



WANHUA CHEMICAL
GROUP CO., LTD.

en.whchem.com

Wanhua Chemical
WANFORITE® Membrane Materials



Wanhua Chemical Group Co., Ltd.
Performance Material Business Unit

Add : No.59, Chongqing Street, Wanhua Industrial Park, Yantai,
Shandong Province, P.R.China
Tel : 400-960-0309 transfer to 6
E-mail : polymer@whchem.com
Web : en.whchem.com

Products Disclaimer

The information provided here is for reference only, and the specification will be provided in the sales contract. It is the user's responsibility to test the material and its suitability for the processing. It is out of company's control of various factors of the processing and applications of our product, and we can not take any responsibility for another party's action, nor will we be responsible for any indirect damages while using our products. The user is welcome to contact our customer service center with questions on our products.



WeChat



ABOUT WANHUA

About Wanhua

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, emerging materials and future industry. 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 ten key production complexes in Yantai, Penglai, Ningbo, Sichuan, Fujian, Zhuhai and Ningxia in China, and Hungary, Czech Republic, 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, Shanghai, and Beijing in China, as well as in Spain and Hungary, 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!

5 | Strategic Pillars

6200+ | Invention Patents

10 | Production Sites

29000+ | Staffs



Global Network





Wanhua Chemical
is among the global leading suppliers
of chemical innovative products

ABOUT US

Membrane Materials Business

As early as in 2008, Wanhua MDI project in Ningbo industrial park was awarded "national environmental friendly". As one of the "sustainable development" TFS agreement of Chinese enterprises, Wanhua continue to expand both upstream and downstream, upgrade the industry, engaged in water treatment membrane by the concept of green environmental protection business of research and development, manufacture and sales.

Wanhua chemical membrane business depends on the integration of industrial chain advantage, independent innovation to develop heat method of hollow fiber ultrafiltration membrane, household reverse osmosis membrane, industrial reverse osmosis membrane, seawater desalination membrane products, widely used in chemical industry, steel industry, municipal, and photovoltaic power development, to create a better life for human beings.

Application



Chemical



Steel



Municipal



PV



Electric Power



Electronics



New Energy



Material Separation

LEAN MANUFACTURING

Lean Manufacturing

High standard factory construction,
high integrated production,
high goal to develop into the world's leading membrane factory.



Advantage of RO membrane:

- Precise and uniform sealing glue line
- Precise and uniform membrane interval between blades
- Shorter but more membrane leaves

Advantage of UF membrane:

- Automatic casting production line, the product is more stable
- Polyurethane centrifugal encapsulation, broken wires rate is lower



Stable Quality



Consistency of each element
and componentHigher



Higher production rate &
lower pressure drop

RESEARCH & DEVELOPMENT

Research & Development

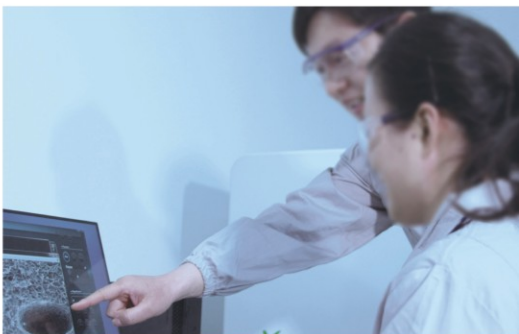
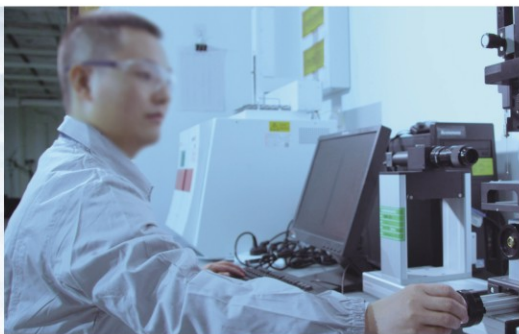
Laboratory testing platform

Basic research	Pilot scale laboratory	Membrane components evaluation laboratory
2000 m ²	1500 m ²	1000 m ²



40 Engineers in R&D Team | 70+ Patents

80% of Employees with Master's or Doctoral Degrees



Dyeing test
X-ray fluorescence spectrum
SEM, EDS
FT-IR

Fujiwara experiment
GC-MS, LC-MS
CHN element analysis
ICP



WANFORITE®
Seawater
Desalination



High desalination
rate



High Boron
Rejection



High chemical stability
desalination layer



Suitable for high salt
content water

Type	Unit	SW-8040-HP70	SW-8040-400	SW-8040-440
Salt Rejection	%	99.75	99.80	99.80
Boron Rejection	%	/	92.00	92.00
Permeate Flow Rate	GPD	8800	7500	8250
	m³/d	33.30	28.40	31.20
Active Area	ft²	400	400	440
	m²	37.20	37.20	41.00
Channel width	mil	34	34	28
Test pressure	psi	800	800	800
	MPa	5.50	5.50	5.50
Test Concentration	ppm	32000	32000	32000
Recovery	%	8	8	8
Maximum Operating Pressure	psi	1200	1200	1200



WANFORITE[®]

Industrial Reverse Osmosis Membrane



Resistance to
chemical cleaning



Anti-pollution



High desalination rate

Type	Unit	BW-4040-LP	BW-8040-400-LP	BW-8040-400-FR	BW-8040-440-LP	BW-8040-440-ULP
Salt Rejection	%	99.50	99.50	99.50	99.50	99.50
Permeate Flow Rate	GPD	2400	10500	10500	11550	12100
	m ³ /d	9.10	39.70	39.70	43.70	45.80
Active Area	ft ²	85	400	400	440	440
	m ²	7.90	37.20	37.20	41.00	41.00
Channel width	mil	28	28	34	28	28
Test pressure	psi	225	225	225	225	150
	MPa	1.55	1.55	1.55	1.55	1.03
Test Concentration	ppm	2000	2000	2000	2000	1500
Recovery	%	15	15	15	15	15
Maximum Operating Pressure	psi	600	600	600	600	600



WANFORITE®

Hollow Fiber
Ultrafiltration
Membrane



Resistance to acid
alkali washing



Good filtration precision



Long service life

Type	Unit	UF-0685-50	UF-0685-65	UF-0770	UF-0860	UF-0880	UF-0880X
Active Area	m ²	50	65	56	51	77	80
Module Diameter	mm	165	165	180	225	225	225
Flow range	m ³ /h	2.0~6.0	2.6~7.8	2.2~6.7	2.0~6.1	3.1~9.2	3.2~9.6
Turbidity	NTU	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sludge density index SDI	NA	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
PH	NA	1~14	1~14	1~14	1~14	1~14	1~14
Highest concentration of alkali cleaning	%	5%	5%	5%	5%	5%	5%
Resistance NaClO concentration	ppm	10000	10000	10000	10000	10000	10000
Membrane fiber strength	N	8~10	8~10	8~10	8~10	8~10	8~10
Operating temperature range	°C	5~45	5~45	5~45	5~45	5~45	5~45
Maximum water pressure	Bar	6.0	6.0	6.0	6.0	6.0	6.0
Maximum backwashing pressure	Bar	2.5	2.5	2.5	2.5	2.5	2.5
Largest pressure difference	Bar	3.0	3.0	3.0	3.0	3.0	3.0
Maximum inlet pressure	Bar	2.0	2.0	2.0	2.0	2.0	2.0
Recommend gas washing flow	Nm ³ /h	5.0	5.0	5.0	5.0	5.0	5.0

WANFORITE®

Household RO Membrane Sheet



High flux

Hydrophilic group modified polyamide layer design of permeable channels, speed up the water molecules through, more suitable for 800 GDP, GDP of 1000 and 1200 GDP of high-end water purification machine.



High desalination

Hole size optimization of permeable channels, at the same time of water molecules are more likely to be through, to raise a slightly bigger, the interception of bivalent hydrated ion rate, tap water in different regions and TDS are effective desalination.



Slow attenuation

Layer structure of aromatic cross-linked polyamide, plus secondary crosslinking technology and surface hydrophilization modified technology, while strengthen the structure rigidity, improve hydrophilic membrane surface, effectively ease the desalination layer compaction and membrane pollution water rate attenuation caused by the problem.

Grade	Salt Rejection	Water Flux
TW-HR	>99.6%	68~76 LMH (40~45 GFD)
TW-HF-R	>99.4%	76~85 LMH (45~50 GFD)
TW-UHF	>99.0%	96~105 LMH (57~62 GFD)
TW-UHF+	>98.8%	107~115 LMH (63~68 GFD)

Test condition: 1500 ppm NaCl feed, 150 psi feed pressure, 25°C (77°F), pH 7.5, Test time 30 minutes.

Typical values for reference

Flatsheet Size

Flatsheet Width	1070mm
Active Width	1020 mm
Thickness	130±5 μm

Roll Size

Length	500 m
Active Area	5490 ft ² (510 m ²)

SERVICE

SERVICE

Wanhua Membrane Technical Service Team is committed to providing customers with a full lifecycle service

Pre-sale	In-sale	After-sale
Technical Exchange	Installation Guidance	Regular Follow-up
System Calculation	Technical Training	Cleaning Guidance
Water quality test		Customer feedback handling
Membrane Samples		



CERTIFICATION

CERTIFICATION



PARTNERS

Partners

