Company Introduction

Our company, Shanghai Sisheng Polymer Materials Co., Ltd. (SiwoChem) is a research-based company with major businesses in waterborne polyurethanes, and has been producing waterborne polyurethane products for more than twenty years. We currently have two production sites in China, one is in Shanghai and the other in Shandong Province.

We focus on the R&D, manufacturing, and sales of waterborne polyurethane products, and hold independent intellectual property rights and patents. Our products cover almost all application fields of waterborne polyurethanes. With so many options available in the market, choosing the right waterborne polyurethanes can be challenging. We want to make the process easier. By prioritizing quality, longevity, durability, functionality, and aesthetic appeal, we help you choose the best waterborne polyurethanes available.

We consider environmental protection, human well-being, and society as our responsibility. And thus we pursue industry-leading sustainable innovation throughout the product life cycle from design and manufacturing to performance and disposal. Sustainable development is our business philosophy, and the core value of the long-term success of our business.

Product Catalogue

1. Water-dispersible Polyisocyanate Crosslinker
2. Waterborne Blocked Polyisocyanate and Blocked Polyurethane Emulsion Crosslinker
3. Waterborne Polyurethanes for Coatings, Textiles and Leather
4. Inherent Matte Waterborne Polyurethanes
5. Waterborne Polyurethanes for Adhesives
6. Cationic and Nonionic Waterborne Polyurethanes
7. Waterborne Polyurethanes for Packaging Materials and Waterbased Ink
8. Waterborne Polyurethanes for Waterbased Wood, Industrial and Decoration Coatings
   (Include: Hydroxyl-Functional Polyurethane Dispersions)

1 Water-dispersible Polyisocyanate Crosslinker

Sales Grades	Type	Solid Content (%)	NCO Content (%)	Characteristics and Applications
EC-100	Aliphatic	100	19.0±1	Nonionic water-dispersed polyisocyanate, less hydrophilicity. It is mainly used in water-based adhesives, water-based printing pastes and low-gloss water-based coatings. It can be diluted with propylene glycol methyl ether acetate (PMA) and dipropylene glycol dimethyl ether (DMM).
EC-200	Aliphatic	100	16.0±1	Sulfonate modified water-dispersed polyisocyanate, high crosslinking density, fast drying, high gloss. It is mainly used in water-based coatings, water-based adhesives, etc. It can be diluted with propylene glycol methyl ether acetate (PMA).
EC-600	Aliphatic	100	21.0±1	Nonionic water-dispersed polyisocyanate, lower viscosity and less hydrophilicity. It is mainly used in water-based adhesives, water-based printing pastes and low-gloss water-based coatings. It can be diluted with propylene glycol methyl ether acetate (PMA) and dipropylene glycol dimethyl ether (DMM).

2 Waterborne Blocked Polyisocyanate and Blocked Polyurethane Emulsion Crosslinker

Sales Grades	Type	Solid Content (%)	Blocked NCO Content (%)	Deblocking Temperature (℃)	Characteristics and Applications
FB-10	Aliphatic	85±2	11.0	140	Nonionic waterborne blocked polyisocyanate, good water solubility, 85% polyurethane solid, the remaining 15% organic solvent. It is mainly used in water-based coatings and adhesives with high-temperature baking conditions, etc.
FB-12	Aliphatic	85±2	9.8	120	Nonionic waterborne blocked polyisocyanate, good water solubility, 85% polyurethane solid, the remaining 15% organic solvent. It is mainly used in water-based coatings and adhesives with high-temperature baking conditions, etc.
FB-15	Aliphatic	80±2	8.0	100	Nonionic waterborne blocked polyisocyanate, good water solubility, 80% polyurethane solid, the remaining 20% organic solvent. It is mainly used in water-based coatings and adhesives with high-temperature baking conditions, etc.
BPUD-1245	Aliphatic Emulsion	45±2	5.1	120	Blocked aqueous polyurethane emulsion,45% polyurethane solid, the remaining 55% water. It is mainly used in water-based coatings and adhesives with high-temperature baking conditions, etc.

3 Waterborne Polyurethanes for Coatings, Textiles and Leather

3.1 Solid Content 45-60%

Sales Grades	Isocyanate/ Polyol Type	Solid Content (%)	Mechanical Properties			NMP	Characteristics and Applications
			Elongation (%)	Tensile Strength (Mpa)	Modulus (100%, Mpa)		
SiwoPUD-SWU	Aliphatic/ Polyether-carbonate	58-61	1200-1300	20.5	1.2	No	It is easy to mechanically foam, and thick coating is not easy to crack. Its coating has excellent heat resistance, and the melting temperature can reach more than 200℃ (without crosslinking). The product has excellent water resistance, alkali resistance, aging resistance and durability. It is suitable for the preparation of textile coatings, which can be applied to the following items: outerwear, bags, suitcases, high-tech articles, and other elastic coatings.
PUE-2580	Aliphatic/ Polyether	58-61	1900-2000	25.7	0.73	No	High solid polyurethane dispersion. Its film is soft handle with a high elongation and elasticity. The product has excellent water resistance, alkali resistance, and good aging resistance and durability. It is suitable for the preparation of textile coatings and other elastic coatings, which can be applied to the following items: outerwear, bags, suitcases, and elastomeric construction coatings.
PUE-2564	Aliphatic/ Polyether	58-61	2600-2700	3.3	0.3	No	High solid polyurethane dispersion. Its film is very soft with a high elongation. It has good water resistance and alkali resistance. It can be used alone or blended with polyacrylic emulsion for the formulation of elastomeric construction coatings.
PUE-5060	Aliphatic/ Polyester	58-61	1700-1800	22.5	1.4	No	Its film has good mechanical properties such as soft film, good elasticity, high elongation. It has weather resistance, water resistance and wear resistance. Suitable for fabric thick coatings, elastic coatings and other applications.
PUE-2451	Aliphatic/ Polycarbonate	50±1	600-700	35.5	3.3	No	Its film has excellent water resistance, wear resistance, UV resistance, and weather resistance. Its coating has a very good fullness and thickness. Suitable for elastic construction coatings, rubber coatings, leather coatings, fabric printing, and other applications.
PUE-2453	Aliphatic/ Polycarbonate	50±1	900-1000	44.0	2.2	No	It is similar to PUE-2451, but has lower hardness, better extensibility and elasticity.

PUE-2456	Aliphatic/ Polyether	50±1	1900-2100	17.5	0.76	No	Its film has excellent soft touch, excellent resilience, excellent hydrolysis resistance and alkali resistance. It is suitable for fabric printing, thick coatings, elastic coatings, and synthetic leather etc.
PUE-Z501	Aliphatic/ Polyether	50±1	1600-1700	24.6	1.5	No	Cost-effective. Its film is soft, and has excellent ductility, excellent alkali resistance and good washable fastness. It can be used in fabric printing, leather coating, etc.
PUE-5083	Aliphatic/ Polyether	50±1	1000	15.5	1.3	No	It is easy to mechanically foam, and mainly used in synthetic leather foaming layer. Its film has excellent resilience, excellent resistance to zigzag, excellent alkali resistance, low temperature resistance, dry and wet stripping.
PUE-990F	Aliphatic/ Polycarbonate	45±1	600	28.1	3.5	No	Its film has excellent water resistance, abrasion resistance, light fastness. It is suitable for paint, fabric printing and synthetic leather.
PUE-2013F	Aliphatic/ Polyester-carbonate	45±1	1000	9.5	1.0	No	Its film is soft, and has excellent elasticity, adhesion, hydrolysis resistance, wear resistance, UV resistance, weather resistance, water resistance, and waterproof performance. It can be used in fabric printing, elastic coating, leather and label printing.
PUE-F945	Aromatic/ Polyether	45±1	1000-1100	22.8	1.8	No	Aromatic polyurethane emulsion. Its film is soft, and has good heat resistance, good elasticity, water resistance and alkaline resistance. It is suitable for synthetic leather foam layer, wet bonding, and elastic coatings.

3.2 Solid Content 20-40%

Sales Grades	Isocyanate/ Polyol Type	Solid Content (%)	Mechanical Properties			NMP	Characteristics and Applications
			Elongation (%)	Tensile Strength (Mpa)	Modulus (100%, Mpa)		
SiwoPUD-SWC	Aliphatic/ Polycarbonate	40±1	600-700	30.3	3.3	No	Its film has a medium hardness with excellent heat resistance and a melting temperature range of 220-230℃ (without crosslinking). It has excellent water resistance, wear resistance, weather resistance and hydrolysis resistance. It can be used as a topcoat for a variety of applications, especially for scenarios with high weather resistance and high durability requirements.
PUD-E720	Aliphatic/ Polycarbonate	32±1	500-600	47.3	7.3	No	Its film has medium hardness, good alcohol resistance, and excellent water resistance, wear resistance, weather resistance.

PUD-993F	Aliphatic/ Polycarbonate	32±1	700-800	24.0	1.2	No	Its film has soft feel. It has excellent adhesion and abrasion resistance, excellent folding resistance and low temperature resistance.
PUD-994F	Aliphatic/ Polycarbonate	35±1	350-450	49.6	10.6	No	Its film has excellent water resistance, adhesion, abrasion resistance, light fastness, and hydrolysis resistance. Suitable for leather, paper, rubber, plastic substrates and building coatings, industrial coatings etc.
PUD-986F	Aliphatic/ Polyester-carbonate	35±1	300-400	26.2	9.4	No	Its film has medium hardness, high gloss, excellent water resistance, abrasion resistance, alkali resistance, and hydrolysis resistance. It is suitable for leather, rubber, and textile coatings.
PUD-987F	Aliphatic/ Polyester-carbonate	35±1	900-1000	43.2	3.2	No	Its coating has excellent adhesion on nylon fabric, waterproof cloth and other substrates. It has excellent water resistance and abrasion resistance.
PUD-808F-35	Aliphatic/ Polyether	35±1	11001-1200	51.9	2.6	No	Its film is soft , and has excellent resilience , excellent alkali resistance and washable fastness, low temperature folding resistance. It can be used in fabric printing and coatings.
PUD-Z401	Aliphatic/ Polyether	40±1	1300-1400	20.2	1.4	No	Cost-effective. Its film is soft, and has good resilience, good alkali resistance, washing fastness, low temperature folding resistance. It can be used in fabric printing, leather coating, etc.
PUD-916HB	Aliphatic/ Polycarbonate	35±1	500-600	14.4	2.4	Contains DEF	Its coating has medium hardness and excellent adhesion on ABS, PVC, plastic and rubber substrates.
PUD-8051HB	Aliphatic/ Polyether	38±2	900-1000	31.6	3.1	Contains DEF	Its coating film exhibits some degree of softness, excellent resilience, excellent water resistance, and low temperature resistance. It has good washing fastness. It can be used in fabric printing and coatings.
PUD-352HB	Aliphatic/ Polyester-ether	38±1	700-800	22.7	3.8	Contains DEF	Its film has medium hardness. It exhibits high gloss, excellent adhesion, water resistance, and low temperature resistance. It can be used in leather, textile, rubber and plastics.
PUD-350HB	Aliphatic/ Polyester-ether	38±1	300-400	19.4	5.7	Contains DEF	Its film has high hardness and high gloss. It exhibits excellent water resistance, excellent adhesion, and excellent abrasion resistance. It can be used in leather, rubber and plastics.
PUD-F122	Aromatic/ Polyester	33±1	450-550	24.1	7.2	No	Its coating has medium hardness. In particular, it has excellent adhesion on PVC. It can be widely used in leather, rubber and PVC. etc.
PUD-1517t	Aromatic/ Polyether	20±1	-	-	-	No	Its film is soft and shows long-term sticky after drying, and has excellent adhesion on difficult leather and attached substrate. it is mainly used to enhance the adhesion to the substrate for primer coating.

4 Inherent Matte Waterborne Polyurethanes

Sales Grades	Isocyanate/ Polyol Type	Solid Content (%)	Gloss at 60°	Mechanical Properties			NMP	Characteristics and Applications
				Elongation (%)	Tensile Strength (Mpa)	Modulus (100%, Mpa)		
Matt PUD-1901	Aliphatic/ Polyether	32±1	≤0.5	400-500	19.2	3.6	No	Its coating has excellent matting performance, and abrasion resistance. No matting powder is added, it comes from intra-molecular matting. It is recommended for paper, leather, textiles, and other coatings etc.
Matt PUD-1903	Aliphatic/ Polyether	32±1	≤0.5	700-800	33.4	2.8	No	Its film shows soft touch and excellent extinction properties. No matting powder is added, it comes from intra-molecular matting. It is recommended for paper, leather, textile, plastic coatings, etc.
Matt PUD-1911	Aliphatic/ Polycarbonate	32±1	≤0.6	Shore A Hardness（A）：96			No	Based on polycarbonate, no matting powder is added, it comes from intra-molecular matting. Its film has high hardness, excellent wear resistance, weather resistance, UV resistance and hydrolysis resistance.

5 Waterborne Polyurethanes for Adhesives

Sales Grades	Isocyanate/ Polyol Type	Solid Content (%)	Min Activation Temperature (℃)	NMP	Characteristics and Applications
U-80X	Aliphatic/ Polyester	50±1	70-80	No	Its thermal activation temperature is lower, its film has higher hardness and strength. It is suitable for timber, PVC, and some packing matreials.
U-57	Aliphatic/ Polyester	50±1	100-110	Yes	It has heat-activated performance at a higher temperature, and good elasticity, high strength. excellent elasticity and high strength. It is suitable for fabric coating, thermal transfer, and elastomer substrate bonding.
U-1529	Aliphatic/ Polycarbonate	45±1	90-95	No	Its coating has strong adhesion, high bond strength, and better heat resistance. Suitable for bonding automotive interior, magnetic card and other substrates.
U-100	Aliphatic/ Polyether-ester	50±1	100-110	No	Amorphous polymer. Its thermal activation temperature is high, and its film is soft and elastic. It is suitable for bonding of substrates such as leather, textile fabrics and elastomers.
U-1675	Aliphatic/ Polyester	50±1	Room temperature	No	Amorphous polymer. Its film is soft, elastic, and has good water resistance, waterproof performance, good adhesion. Its surface exhibits slightly sticky at room temperature.
U-9091	Aliphatic/ Polyester	40±1	130-140	No	Its film has high strength and heat-activation performance at high temperature. It is suitable for bonding wood, magnetic card manufacturing, plastic elastomer and other substrates.

6 Cationic and Nonionic Waterborne Polyurethanes

6.1 Cationic Waterborne Polyurethanes

Sales Grades	Isocyanate/ Polyol Type	Solid Content (%)	PH	Mechanical Properties			NMP	Characteristics and Applications
				Elongation (%)	Tensile Strength (Mpa)	Modulus (100%, Mpa)		
PUD-2309	Aliphatic/ Polyether	35±1	3.5-5.5	900-1000	5.1	1.0	No	Cost-effective. It is mainly used in the leather primer and fabric processing etc.
PUD-2509	Aliphatic/ Polyether	35±1	3.0-5.5	900-1000	13.1	1.7	No	Cationic polyurethane dispersion with high acid value, strong cationic property and small particle size. Mainly used in fabric treatment and base coating for digital printing materials, etc. It doesn't contain organotin compounds, heavy metals, formaldehyde, etc.
PUD-1219HB	Aliphatic/ Polyether	30±1	3.5-5.5	300	6.7	4.2	Contains DEF	Its film has medium hardness, excellent hydrolysis resistance, water resistance, and good salt spray resistance. It is mainly used in metal surface treatment, glass fiber infiltration agent, and other coatings.
PUD-2417	Aliphatic/ Polycarbonate	30±1	3.5-5.5	500	14.3	2.9	No	Its coating has medium hardness, excellent abrasion resistance, heat resistance, excellent water resistance and resistance to salt spray. Mainly used in metal surface treatment, fiberglass infiltration agent, and wood sealing primer, etc.
PUD-2517	Aliphatic/ Epoxy-modified Polycarbonate	30±1	3.5-5.5	Shore A Hardness (A) : 96			No	The film has high hardness, excellent adhesion, wear resistance, acid and alkali resistance,water resistance, alcohol resistance and chemical resistance. Mainly used in metal surface treatment and wood sealing primer, etc.

6.2 Nonionic Waterborne Polyurethanes

Sales Grades	Isocyanate/ Polyol Type	Solid Content (%)	PH	Mechanical Properties			NMP	Characteristics and Applications
				Elongation (%)	Tensile Strength (Mpa)	Modulus (100%, Mpa)		
PUD-1107	Aliphatic/ Polyester	30±1	6.0-7.5	500	0.68	0.4	No	Its film exhibits excellent softness, excellent resilience, good water resistance. It has good compatibility with cationic and anionic aqueous polyurethane dispersions, acrylic emulsions, or other ionic aqueous resin.

PUD-2307	Aliphatic/ Polyester	35±1	6.0-7.5	700-800	20.1	2.5	No	Cost-effective. Its film has excellent elongation and elasticity, and excellent water resistance. It has good compatibility with cationic, anionic waterborne polyurethane and other cationic and anion waterborne resins.
PUD-1108	Aliphatic/ Polyether	30±1	6.0-7.5	1500	-	-	No	Its film is very soft. It has good compatibility with cationic and anionic aqueous polyurethane dispersions, acrylic emulsions, or other ionic aqueous resin.
PUD-2308	Aliphatic/ Polyether	35±1	6.0-7.5	900-1000	17.4	1.6	No	Cost-effective. Its film has excellent elongation and elasticity, excellent hydrolysis resistance and excellent water resistance. It has good compatibility with cationic and anionic aqueous polyurethane dispersions, and other ionic aqueous resin.

7 Waterborne Polyurethanes for Packaging Materials and Waterbased Ink

Sales Grades	Isocyanate/ Polyol Type	Solid Content (%)	Mechanical Properties			NMP	Characteristics and Applications
			Elongation (%)	Tensile Strength (Mpa)	Modulus (100%, Mpa)		
PUD-201	Aliphatic/ Polyester-carbonate	35±1	400-500	25.7	4.3	No	Its surface drying is slow. It exhibits excellent adhesion, good water resistance. It is suitable for fabric coatings and printing inks.
PUD-1209	Aliphatic/ Polyester	33±1	500-600	11.2	2.5	No	Its film is transparent, and has medium hardness, excellent water resistance, excellent abrasion performance. It can be used in Ink, water-based varnish, paper etc.
PUD-919F	Aliphatic/ Polyester-carbonate	35±1	290	18.2	8.4	No	It exhibits high hardness, high gloss, excellent water resistance, excellent abrasion resistance, excellent alkali resistance and hydrolysis resistance. It is mainly used in printing and packaging materials, etc.
PUD-E620	Aliphatic/ Polycarbonate	40±1	800-900	53.5	3.8	No	The dispersion can be diluted with 80% industrial alcohol , and has good storage stability. Its film has medium hardness, and exhibits excellent water resistance, excellent abrasion resistance, excellent light fastness and excellent hydrolysis resistance. It is suitable for leather, rubber, film substrates, etc.

PUD-2310	Aliphatic/ Polyester	35±1	1100-1200	29.7	1.5	Contains DEF	Its film is soft, and has excellent elasticity, adhesion on PVC, PET and other substrates. It can be diluted with 80-90% industrial alcohol and stored stably. It is suitable for hard-to-adhere leather, fabric coatings, as well as water-based ink for variety of printed film materials.
PUD-2411	Aliphatic/ Polycarbonate	32±1	550-650	46.8	9.6	No	It has small particle size, high acid value, good ductility and elasticity, and good water resistance. It is suitable for use as printing ink.
PUD-1512LF PUD-1512X2	Aliphatic/ Polyester	35±1	1000	10.0	5.5	Contains DEF	Its film is soft, elastic, and has excellent adhesion on the substrate such as PVC, PET, OPP, BOPP, umbrella fabric and nylon etc. It is suitable for the substrate that is difficult to adhere to. PUD- 1512X2 is an enhanced version of PUD-1512LF..
PUD-ZY27	Aliphatic/ Polyether	35±1	Shore A Hardness（A）：83			Contains DMM	The product has excellent temperature resistance, good stripping performance after adding stripping agent. It is suitable for heat transfer coatings in packaging printing and other industries.

8 Waterborne Polyurethanes for Waterbased Wood, Industrial and Decoration Coatings (Include：Hydroxyl-Functional Polyurethane Dispersions)

Sales Grades	Isocyanate/ Polyol Type	Solid Content (%)	OH Content (%, by dry solid)	Shore A Hardness	NMP	Characteristics and Applications
PUD-1591HB	Aliphatic/ Polycarbonate	36±1	-	96	Contains DEF	Its coating has high hardness and excellent adhesion on metal, glass and other substrates. It has excellent water resistance, solvent resistance, chemical resistance, and high weather and stain resistance. It can be used for metal, glass, wood coatings and industrial coating, etc.
PUD-1620X	Aliphatic/ Polycarbonate	35±1	-	97	No	It is solvent-free version of PUD-1591HB.
PUD-917HB	Aliphatic/ Polycarbonate	35±1	-	Elongation: 400-500% Tensile Strength: 16.1Mpa 100%Modulus: 3.0Mpa （without crosslinker）	Contains DEF	Its coating has medium hardness and excellent adhesion on metal substrates. It has excellent heat resistance, wear resistance and alkali resistance. It is mainly used in metal surface treatment and metal coatings.

PUD-920F	Aliphatic/ Polyester-carbonate	35±1	-	87	No	It has excellent water resistance, alkali resistance and hydrolysis resistance. Its film has high hardness, good wear resistance, and chemical resistance. It can be widely used in wood, floor, plastic coating, and acrylic emulsion modification.
PUD-912F	Aliphatic/ Polyester	33±1	-	94-96	No	Its film has high hardness, high gloss, and dries quickly. It has excellent wear resistance and resistance to bond. It is mainly used in printing varnish, wood coating and the modification of acrylic emulsion .
PUD-909F	Aliphatic/ Polyester	33±1	-	Elongation: 380% Tensile Strength: 23.8Mpa 100%Modulus: 6.4Mpa	No	Cost-effective. Its film has medium hardness, high brightness, good water resistance and wear resistance. It is mainly used in printing varnish, wall paint, steel structure, and acrylic emulsion modification.
PUD-F130	Aromatic/ Polyester	35±1	-	90	No	Its film has high hardness, excellent heat and wear resistance. It can be used in wood coating and industrial coatings.
OH-PUD-903	Aliphatic/ Polyester	33±1	1.2	98 （without crosslinker）	No	It contains lower hydroxyl content. Its film has excellent hardness, good water resistance and good resistance to alcohol after adding water-dispersible polyisocyanate crosslinker. It can be used for water-based wood and decoration coatings, etc.
OH-PUD-1538	Aliphatic/ Polyester	35±1	2.5	91 （without crosslinker）	No	Its film has excellent hardness, excellent water resistance and excellent resistance to alcohol after adding water-dispersible polyisocyanate crosslinker. Amino resin can also be used for high temperature curing. It can be used in water-based wood coating, water-based floor coating and water-based industrial coating, etc.

Application and Industry

Dermal Leather Applications

- ✔ High Gloss Finishes
- ✔ Matte Finishes
- ✔ Mid Coat
- ✔ Primer

Textile Applications

- ✔ Textile Coating
- ✔ Textile Printing

Adhesives

- ✔ Heat Seal Adhesives
- ✔ Footwear Adhesives
- ✔ Film To Film Adhesives
- ✔ Laminating Adhesives
- ✔ Textile Adhesives
- ✔ Flexible Packaging Adhesives

Graphic Arts And Flexible Packaging

- ✔ Inks
- ✔ Paper Coating
- ✔ Flexible Packaging
- ✔ Overprint Varnishes
- ✔ Film Coating

Water-Based Synthetic Leather

- ✔ PU Leather Base
- ✔ PU And Pvc Leather Finishes
- ✔ Bond Layer

Industrial Coatings

- ✔ Wood & Furniture Coating
- ✔ Floor Finish
- ✔ Construction Coating
- ✔ Metal Coating And Glass Coating
- ✔ Plastic And Rubber Coating
- ✔ Metal Surface Treatment Chemicals

Other Applications

- ✔ Glove Manufacturing
- ✔ Body Armor
- ✔ Glass Fiber Sizing
- ✔ Cathode Coating for New Energy Batteries

We are working with our customers to discover new uses, inspiration and the latest trends for waterborne polyurethanes. We would like to share with you and help for your requirements.