



WANHUA CHEMICAL
(BEIJING) CO., LTD.

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Automotive Polyurethane Products



Innovation Creates Excellence

A woman with reddish-brown hair tied back with a white headband is smiling as she buckles a baby into a red and black car seat. The car seat is placed on the back seat of a car. The woman is wearing a white tank top and light blue jeans. The baby is wearing a white shirt and a red and white patterned skirt. The car's interior is visible, including the door panel and the back seat. The background shows a blurred outdoor scene with greenery and buildings.

**A WONDERFUL LIFE
STARTS WITH POLYURETHANE !**

WANHUA CHEMICAL (BEIJING) CO., LTD.

Company Profile

Wanhua Chemical (Beijing) Co.,Ltd. is a wholly-owned subsidiary of Wanhua Chemical Group Co., Ltd. Wanhua Beijing is a high-tech company specialized in PU application technology; we have the largest PU R&D facility in China and a China national accredited laboratory.

Based on our advanced technology platforms, outstanding customer understanding and global operation capability, we provide value added product and service in vast variety industries including automotive, furniture, rail transit, coating and adhesives. Our products are exported to major countries around the world.

We hope to supply the better applied technology and higher quality service for you!

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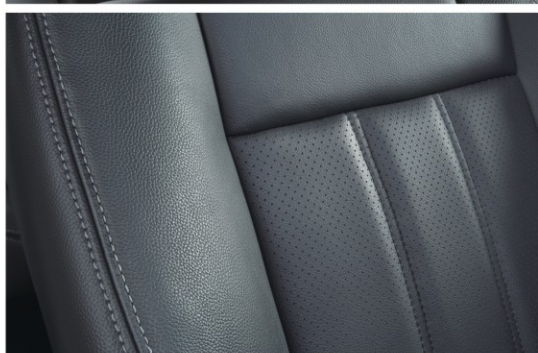
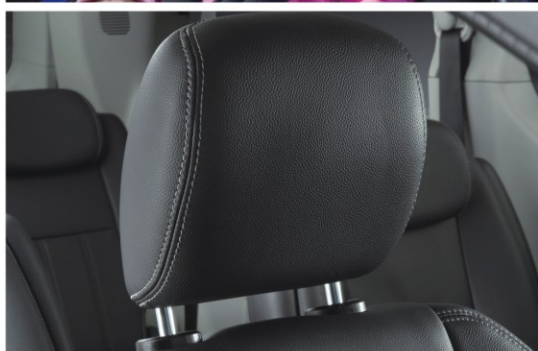
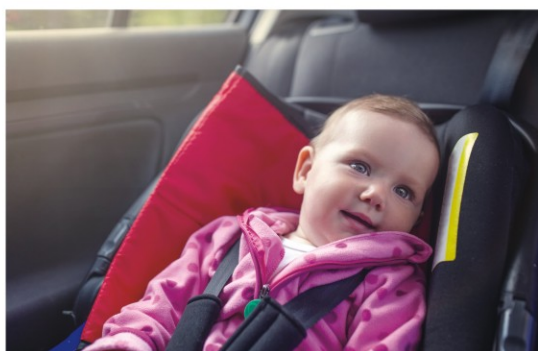
SEATING

As one of the greatest polyurethane consumption of inner parts, automotive seating plays an important role in the driving comfort and safety. Automobile manufactures are constantly finding ways to improve product quality, simplify production process and reduce cost.

Trends and technology in polyurethane seating

- Lightweight, low-density and low-thickness
- Safe and environmental friendly
- Low-odor and low emission
- Improving both static and dynamic comfort
- Improving the durability of the seat

Wanhua Beijing has developed a series of modified MDI products named **WANVATE**[®] for automotive seating flexible foam, which is characterized by safety and environmental friendliness, excellent physical properties and good durability. They not only can meet the increasingly strict low-cost, low emission and the safety requirements of the automotive industry, but also provide broad processing latitude and density range, offering a wide choice to our customers.





WANATE[®] Modified MDI

Compared to TDI systems, Modified MDI products have rather low vapor pressure, which can greatly improve the safety of the product as well as storage, transportation and manufacturing environment. And as the structure of Modified MDI can be tailored to offer more flexibility in product design, they could be optimized to meet different customer needs.



Based on the above modified MDI, Wanhua Beijing Chemical Materials has also developed the corresponding systems, which are fast curing, have excellent physical properties and durability, and easy to make dual-hardness foam, And the wide processing and density latitude of our products can give you a wide choice to meet the OEM specifications.

Typical physical and chemical properties of **WANATE**[®] Modified MDI

Products	NCO (%)	Viscosity	Characteristics
WANATE [®] 8001	28.8-29.8	55-75	Good flowability, high foamability, suitable for medium and low density automotive seating.
WANATE [®] 8002	26.3-27.3	120-160	Fast cure,broad processing latitude, suitable for medium and high density automotive seating.
WANATE [®] 8007	29.0-30.0	50-70	Good flowability, high foamability, suitable for medium and low density automotive seating.
WANATE [®] 8018	29.0-30.0	60-80	Open cell, broad processing latitude, suitable for medium and low density automotive seating.
WANATE [®] 8019	26.0-27.0	110-150	Open cell and latex feeling, suitable for medium and high density automotive seating.
WANATE [®] PM8221	31.7-32.7	25-45	High hardness, suitable for medium, low density automotive seating and motorcycle seating.
WANATE [®] PM8225	32.1-33.1	15-35	High foamability, good physical properties, suitable for low density automotive seating.
WANATE [®] 7024	36.3-37.3	10-30	MT product, suitable for low density automotive seating.
WANATE [®] PM-8223B	32.1-33.1	10-30	Excellent physical properties, suitable for medium and low density automotive seating
WANATE [®] 7050	39.0-40.0	10-30	TM50 product, excellent processing tolerance, suitable for low-density seating
WANATE [®] 7080	44.3-45.3	5-25	TM20 products, with excellent physical properties, suitable for very low-density seating

Typical physical properties of flexible foams made by **WANATE**[®]

Items	Method	Unit	Index		
			80	90	100
Core Density	ISO 845	kg/m ³	45-60	45-60	45-60
CLD 40%	ISO 3386	kPa	>3.5	>6.0	>7.0
Tensile Strength	ISO 1798	kPa	>100	>130	>150
Elongation at Break	ISO 1798	%	>80	>80	>80
Tear Strength	ISO 8067	N/cm	>1.7	>2.2	>2.5
50% Dry Compression Set	ASTM 3574	%	<6	<8	<10
50% Wet Compression Set	ASTM 3574	%	<15	<20	<20
Flammability	FMVSS 302		Pass	Pass	Pass



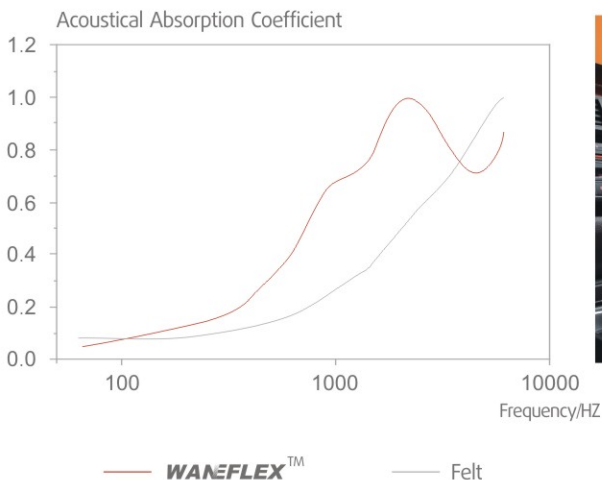
ACOUSTIC FOAM

In recent years people pay more and more attention to the noise and vibration in a car. And too much noise and vibration may lead to tiredness and distraction of passengers, especially the driver. Superfluous noise and vibration can also result in adverse reactions like faint and naupathia which dramatically affect the comfort and safety for driving. It is even believed that the inner noise and vibration can be one of the standards to judge the comfort level of a luxury car.

There are generally two methods to reduce the inner noise. One is reducing sound radiation by structure improvement of mechanical equipments such as engine and suspension, the other is using acoustic materials to prevent the transmission of noise, which is quite common nowadays.

As the largest MDI manufacturer in Asia Pacific, Wanhua Beijing is specialized in the research, production of MDI and related products. Wanhua Beijing has developed a series of modified MDI and systems for PU acoustic foam, which are widely applied in automotive NVH parts like carpet, front wall, tunnel, rootfliner, etc.

WANEFLEX™ is our registered trademark for PU foam systems for automotive applications, which includes three series of flexible, semi-rigid and rigid foams. **WANEFLEX™** is light weighted, easy to manufacture, of low emission, and have excellent physical and acoustic properties. We are committed to providing comprehensive polyurethane solutions to improve acoustic comfort and safety for automotive interior manufacturers.



Advantages of **WANEFLEX™** are as follows

- Light weight
- Excellent sound absorption
- Low emission
- Good physical properties
- Outstanding flowability and fast cure

Wanhua Beijing's elastic and visco-elastic acoustic foam systems, based on modified MDI and all water blowing, can be foamed on the back of rubber layer and foam automotive interiors like front wall, luggage carrier and carpet, which can effectively decrease the inner noise and vibration.



Typical Properties of **WANEFLEX™** HR Acoustic System

Items	Method	Unit	Properties
Core Density	ISO 845	Kg/m ³	50-80
Tensile Strength	ISO 1798	KPa	≥80
Elongation at Break	ISO 1798	%	≥80
Tear Strength	ISO 8067	N/cm	≥2.0
50% Dry Compression Set	ASTM 3574	%	≤8
Flammability	FMVSS 302		PASS
VOC	PV3341	μ gc/g	≤50
Fogging	PV3015	mg	≤2
Odor	PV3900		≤3.5
Formaldehyde	PV3925	mg/kg	≤10



Typical Properties of **WANEFLEX™** R Acoustic System

We have developed acoustic systems for dry/wet process roofliner applications. Our products exert excellent support, noise reduction and heat insulation performance due to its good mechanical and sound absorption performance, and it can absolutely meet the rigorous requirements of automotive industry.

Items	Test Method	Unit	Dry Process			Wet Process		
Core Density	ISO 845	kg/m ³	34-36	27-29	24-26			
Compressive Hardness	GB/T 8813-2008	kPa	190-200	130-160	100-110			
Bending Strength	GB/T 8812-1988	kPa	200-220	—	—			
Tensile Strength	GB/T 9641-88	kPa	200-210	200-220	180-200			
Elongation at Break	GB/T 9641-88	%	14-16	18-20	15-18			
Open Cell Content	ASTM-6226-05	%	>80	>85	>85			
Dimensional Stability (24h, 80°C)	GB/T 8811-2008	%	<0.5	<0.5	<0.5			



INTEGRAL SKIN FOAM

The integral skin polyurethane foams

- Good flowability and wide processing latitude
- Can be produced in a wide choice of textures and colors
- Compatible with current in-mould coatings and mould releases
- Good dimensional stability
- Fast demould
- Reducing production cost



The integral skin polyurethane foams have excellent physical properties, soft touch and suitable stiffness, which are especially suitable for steering wheels, air bag covers and gear knobs in automotive industry and other applications such as armrest, bicycle seat, office and gymnastic equipments.

To provide a comprehensive solution to our customers, Wanhua Beijing has developed a range of modified MDI products and systems for these applications, which provide superior physical properties, fast cure and durability. To meet the increasing comfort and safety requirements of automotive industry, our products also offer low emission, soft touch. And the wide processing and density latitude of our products can give customers a wide choice to meet the OEM specifications.

Typical Modified MDI products for integral skin foam

Products	NCO (%)	Viscosity (mPa·s 25°C)	Characteristics
WANVATE [®] 8626	27.8-28.8	110-150	High hardness, fast cure and good storage stability
WANVATE [®] 8629	25.5-26.5	200-400	Excellent physical properties and soft touch
WANVATE [®] 1631	28.0-30.0	30-60	Good open cell, excellent physical properties
WANVATE [®] 8625	28.1-29.1	70-110	Excellent mechanical properties, good low temperature storage resistance



GLASS FIBER REINFORCED PU COMPOSITES

With the development of light weight and integration of automobile industry, glass fiber reinforced PU composites have been more and more widely used in the production of dashboard, sunroof and other parts. So did in sleeper, window frame, bathtub, lamp post, etc.

Product features

- Light weight
- Flexible design
- Good filling in complicated mold
- Good corrosion resistance
- Excellent mechanical properties
- Excellent thermostability



Our company has different system products for different production process, such as Long Fiber Injection (LFI), and Paper Honey Comb (PHC), Structural Reaction Injection Molding (SRIM).

Typical properties of LFI system

Our LFI products can be applied in the production of dashboard, luggage rack cover, air duct of bus and truck.

Products	Mold Temp (°C)	Demold Time (min)	Density (kg/m ³)	Feature
WANEFLEX™ 683D WANATE® 82681	55-60	5-7	600-800	Fast cured, excellent fluidity and filling, high dosage of glass fiber
WANEFLEX™ 682 WANATE® 82681	50-55	10-15	800-1000	Excellent mechanical properties and heat resistance, high surface finish

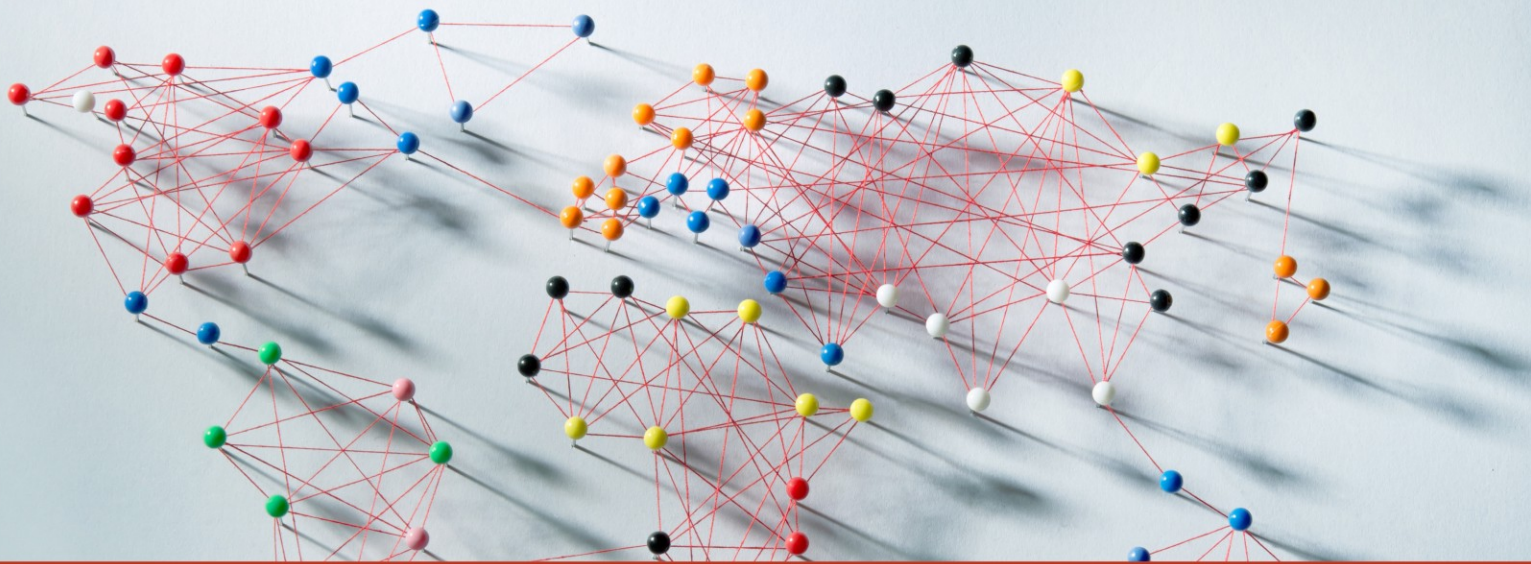
Typical properties of PHC system

Our PHC product can be applied in the production of sunroof, trunk floor, coat rack, bearing wall, stage setting up, etc.

Products	Mold Temp (°C)	Demold Time (min)	Density (kg/m ³)	Feature
WANEFLEX™ 693 WANATE® 8217	110-130	90-120	200-500	Good continuous demoulding performance, long operation time and fast cured

Our SRIM products are suitable for the production of automobile sunroof.





CONTACT US

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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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