Polyurethane dispersions*	Non-volatile content [wt.%]	Polyol Type	MFFT [°C]	Comments
Bayhydrol® UH 340/1	40	Polycarbonate / Polyether	<0	Flexible, good resistance to hydrolysis and compatible blending partner for acrylics
Impranil® DLU	~60	Polycarbonate / Polyether	<0	Excellent resistance to hydrolysis. Good adhesion to PVC

\*Covestro has range of additional flexible and high-solids PUDs not listed here.

Acrylic latexes	Non-volatile content [wt.%]	pH	Viscosity @ 23°C [mPa*s]	MFFT [°C]	Comments
NeoCryl® A-45	~38	~9.8	~30	<4	Highly flexible, compatibility to urethane blends, utilized as modifying agent, improves adhesion to BOPP
NeoCryl® A-662	~40	~7.5	~20	>90	Adhesion to plastic substrates such as: ABS, PS, PVC
NeoCryl® A-1120	~55	~8.3	~600	<0	Self crosslinking, very fast drying, adhesion to PC, AL foil, ABS, and PVC
NeoCryl® A-1127	~44	~7.5	~100	7	Self crosslinking acrylic with good adhesion to PC, PVC, BoPP, and ABS
NeoCryl® A-2092	~47	~8.3	~300	~6	High water & grease resistance, suitable for heat sealing & food contact applications
NeoCryl® FL-791	~45	~8.9	<250	<0	Excellent adhesion when applied onto plastic label substrates including BoPP and PET packaging films. Good at elevated temperatures.
NeoCryl® FL-5095	~45	~9.5	~125	>5	Special adhesion groups yields adhesion to non-polar substrates



# Crosslinkers for 2K water-borne adhesive formulations



Polyurethane dispersions are frequently used with water-dispersible Bayhydur® and Desmodur® crosslinkers for improving the adhesive performance profile.

HDI-based water-dispersible crosslinker	Non-volatile content [wt. %]	NCO content [wt. %]	Viscosity @ 23°C [mPa*s]	Comments
Desmodur® ultra DN	100	~21.8	~1,250	Low hydrophilicity, standard grade for water-based PU adhesives
Desmodur® ultra DA-L	100	~20.0	~3,000	Low hydrophilicity
Bayhydur® 302	100	~17.4	~2,800	High hydrophilicity, easy mixing
Bayhydur® ultra 304	100	~18.2	~4,000	Medium hydrophilicity, high functionality, good chemical resistance, easy mixing
Bayhydur® 2547*	100	22.5	700	Low viscosity, hand mixable, hydrophobic

\*Aminosulfonic acid modified HDI Trimer

IPDI-based water-dispersible crosslinker	Non-volatile content [wt. %]	NCO content [wt. %]	Viscosity @ 23°C [mPa*s]	Comments
Bayhydur® ultra 401-70 MPA/X	~70 in MPA/X	~9.4	~600	Weather stable, non-yellowing, improved hardness, good adhesion and drying properties, suitable for CR dispersion to improve heat resistance





# Crosslinker for 1K latent reactive adhesive formulations

Combined with semi-crystalline polyester-based polyurethane dispersions (e.g. Dispercoll® U 56), our latent reactive crosslinkers can be used to formulate storage stable 1K waterborne latent reactive adhesives with a pot life and open time of up to several months.

Crosslinkers for latent reactive adhesives	Non-volatile content [wt.%]	NCO content [wt. %]	Key features
Desmodur® Z 2589	100	~17	Powder of a latent-reactive solid isocyanate (IPDI trimer)
Dispercoll® BL XP 2514	~40	~9	Aqueous suspension of a latent-reactive solid isocyanate (TDI dimer)



**Significantly longer storage time of formulations compared to 2K water-borne PU adhesives**



**Dried film/precoating of latent reactive adhesives can be stored for months**



**No liquid adhesive handling at the user, resulting in clean, reliable & efficient processes**



# Polychloroprene dispersions for contact adhesives



Waterborne dispersions of 2-chlorobutadiene polymer with varying crystallization tendency

Polychloroprene dispersions	Non-volatile content [wt.%]	pH	Crystallization	Gel content	Comments
Dispercoll® C 74	~58	~13	Medium	Medium	Provides a medium rate of crystallization featuring heat resistance and long open time
Dispercoll® C 84	~55	~13	Fast	Very low	Highly crystalline polymer with fast development of high strength bond
Dispercoll® C 2325	~55	~12	Fast	Low	Highly crystalline polymer with hydroxyl functionality for crosslinking
Dispercoll® C VP LS 2372/1	~58	~13	Slow	Low	Outstanding adhesion to non-polar substrates with hydroxyl functionality for crosslinking

## Nano SiO<sub>2</sub> dispersions with small particle size for improved drying behavior and initial tack

Nano-silica additives for Dispercoll® C	Non-volatile content [wt.%]	pH	Average particle size [nm]	Spec. Surface [m <sup>2</sup> /g]	Comments
Dispercoll® S 3030/1	~30	~10.5	~9	~300	Enhances bond strength and heat resistance, provides strong thickening effect when compounded with ZnO





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