



INTEGRATED MEMBRANE TECHNOLOGY SOLUTION

— JIANGSU JIUWU HI-TECH CO.,LTD CHINA —



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FILTRATION & SEPARATION EXPERT



Purification



Clarification



Concentration

JIUWU HI-TECH has become the world's leading producer of ceramic membrane and system integrated provider, ceramic membrane production capacity has reached 200,000 pieces per year.

JIUWU HI-TECH has advanced R&D center, many material scientists, experienced engineers and workers and more than one hundred of pilot. JIUWU HI-TECH provides total solution from trial, design, manufacturing, installation, commissioning and after-sales service.

JIUWU HI-TECH has abundant successful applications in Food&Beverage, Bio-pharm, Environmental and Chemical industry, etc. Many applications are unique in the world, more than 50 patents regarding ceramic membrane, system and process application.

20⁺ YEARS
RICH EXPERIENCES

50000⁺ M²
MODERN FACTORY

40⁺ COUNTRIES & REGIONS
BUSINESS SCOPE

1000⁺ CUSTOMERS
IN SERVICE

100⁺ PERSONS
R & D TEAM

5000⁺ SETS
INDUSTRIAL MEMBRANE SYSTEM

RESEARCH & DEVELOPMENT

Our well-equipped R&D facilities allow us to perform tests and feasibility studies that simulate most process conditions.



We offer lab test, on site pilot test, alternative technologies and final report which includes process and economical plan.



PROCESS DESIGN & ENGINEERING

The process and engineering department has extensive experiences and knows how to ensure the best available technology is applicable to all projects. Project pre-study, design, cost estimation, engineering and project management are all managed by professionals. Customer requirements always play an important role in the realization of the project. During the engineering phase, customer requirements are translated into specific solutions. Combining our process expertise with our project capabilities ensures the end result.



MANUFACTURE

- 50000m² modern production plant
- Advanced membrane elements, modules and complete equipment processing technology
- Membrane elements and their complete system production equipment and testing equipment
- Capable of manufacturing equipment or systems that meets customer requirements
- Guarantee the continuous and stable production



CNC Machining Center

Automatic Welding Machine

CNC Water Cutting Machine

INSTALLATION & COMMISSIONING

We are usually pre-assembled for maximum cost effectiveness and deliver in the form of sub-assemblies on site.

We can supervise the installation, start-up and commissioning of the system.

Our experts are highly trained and experienced, their average service life is more than ten years and they are confident in processes and systems.

Our personnel can also provide practical training for plant operators.



AFTER -SALES SERVICE



- Engineering & Consulting service
- Refurbishment and system upgrading
- Planned maintenance contracts
- Membrane cleaning
- Spare parts and consumables
- On-site training



CERAMIC MEMBRANE PRODUCT

Technical specifications

- Support/ Membranes Material: Al₂O₃/ TiO₂
- Operating temperature:<150 °C
- Operating maximum pressure: 10 bars
- pH operating range: 0-14



Advantages

- Long working life
- Narrow pore size distribution
- Easy to be cleaned and regenerated
- Excellent performance in MF, UF, NF

Cut-off									
Microfiltration(μm)				Ultrafiltration(nm)			Nanofiltration(nm)		
1.2	0.45	0.2	0.1	100	50	20	8	5	2

Membrane characteristics

Cross section									
External diameter(mm)	25	30	30	30	30	40	40	40	40
Number of channels	19	7	19	37	61	19	37	61	91
Channel diameter(mm)	3.3	6.0	4.0	2.7	2.2	6.0	3.6	2.5	2.0
Length*(mm)	1178	1200	1200	1200	1200	1200	1200	1200	1200
Area*(m ²)	0.23	0.15	0.29	0.37	0.5	0.43	0.5	0.57	0.68

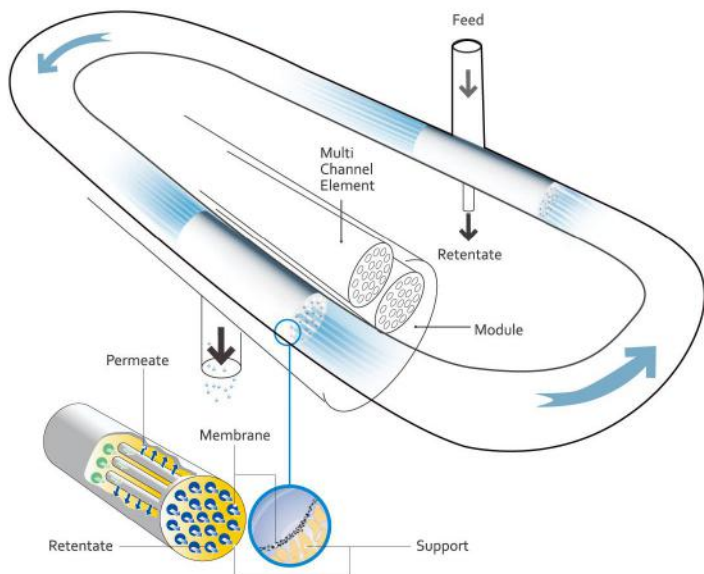
*Other available standard length:500mm,1000mm,1016mm,1020mm,1100mm,1178mm.

*Special length can be manufactured by request.

CROSS-FLOW FILTRATION

Feed is pumped into circulation loop, then flows in a cross-flow mode. To avoid fouling on ceramic membrane surface, feed flow rate is 3-7m/s.

Feed is divided into two streams after membrane separation, one stream passing through membrane becomes permeate, and the other stream becomes retentate.

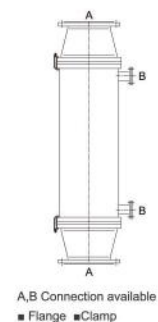


CERAMIC MEMBRANE MODULE

A module is made up of one pipe with two connections, where the fluids enter into and come out.

Technical specifications

- Material: 304 or 316L or titanium
- Operating temperature: <150 °C
- Operating maximum pressure: <10 bars
- PH operating range: 0-14



Membrane type		Membrane area(m ²)						
OD(mm)	Channel number	Number of membranes per module						
		1	3	7	19	37	61	91
25	19	0.23	0.69	1.61	4.37	8.51	14.03	20.93
	7	0.15	0.45	1.05	2.85	5.55	9.15	13.65
30	19	0.29	0.87	2.03	5.51	10.73	17.69	26.39
	37	0.37	1.11	2.59	7.03	13.69	22.57	33.67
	61	0.5	1.5	3.5	9.5	18.5	30.5	45.5
40	19	0.43	1.29	3.01	8.17	15.91	26.23	39.13
	37	0.5	1.5	3.5	9.5	18.5	30.5	45.5
	61	0.57	1.71	3.99	10.83	21.09	34.77	51.87
	91	0.68	2.04	4.76	12.92	25.16	41.48	61.88

MEMBRANE PILOT MACHINE



CMP-0.1B-SS



CMP-0.5B-SS



CMP-3B-SS



CMP-3B-FRPP



CMP-2.5A-SS



CMP-9B-SS



OMP-2540-SS

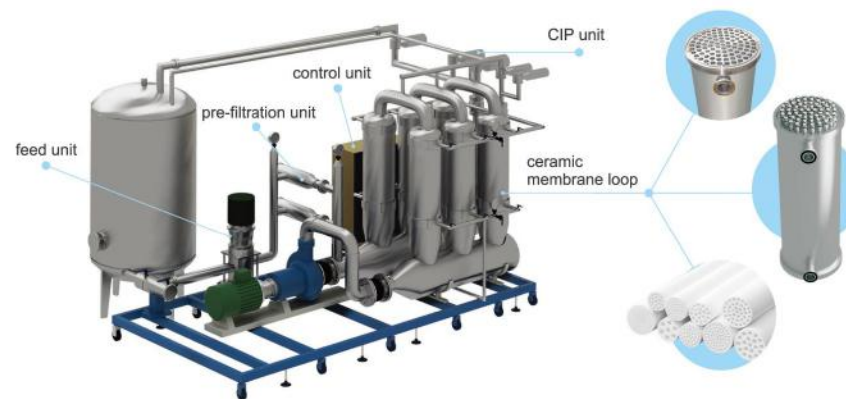


OMP-4040-SS



OMP-2540-FRP

CERAMIC MEMBRANE FILTRATION SYSTEM



PROVIDE TOTAL SOLUTION FOR LIQUID FILTRATION AND SEPARATION FROM MF TO RO



WATER AND WASTEWATER TREATMENT



Oil field injection water

- Oil & gas fields
- Superfine water treatment
- Conventional flooding generated sewage treatment
- Polymer-bearing waste water treatment

Electrical industry

- Alkaline baths from printed circuits

Paper industry

- Black liquors
- Coating effluent
- Paper pulp bleaching effluent

Metallurgical and car industry

- Degreasing baths filtration
- Water from cleaning mechanical parts
- Washing machine water

Textile and Printing industry

- Sizing solutions recovery
- Indigo recovery
- Washing effluents
- Dye baths

Food industry

- Slaughterhouse wastewater
- Edible oil waste streams concentration/purification (soybean oil, palm oil, olive oil etc.)
- Ceramic Membrane Bio-Reactor
- CIP caustic solutions recovery/reuse





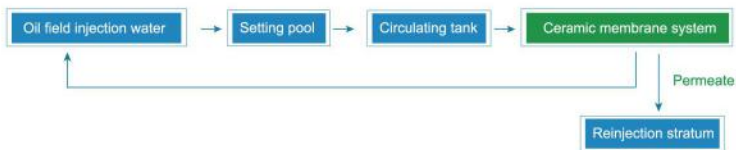
Membrane treatment in oilfield conventional water flooding produced water

Conventional water-flooding technology is widely used in onshore oilfields and offshore oilfields in China. For low permeability and ultra-low permeability reservoirs, water injection quality directly affects the development effect of the oilfield. The ceramic membrane technology is used to finely treat the water flooding wastewater (Patent No. 10225812A), and water quality of the effluent reaches Grade A standard.



Membrane treatment in oilfield Polycondensation / ASP flooding produced water

Due to the fact that the polycondensate sewage is very complex, with the characteristics of large viscosity, high degree of emulsification, complex composition, and difficult biodegradation, the traditional process can not meet the demand of oilfield production. The oil and suspended particles of polycondensate sewage are removed to achieve the requirement of water injection in low permeability oilfield when using pretreatment & integration ceramic membrane process (Patent No. 104071919A).

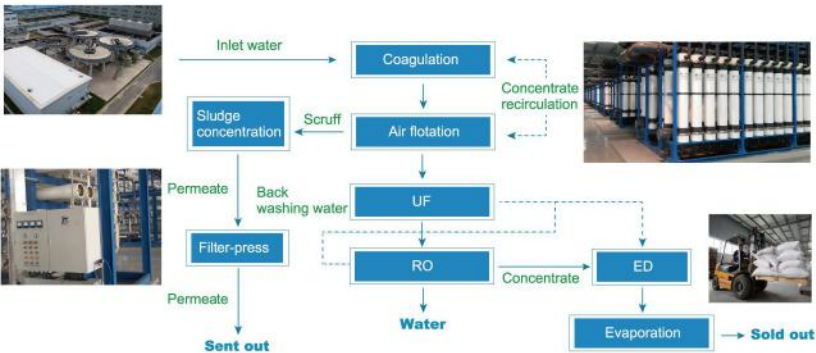


Core advantage of process package

- Independent research and development
- Realize 100% full reuse of wastewater
- Multiple 10,000-ton demonstration projects
- Reuse water, salt, and dry mud
- The water quality of the produced water is good and meets the requirements for productive reuse

index	value	index	value
pH	6-8	Ca ²⁺ (mg/L)	≤5
conductivity(μs/cm)	≤50	Mg ²⁺ (mg/L)	≤2
COD (mg/L)	≤5	Turbidity (NTU)	≤0.2
Total hardness (mg/L)	≤15	solid content (SS,mg/L)	≤0.5

ZERO LIQUID DISCHARGE(ZLD) project in Pulp and paper wastewater



CASE 3 OILY WASTEWATER

In the production process of rolling, galvanizing, spraying, metal cutting, oil and alkali refining, a large amount of oily wastewater is produced. JIUWU HI-TECH company has been successfully applied to the treatment of oily wastewater with ceramic membrane technology, and there are many typical cases. JIUWU HI-TECH company can provide the overall process package of emulsified oil wastewater treatment.



Oily wastewater before treatment



Ceramic membrane system



Permeate after treatment

The advantages of ceramic membrane process :

- Acid/alkaline/oxidation chemicals resistance
- High thermal stability and steam disinfected
- Stable over a wide pH range
- Easy to be cleaned and regenerated
- Solvent stability
- Wear ability and excellent strength
- Narrow pore size distribution
- No chemical agent, no new sludge



BIO-PHARMACEUTICALS & PHARMACEUTICALS

Nucleosides

- Inosine
- Guanosine
- Cytosine
- Citicoline

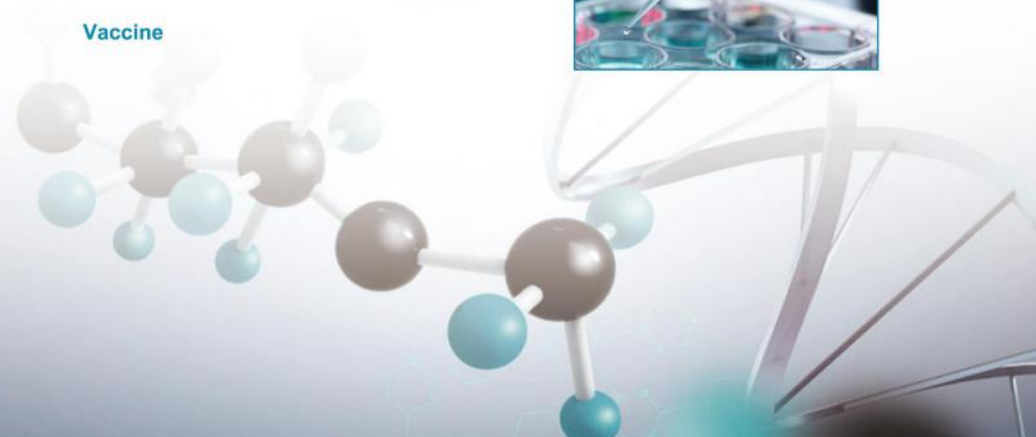
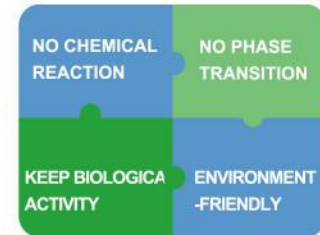
Pharmaceutical intermediates

- Statins
- Prion
- D-p-hydroxyphenylglycine
- Aminobutyric acid
- Mandelic acid

Animal blood filtration

Cell culture

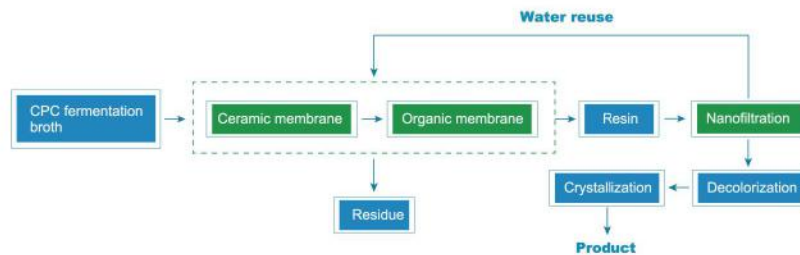
Vaccine



CASE 1 CEPHALOTHIN (CPC)

Advantages

- High yield of API product
- High quality of final products after crystallization
- Contamination to ion-exchange resin is reduced while adsorption is increased
- Resin regenerations rinsing water and waste of high COD is reduced
- Longer life time for ion-exchange resin
- Lower API producing cost



CASE 2 ERYTHROMYCIN

Integrated Ultrafiltration and Nanofiltration is a separation technology which removes macromolecules such as proteins and polysaccharides. With the technology, the usage of exacting solvent and de-emulsifier will be greatly minimized, reducing the load on the followed high speed centrifuge, solvent recycle and treatment of waste solids and wastewater. Moreover, NF permeates could be recycled directly as UF diafiltration water, extensively reducing the consumption of water and the load on wastewater treatment.



Advantages :

- Continuous operation mode, allowing continuous feed, permeate and concentration
- Fully automatic control system
- Accurate diafiltration process
- CIP system
- Applicable for filtration at high temperature
- High concentration factor, low water consumption, and small waste discharge
- Mechanically strong, highly resistant to wide range of pH value, and resistant to acids, caustic, organic solvents and strong oxidants



FOOD & BEVERAGE

Fermentation

- Organic acids fermentation broth filtration
- Amino acids fermentation broth filtration
- Vitamins fermentation broth
- Xanthan gum fermentation broth filtration



Sugar industry

- Cane&beet sugar clarification
- Gelatin clarification or concentration
- Hydrolysate clarification



Sweetener

- Glucose syrups (mud removal,hydrolysate filtration,TAB removal)



Enzymes

- Fermentation broth filtration and concentration
- Yeast filtration concentration
- Hydrolysate clarification

Natural Herb extract

- Tea extract, plant pigment filtration/concentration
- Plant and animal protein concentration/purification

Flavoring and seasoning

- Soy sauce filtration,vinegar filtration

Biomass filtration/concentration

- Straw, cassava etc.fermentation filtration

Wine filtration

- Wine and lees filtration/clarification
- Beer bottom recovery

Natural rubber

- Skim latex filtration/separation

Dairy

- Cheese concentration &purification
- Sour cream concentration &purification
- Milk concentration & purification
- Whey concentration & purification
- Food protein concentration &purification

Fruit and vegetable juice

- Apple juice clarification
- Cider juice clarification
- Pear juice clarification
- Mushrooms juice clarification
- Lucerne juice
- Vegetable juice

Fish Farm



CASE 1 GLUCOSE SYRUPS



Glucose syrup, also known as fructose syrup, is a syrup made from the hydrolysis of starch.

In the food industry, glucose can be produced by iso-enzyme treatment of fructose, especially fructose syrup containing fructose 42% which has similar sweetness to sucrose and become an important product of current sugar industry.

Glucose is produced by enzymatic hydrolysis of starch milk under certain conditions. In the preparation of glucose, there will be a part of protein, fat, fiber, pigment, salt and other impurities, directly affect the quality of glucose. The application of integrated membrane separation technology containing ceramic membrane & organic membrane has become a new energy-saving cleaner production technology.



Advantages

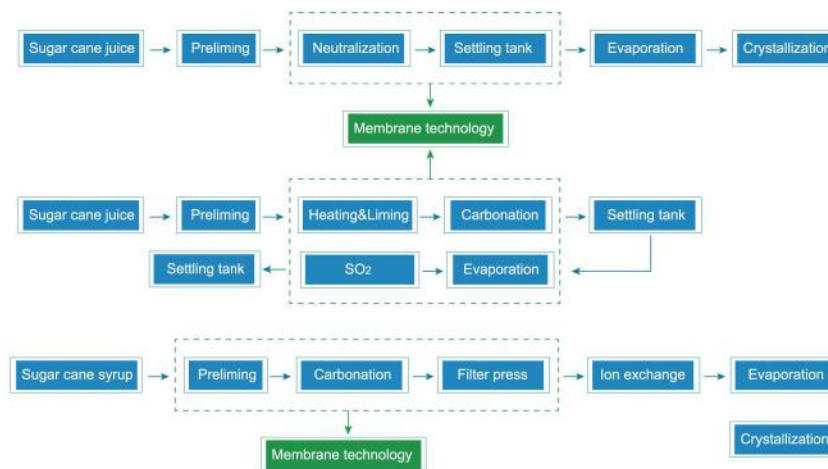
- Clear filtrate
- Reduce the amount of filter aid
- Continuous , fully automated
- Excellent transparency, light transmittance > 97%
- Save production costs



CASE 2 CANE&BEET SUGAR



- refined sugar
- raw sugar
- high-quality sugar
- edible syrup
- primary sugar



"Membrane - resin process package" advantages

- Effectively filter clarified cane juice, the product is not muddy
- Without adding chemical reagents, reduce solid waste emissions
- Short process, compact , small footprint, reduce capital costs
- High precision membrane filtration, which can effectively intercept microorganisms
- Reduce follow-up evaporation energy consumption by 50% and production costs
- High production efficiency, reduce labor costs, improve product quality, improve sugar yield
- Membrane and resin can achieve CIP cleaning, good regeneration performance, long service life

CASE 3 TEA EXTRACT



CASE 4 APPLE JUICE



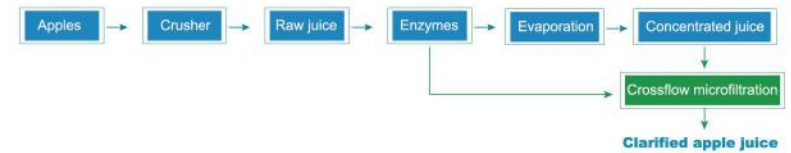
Advantages

- Effectively retain the functional active components in tea
- Functional effective extraction rate and purity are high
- Membrane is easy to be regenerated by normal chemicals
- Easy maintenance will save much labour cost
- Concentrate from membrane has good colour, smell and tasting
- High stability of final products
- Long work life for membrane filter
- Lower cost of manufacture
- Reliable operation with PLC control



Apple juice in the press process will bring a lot of impurities in pulp, pectin, starch, plant fiber, microorganisms, bacteria and other impurities. Due to high sugar content in apple juice, microorganisms and bacteria are easy to breed which makes apple juice fermentation ferment and deteriorate.

High temperature sterilization will result in product discoloration and loss of flavor. The traditional filtration methods (diatomaceous earth, frame filter) can not completely retain the impurities, can play a temporary clarification. Under the influence of time, temperature, charge, re-flocculation of dissolved impurities form visible matters, resulting in apple juice turbidity and precipitation.



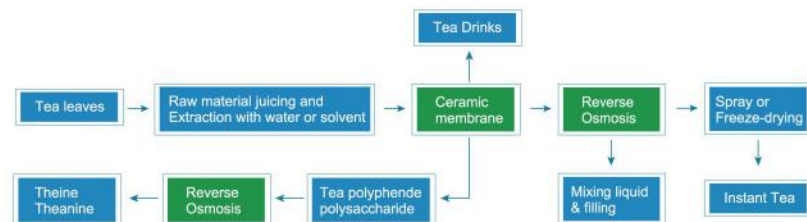
Macromolecular impurities such as plant fiber, starch, bacteria and other impurities in apple juices are completely intercepted to realize the clarification and impurity removal of apple juice by crossflow microfiltration.

Cross-flow design is adopted to solve the problem of filter clogging.



Advantages :

- No need to add filter aid
- Reduce labor intensity and production costs
- Small footprint
- Purely physical operation at room temperature, no chemical reaction
- Filtrate is clear with high transmittance, return muddy does not happen for a long time
- Does not destroy the heat-sensitive substances and affect the fruit flavor
- No secondary precipitation produced
- Increase productivity
- Sanitary material





CHEMICAL AND PETRO-CHEMICAL INDUSTRY

Chlor-alkali filed

- Brine purification

Bio-polymer filed

- PLA & PHA recovery & concentration

Dye field

- Dyes purification

Coal chemical field

- Oil-water separation

Titanium dioxide field

- Titanium dioxide recovery
- Waste acid recovery

Paper- making field

- Lignin extraction
- Solvents exchange & cleaning
- Glycerine purification

Catalyst recovery

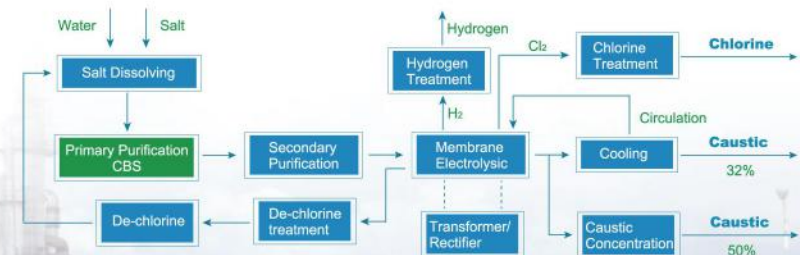
Nanopowder recovery



CASE 1 PRIMARY BRINE PURIFICATION

Advantages :

- High quality brine
Ca²⁺, Mg²⁺≤1.0ppm, SS≤1.0ppm, 96h chelating resin column regeneration
- Save investment 30%-50%
Simplify process, No Dorr clarifier , Compact, Save foundation & space ,No flocculants adding
- Wide application & long-life
Ceramic membrane & Ti material
Suitable for a variety of crude salt and brine
5-years life gurantee(expect 6 years)



CASE 2 COAL CHEMICAL OIL-WATER SEPARATION

Methanol to olefins(MTO) is a key device for coal to olefins projects.

For the emulsified oil and catalyst in the souring water and quench water in the MTO process, ceramic membrane separation technology purifies the quench water and souring water, and solves the problem of clogging of emulsified oil and catalyst in the water system.



Advantages :

- High efficiency separation of emulsified oil and ultrafine catalyst particles in souring water
- Emulsified oil removal rate is over 90%, and the catalyst removal rate is as high as 99%
- Effectively solve the blockage problem of water scrubber and heat exchanger to ensure device stable operation
- Short process, simple operation, saving investment and small footprint
- No flocculant and demulsifier adding



CASE 3 CATALYST SEPARATION

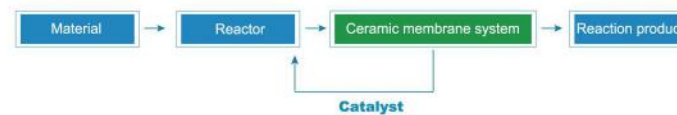
In petrochemical and chemical production, the use of catalysts is very extensive and generally the product and the catalyst need to be separated after reaction. Inorganic ceramic membrane has good heat resistance, chemical resistance and good mechanical strength, showing prominent advantages in the petrochemical and chemical production, has been applied in many enterprises.

Different from traditional settlement, plate frame filtration and centrifugal separation, ceramic membrane adopts cross-flow filtration in the solid-liquid separation of catalytic reaction. Ceramic membrane has the advantages of high temperature resistance, acid and alkali resistance, solvent resistance and other material advantages. Coupled with the reactor, efficiency of the reactor can be improved, separation accuracy is high, and nano-scale catalyst can be separated.



Advantages :

- High temperature, high pressure, acid, solvent resistance
- Ceramic membrane is coupled with reactor which fully improves efficiency of the reactor
- High separation accuracy, nano-scale catalyst can be separated





Ceramic membrane for a better world



ISO9001
Quality Management



ISO14001, OHSAS18001
Environment, Health and
Safety Management



CE, EUROPE

JOIN US

To be as partner, OEM, distributor, agent.

Technology

Covers all the range of membrane process from Microfiltration and Ultrafiltration ,Nanofiltration ,Reverse Osmosis,Membrane bioreactor(MBR) and other technologies such as advanced oxidation ,chromatography, evaporation & crystallization .

Support

You've got an open door to the best support in the business . Think of us as your personal partners in compliance ,broker support and agent services .

Training

Structured for your learning style and busy schedule , we offer live and on-demand training each year including technology,marketing ,installation and commission.