



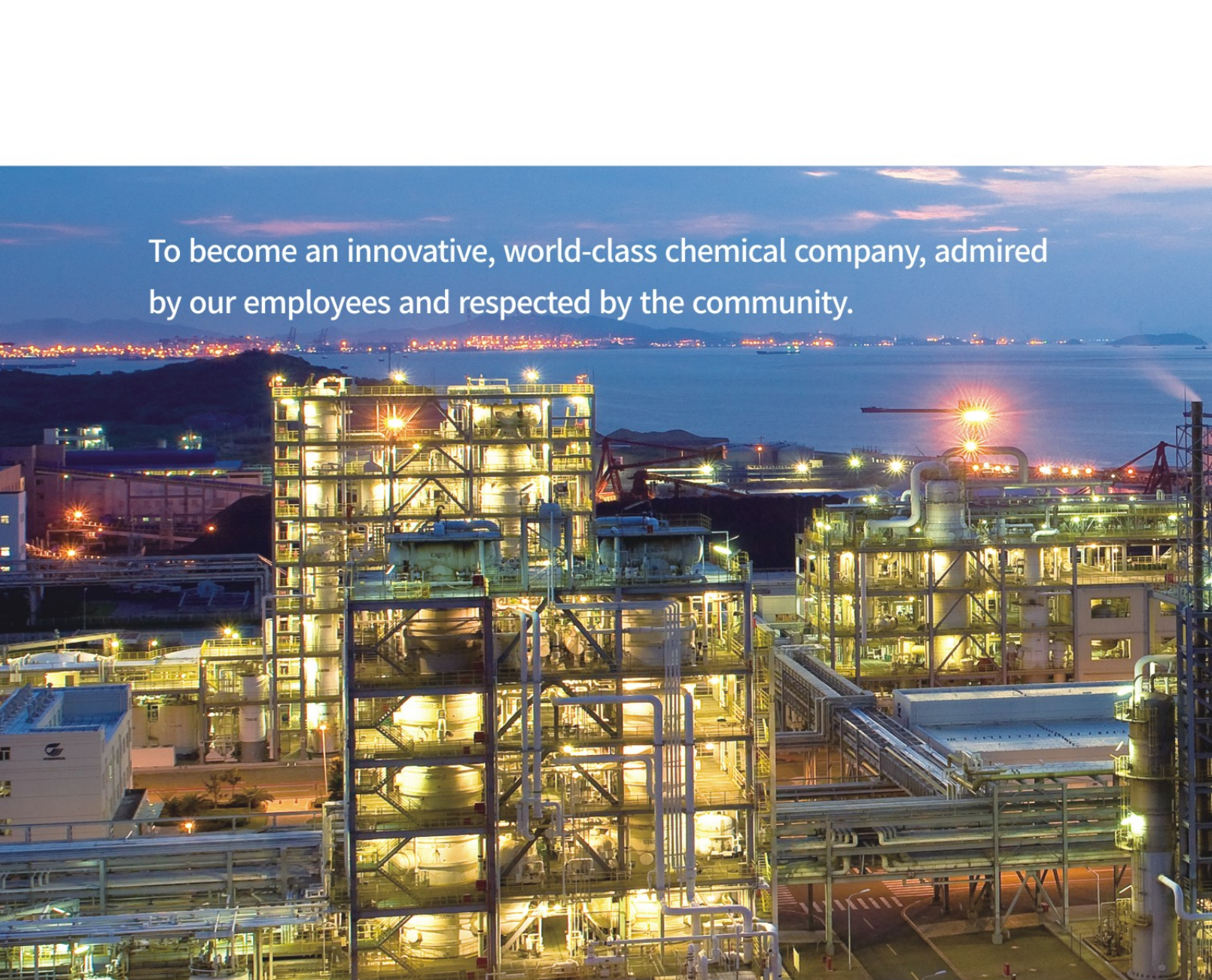
WANHUA CHEMICAL
GROUP CO., LTD.

en.whchem.com

WANTHANOL[®]
Polyester Polyol



Innovation Creates Excellence



To become an innovative, world-class chemical company, admired
by our employees and respected by the community.

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ABOUT US

Wanhua Chemical Group Co., Ltd. is among the global leading suppliers of chemical innovative products. Relying on the continuous innovation, commercialized facilities and efficient operation, the company provides customers with more competitive products and solutions.

Wanhua Chemical has always been adhering to innovation and optimizing industrial structure. Our business covers polyurethanes, petrochemicals, performance chemicals, and emerging materials. The industries include homeware and furniture, sports and leisure, automobiles and transportation, building and construction, electronics and electrical appliances, personal care, and green energy.

Wanhua Chemical has built up nine key production complexes in Yantai, Penglai, Ningbo, Fujian, Sichuan, Zhuhai and Ningdong in China, and Hungary, which are integrated with complete supporting facilities. To provide our customers worldwide with competitive products and comprehensive solutions, Wanhua has established R&D centers in Yantai, Ningbo, and Beijing in China, as well as in North America and Europe, set up subsidiaries and offices in more than ten countries and regions across Asia, Europe, the United States, etc.

Wanhua Chemical will take "Advancing Chemistry, Transforming Lives" as the first mission, we are committed to providing customers with stable, high-quality, competitive products and efficient services, and to being a responsible supplier and industry leader. We will continue to innovate in the field of chemical new materials, lead the development of the industry, and create a better life for mankind!

AWARDS & HONORS

2007

The first prize of National Science and Technology Progress

2008

National Environment-friendly Project

2010

The second prize of National Science and Technology Progress

2011

China Grand Awards for Industry-Recognition Award

2012

Top 100 Innovative Companies in China

2015

Shandong Governor Quality Award

2009-2017

Five consecutive sessions Award for Hewitt Best Employers in China

2018

C&EN-Global Top 50

2019

The first Chinese company to join the Together for Sustainability (Tfs) Initiative in 2019

Won PPG's Excellent Supplier Award in 2016 and 2019

2020

Consolidation of Wanhua Chemical (Fujian) Co., Ltd.

The ethylene cracking unit was successfully started up at once, thus all the key units in ethylene industry chain were successfully commissioned

The Wanhua Sichuan site phase i modified plastics project was successfully delivered

2021

Wanhua ranked 29th among C&EN's Global Top 50 chemical companies

Wanhua obtained EcoVadis gold medal certification

2022

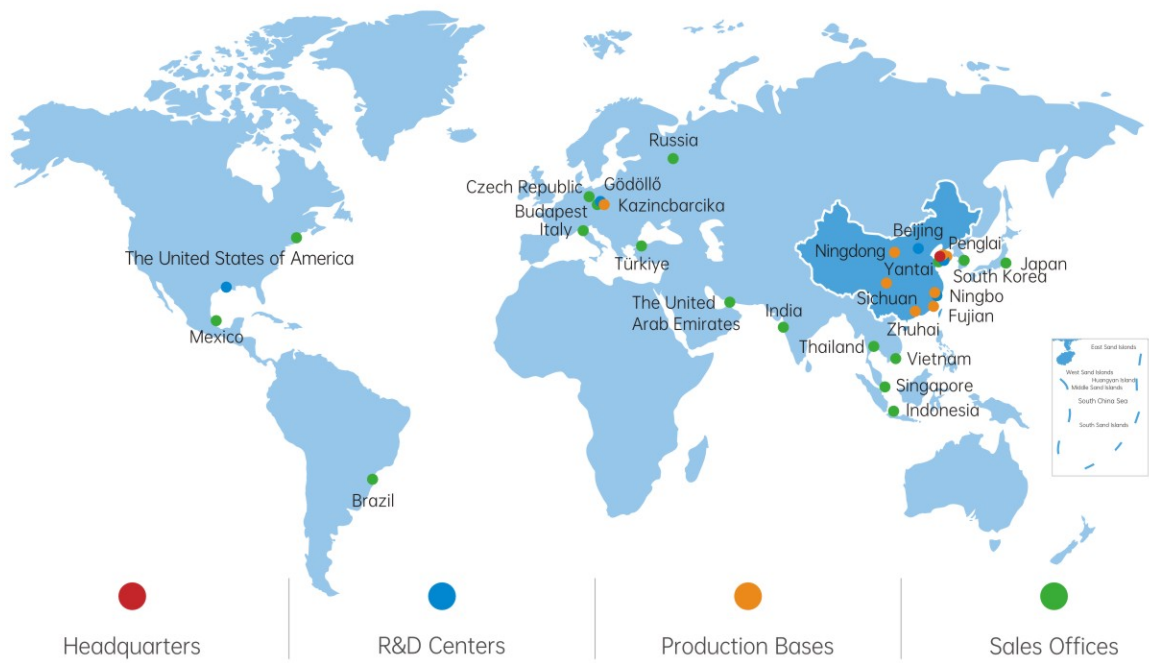
Wanhua ranked 17th among C&EN's Global Top 50 chemical companies

Wanhua ranked 9th among ICIS's Global Top 100 chemical companies

Wanhua attained EcoVadis gold medal certification again

The successful production of silicon copolymerized PC and nylon 12

Global Network



BUSINESS SCOPE

Polyurethane				
• Isocyanate		• Polyether polyol		
Petrochemicals				
• Ethylene	• HDPE	• NPG	• MMA	• BD
• EO	• PVC	• AA	• PO	• MTBE
• MEG	• Propane	• GAA	• PP	• TBA
• SM	• Propylene	• MA	• Butane	• IB
• LLDPE	• NBL	• BA	• IBT	• DIBE
Performance Chemicals				
• Silicone	• Water-based Resins	• EOD	• Specialty Amines	
• Rubbers & Plastics	• Home & Personal Care	• Membrane Material		
Emerging Materials				
• Battery Materials		• Electronic Materials	• 3D Printing Materials	



BUSINESS HIGHLIGHTS



Global leading MDI supplier with one of the largest production capacity.



World-class scale comprehensive C3/C4 petrochemical industrial chain.



One of the few suppliers with whole range of ADI products and integrated industrial chain.



Second largest TPU supplier in the world.



One of the largest polyether polyol and PU system manufacturer in China.

PRODUCT DESCRIPTION

WANTHANOL® Polyester Polyol

WANTHANOL® is brand under Wanhua Chemical, committed to optimize polyurethanes solution with high-quality polyester polyols.

Applications

Mainly as adhesive, coating, PUD, PUR, leather, printing ink, UV resin, CPU and so on. The downstream application covers mining machinery, textiles, shoemaking, constructions, home furnishing, printing, sports & leisure etc.

Characteristics

Oil-resistant, hydrolysis-resistant, heat-resistant, wear-resistant, and tear-resistant.

Categories

WATHANOL® covers nearly 20 series of products including BG, EG, DEG , BDO, HDO, NPG, MPG, MPD etc., having over 80 codes and is still increasing the number with the rapid innovation. In the meantime, for specific requirement, we can provide customized polyester polyols with stable quality and excellent performance.



CONVENTIONAL POLYESTER POLYOL

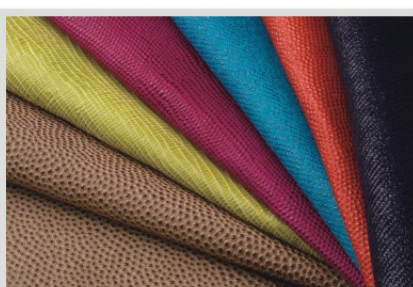
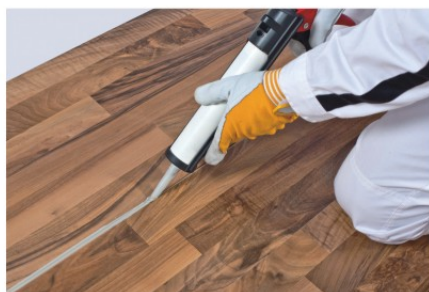
Composition	Codes	Mn	Status (25°C)	OH Value (mgKOH/g)	Max Acid Value (mgKOH/g)	Max Moisture (%)	Max Color Number (Pt-Co)	60°C Viscosity (mPa·s)	80°C	Melting Point (°C)	Applications
EG/AA	WHP-6002	600	Solid	185±10	0.30	0.03	30	170	90	30-50	Adhesive, Coating, Leather Resin, PUD
	WHP-102	1000	Solid	112±6	0.30	0.03	30	275	144	30-50	Adhesive, Coating, Leather Resin, PUD, PUR
	WHP-152	1500	Solid	75±4	0.30	0.03	30	550	310	30-50	Adhesive, Coating, Leather Resin, PUD
	WHP-202	2000	Solid	56±3	0.30	0.03	30	1000	454	35-55	Adhesive, Coating, Leather Resin, PUR
	WHP-302	3000	Solid	37±2	0.30	0.03	30	2030	933	35-55	Adhesive, Coating, Leather Resin, PUD
BG/AA	WHP-6004	600	Solid	185±10	0.30	0.03	30	116	72	25-45	Adhesive, Coating, Leather Resin, PUD
	WHP-104	1000	Solid	112±6	0.30	0.03	30	290	145	30-50	Adhesive, Coating, Leather Resin, PUD
	WHP-204	2000	Solid	56±3	0.30	0.03	30	1170	668	35-55	Adhesive, Coating, Leather Resin, PUD, PUR
	WHP-254	2500	Solid	45±2	0.30	0.03	30	2150	1079	40-60	Adhesive, Coating, Leather Resin, PUD
	WHP-304	3000	Solid	37±2	0.30	0.03	30	2850	1490	40-60	Adhesive, Coating, Leather Resin, PUD
	WHP-404	4000	Solid	28±2	0.30	0.03	30	5960	3050	40-60	Adhesive, Coating, Leather Resin, PUD, PUR
	WHP-504	5000	Solid	22±2	0.30	0.03	30	12830	5910	40-60	Adhesive, Coating, Leather Resin, PUD, PUR
NPG/AA	WHP-5005	500	Liquid	225±10	0.30	0.03	30	197	91	<25	Adhesive, Coating, Leather Resin, UV Resin
	WHP-105	1000	Pasty	112±6	0.30	0.03	30	620	254	30-50	Coating, PUD, UV Resin
	WHP-205	2000	Pasty	56±3	0.30	0.03	30	2540	800	35-55	Adhesive, Coating, PUD, UV Resin, Printing Ink
	WHP-305	3000	Pasty	37±2	0.30	0.03	30	4600	1620	35-55	Adhesive, Coating, PUD, UV Resin, Printing Ink
	WHP-405	4000	Pasty	28±2	0.30	0.03	30	9870	3800	40-60	Adhesive, Coating, PUD, UV Resin, Printing Ink
HDO/AA	WHP-5006	500	Solid	225±10	0.30	0.03	30	84	57	40-60	Adhesive, Coating, PUD
	WHP-106	1000	Solid	112±6	0.30	0.03	30	241	129	40-60	Adhesive, Coating, PUD
	WHP-156	1500	Solid	75±4	0.30	0.03	30	510	290	40-60	Adhesive, Coating, PUD, PUR
	WHP-206	2000	Solid	56±3	0.30	0.03	30	912	471	40-60	Adhesive, Coating, PUD, PUR
	WHP-306	3000	Solid	37±2	0.30	0.03	30	2840	1400	40-60	Adhesive, Coating, PUR
	WHP-356	3500	Solid	32±2	0.30	0.03	30	3970	2000	45-65	PUR
	WHP-406	4000	Solid	28±2	0.50	0.03	30	4740	2280	45-65	PUR
	WHP-556	5500	Solid	20±2	0.50	0.03	30	12990	7290	45-65	Adhesive, Coating, PUR
DEG/AA	WHP-107	1000	Liquid	112±6	0.30	0.03	30	230	122	<25	Adhesive, Coating, UV Resin
	WHP-207	2000	Liquid	56±3	0.30	0.03	30	811	395	<25	Adhesive, Coating, UV Resin
	WHP-307	3000	Liquid	37±2	0.30	0.03	30	1890	948	<25	Adhesive, Coating, UV Resin
MPG/AA	WHP-108	1000	Liquid	112±6	0.30	0.03	30	230	150	<25	Adhesive, Coating, Printing Ink
	WHP-158	1500	Liquid	75±4	0.30	0.03	30	570	320	<25	Adhesive, Coating, Printing Ink
	WHP-208	2000	Liquid	56±3	0.30	0.03	30	1470	672	<25	Adhesive, Coating, Printing Ink
	WHP-308	3000	Liquid	37±2	0.30	0.03	30	3880	1680	<25	Adhesive, Coating, Printing Ink
	WHP-408	4000	Liquid	28±2	0.30	0.03	30	7670	3390	<25	Adhesive, Coating, Printing Ink

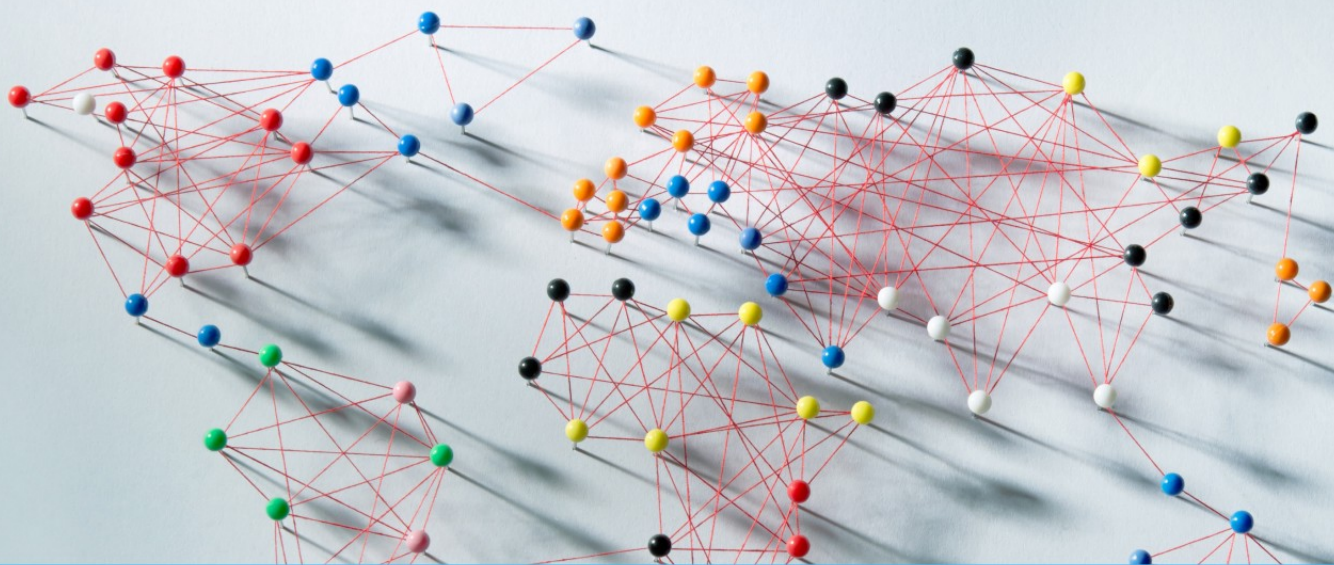
CONVENTIONAL POLYESTER POLYOL

Composition	Codes	Mn	Status (25°C)	OH Value (mgKOH/g)	Max Acid Value (mgKOH/g)	Max Moisture (%)	Max Color Number (Pt-Co)	60°C Viscosity (mPa·s)	80°C Viscosity (mPa·s)	Melting Point (°C)	Applications
MPD/AA	WHP-109	1000	Liquid	112±6	0.30	0.03	30	430	180	<25	Adhesive、Coating、PUD、Printing Ink
	WHP-209	2000	Liquid	56±3	0.30	0.03	30	845	414	<25	Adhesive、Coating、PUD、Printing Ink
	WHP-309	3000	Liquid	37±2	0.30	0.03	30	3510	1430	<25	Adhesive、Coating、PUD、Printing Ink
	WHP-409	4000	Liquid	28±2	0.30	0.03	30	3522	1670	<25	Adhesive、Coating、PUD、Printing Ink
EG+PG/AA	WHP-1021	1000	Liquid	112±6	0.30	0.03	30	520	210	<25	Adhesive
	WHP-1521	1500	Pasty	75±4	0.30	0.03	30	602	262	30-50	Adhesive
	WHP-2021	2000	Pasty	56±3	0.30	0.03	30	959	444	30-50	Adhesive
EG+BG/AA	WHP-1024	1000	Liquid	112±6	0.30	0.03	30	346	149	<25	Adhesive、Coating、UV Resin
	WHP-1524	1500	Liquid	75±4	0.30	0.03	30	604	334	<25	Adhesive、Coating、UV Resin
	WHP-2024	2000	Pasty	56±3	0.30	0.03	30	1120	569	20-40	Adhesive、Coating、Printing Ink
	WHP-3024	3000	Pasty	37±2	0.30	0.03	30	2800	1360	25-45	Adhesive、Coating、Printing Ink
	WHP-4024	4000	Pasty	28±2	0.30	0.03	30	5940	2630	30-50	Adhesive、Coating、Printing Ink
EG+DEG/AA	WHP-50027	500	Liquid	225±10	0.30	0.03	30	310	120	<25	Adhesive、Coating
	WHP-1027	1000	Liquid	112±6	0.30	0.03	30	326	133	<25	Adhesive、Coating
	WHP-1527	1500	Liquid	75±4	0.30	0.03	30	609	245	<25	Adhesive、Coating
	WHP-2027	2000	Liquid	56±3	0.30	0.03	30	1090	440	<25	Adhesive、Coating
	WHP-5627	2000	Pasty	56±3	0.30	0.03	30	849	353	25-45	Adhesive、Coating
	WHP-3027	3000	Pasty	37±2	0.30	0.03	30	2560	1080	30-50	Adhesive、Coating
BDO+NPG/AA	WHP-1045	1000	Liquid	112±6	0.30	0.03	30	427	179	<25	PUD、UV Resin
	WHP-2045	2000	Liquid	56±3	0.30	0.03	30	1400	638	<25	PUD、Adhesive、Coating
BDO+HDO/AA	WHP-60046	600	Liquid	185±10	0.30	0.03	30	118	74	<25	Adhesive、Coating、UV Resin
	WHP-2046	2000	Liquid	56±3	0.30	0.03	30	876	466	<25	Adhesive、Coating
BDO+MPG/AA	WHP-1048	1000	Liquid	112±6	0.30	0.03	30	835	322	<25	Adhesive、Coating
	WHP-2048	2000	Liquid	56±3	0.30	0.03	30	1263	560	<25	Adhesive、Coating
	WHP-3048	3000	Liquid	37±2	0.30	0.03	30	2230	1180	<25	Adhesive、Coating
NPG+HDO/AA	WHP-1056	1000	Solid	112±6	0.30	0.03	30	380	170	<25	Adhesive、Coating
	WHP-1556	1500	Solid	75±4	0.30	0.03	30	568	296	<25	Adhesive、Coating
	WHP-2056	2000	Solid	56±3	0.30	0.03	30	993	535	<25	Adhesive、Coating
DEG+NPG/AA	WHP-2057	1000	Liquid	56±3	0.30	0.03	30	1430	436	<25	Adhesive、Coating

POLYESTER POLYOL FOR PUR

Composition	Codes	Mn	OH Value (mgKOH/g)	Max Acid Value (mgKOH/g)	Tg °C	Softening Point (°C)	Melting Point (°C)	Setting Time (sec)	Viscosity (Pa·s)	°C
SA	WHP-SA1200	2000	55±5	8-12	10	64	—	10	1	130
	WHP-SA1201	3500	30±4	4	20	71	—	6	3	130
	WHP-SA1600	3000	35±4	2	30	88	—	1	10	130
	WHP-SA1601	3000	35±4	2	30	88	—	1	10	130
	WHP-SA1602	5500	21±3	2	30	102	—	1	50	130
	WHP-SA1605	2600	42±4	2	50	105	—	<1	50	130
AQ	WHP-AQ1201	3500	30±4	2	-15	45	—	—	11	80
	WHP-AQ1600	3500	30±4	2	-30	—	—	—	10	80
	WHP-AQ1601	3500	30±4	2	-30	—	—	—	8	80
	WHP-AQ1605	5500	21±3	2	-50	—	—	—	6	80
	WHP-AQ1607	3500	30±4	2	-60	40	32	—	2	80
AD	WHP-AD1200	3750	30±2	2	—	85	85	35	0.3	130
	WHP-AD1201	3750	30±2	2	-20	87	—	40	4	130
	WHP-AD1202	3750	30±2	2	-60	59	55	80	2	80
	WHP-AD1204	3750	30±2	2	—	73	70	20	2	80
	WHP-AD1206	3750	30±2	2	—	67	65	35	2	80
	WHP-AD1600	3750	30±2	2	-25	123	123	70	3	130
	WHP-AD1601	3750	30±2	2	-30	110	110	90	2	130
	WHP-AD1602	3750	30±2	2	-40	97	96	120	1	130
	WHP-AD1605	3750	30±2	2	-30	118	115	20	0.7	130
	WHP-AD1800	8500	13±1	2	-60	63	57	50	15	80
	WHP-AD1801	5500	20±2	2	-60	61	56	50	5	80
	WHP-AD1802	6500	17±2	2	-60	63	57	50	10	80
	WHP-AD1803	2000	56±3	2	-60	55	53	130	0.5	80





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Disclaimer

The figures in this document are typical values for reference only. The guaranteed values in the sales contract shall prevail. Users are responsible for testing products purchased from the Company to verify the suitability for the proposed process, application, and standards. As applications and processing of our products are affected by various factors, which are all beyond the control of the Company, thus users shall bear full responsibility. It is our duty to help customers solve technical issues that arise in the use of our products, but the Company shall not be liable for any indirect damages resulting from the technical support.

The Company shall not be liable for the following under any circumstances:

- (1) Indirect, secondary, or incidental losses, or loss of potential profits;
- (2) Losses of a third party other than the customer resulting from our products being resold, leased, or given;
- (3) Losses in other raw materials purchased aside from our products, losses in labor or utility, or losses due to maintenance costs or the suspension of production.



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