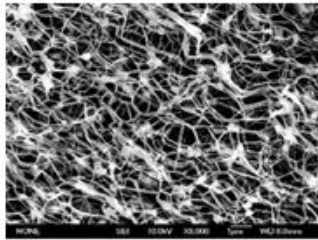
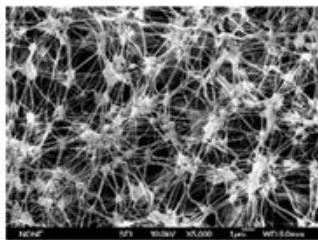


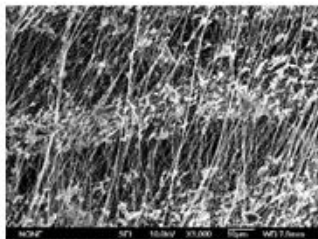
Pore size 0.1umPTFE membrane microscope 5000



Pore size 0.05umPTFE membrane microscope 8000



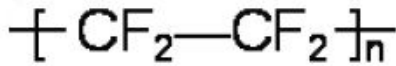
Pore size 1-2umPTFE membrane microscope 5000 times



Pore size 2-3umPTFE membrane microscope 5000

Dust removal of industrial fule gas by Membrane Solutions filter media laminated PTFE membrane

PTFE Molecular Structural Formula (Poly-Tetra- Fluoroethylene – PTFE)



PTFE Feature

- Continuous work temperature -180~260?
- Low frictional coefficient 0.1
- Smooth-faced(non-glutinosity)(surface tension 22dyne)
- Chemical Corrosion Resistance
- Low Dielectric Constant 2.2
- Low water absorption <0.02%
- High temperature resistance, non-combustible mate rial, thermal conductivity 0.1

Decription of MS® PTFE membrane

MS PTFE membrane are made from disperse PTFE resin by the technology of dual-direction stretching, The amount of micro pore can be reached to 1×10⁹/cm², MS PTFE membrane can be laminated with s great variety of fabric and paper.

Feature

- Excellent filtration efficiency (99.99% upwards) ;
- Excellent smooth surface
- Good water-resistant
- Large dust capacity and dust desquamation
- High air permeability
- Pore rate : 85% ~93%

MS® Filter Bag laminated PTFE membrane for cement industry

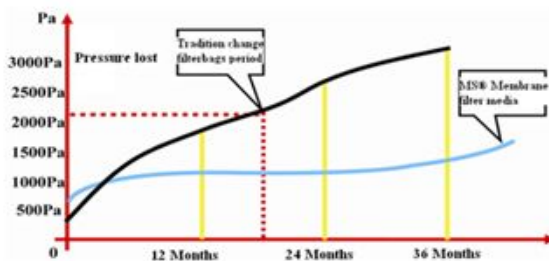
Application in dust collection of cement particles made by grinding process Case in Jiaxin Jinyang Cement Factory

The system of cement adopts the pulse online dust collector of GORCO Company in Germany. The technical parameter as follows:

Gas filtration amount	220000 m³/h
Work temperature	80~100?
Number of filterbags	1260pieces/set
Consume of air compressing	364 m³/h
Pressure of cleaning dust	0.6MPa
Concentration of treating dust	1000 g/m³
Area of filtration 2850 m²	2850m²
Filtration wind velocity 1.29 m/min	1.29m/min

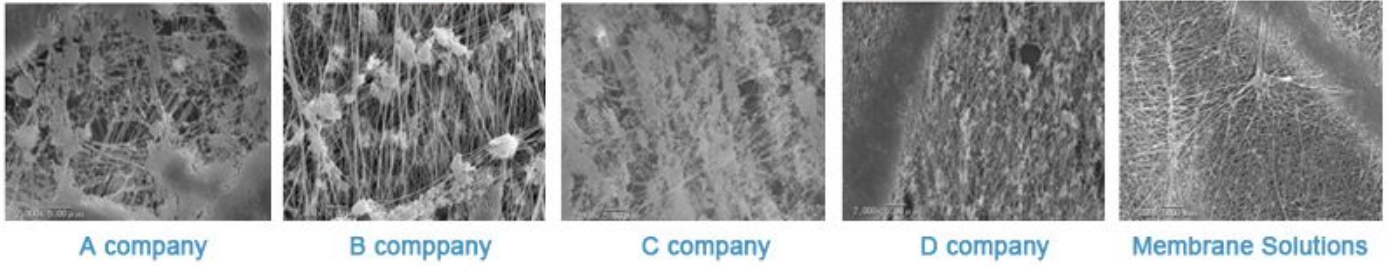
Pressure statistics after using MS® filter bags laminated PTFE membrane:

Since 2002	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Pressure statistics (mmH2O)	70	80	85	90	95	100	115	115

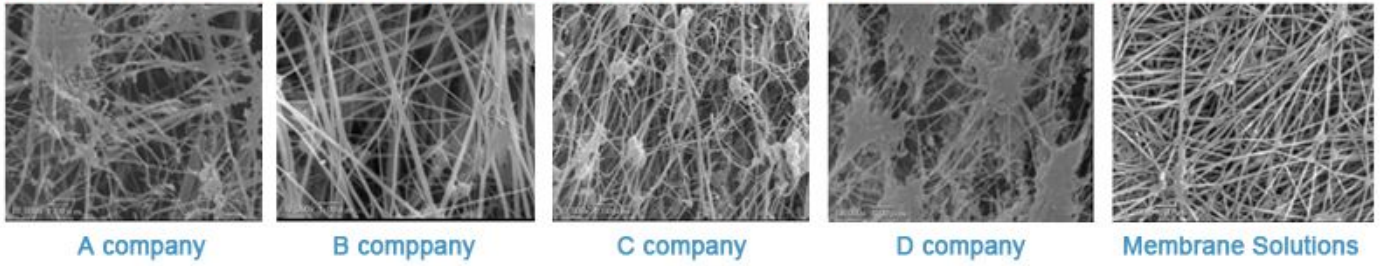


After the ball milling technical filterbags adopting MS® filter bags laminated PTFE membrane, the ventilation and emission was improved and the yield was increased. So the total cost was decreased. The economic benefit by using MS® filter bags laminated PTFE membrane is obviously good.

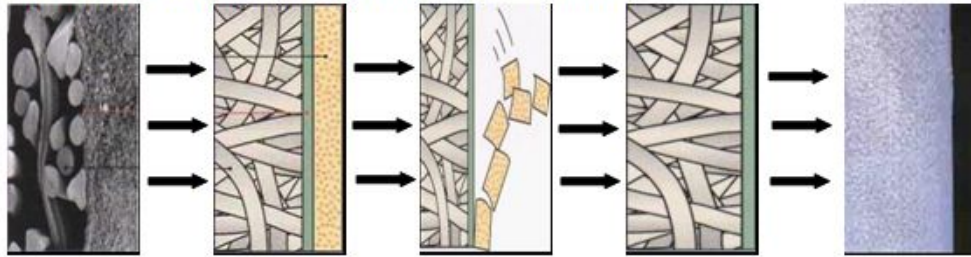
MS® H13 PTFE membrane comparing to reputable companies' membrane (microscope 2000 times)



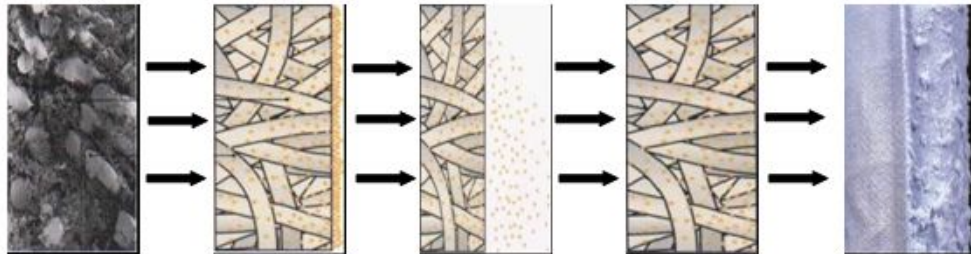
MS® H13 PTFE membrane comparing to reputable companies' membrane (microscope 10000 times)



Filter media laminated PTFE membrane "surface filtration "



Ordinary filter media "deepbed filtration"



Case in Chongqing Lafarge Cement Co. Ltd

(dust collect in cement technology)

Technology parameter of the cement milling collector and pulse bag dust collector as follows:

Gas filtration amount	180000 m ³ /h
Work temperature	100~110?
Number of filterbags	2048pieces/set
Consume of air compressing	364 m ³ /h
Concentration of treating dust	1000 g/m ³
Area of filtration	2550 m ²
Filtration wind velocity	1.2 m/min

The system adopts the ordinary filter media with a high resistance. After working for less than one year, the ordinary filter media should be changed. After adopting MS® filter bags laminated PTFE membrane, they have continuously worked for four and half one year. At present, the pressure resistance is about 1600Pa, and they are still working.



Application in preparation of slag power

Case in Taiyuan Delong Super Thin Powder Scientific Co. Ltd. (lifetime more than 3.5 years)

Pressure statistics after using MS® filter bags laminated PTFE membrane:

Collect dust machine model	LPMC96-4×10
Quantity of filterbags	3840 pieces
filterbag specification	Ø130x3500mm
Inlet amount of gas	330000m³/h
Gas Temperature	125?(Continue)/130? (instant)
Inlet dust concentration	<350g/Nm³
Outlet dust concentration	<15mg/Nm³
Pressure of dust removing	0.5-0.7MPa
System resistance	<1600pa
Air filtration velocity	1.1m/min
Consuming of compressed air	10Nm³/min
Dust contain	slag powder
Slag powder grinding index	17.38kw.h/t
Powder specific surface area	350 -480m²/kg
Dew-point Temperature	52?
Water capacity in treating gas	145g/Nm³



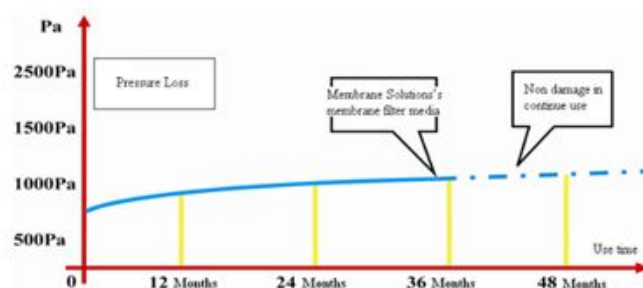
Application in dust collection of cement kiln end Case in Shanghai Jinshan Cement Company

The cement factory uses dust collector composite with electric precipitator and pulse filter bags, and its technology parameter as follows:

Ventilation of filtration	270000 m³/h
Work temperature	~150?
Quantity of filterbags	1440pieces/set
Consuming of compressed air	180 m³/h
Pressure of dust removing	0.25MPa
Concentration of dust treating	80 g/m³
Filtration area	4705 m²
Air filtration velocity	0.95~1.06 m/min

Since 2000, By technically reforming, The output of rotary kiln increased from 1050 t/d to 1500 t/d. But the capacity of electrostatic collector in cement kiln back end was obviously inadequate. What's more the amount of dust emission was often over standard. So after Mar. 2004, they adopted MS® filter bags laminated PTFE membrane. After running for three years, the system has been stable and reaches the design standard.

MS® filter bags laminated PTFE membrane have been used for four years. It's running pressure always stables at 90mmH₂O, environmental department have tested it for two times every year. The concentration of dust emission is far lower than 20 mg/Nm³. During this period, they haven't changed the filterbags. The ratio of damaged filter bags is zero.



At the end of 2006, MS two filterbags were tested. The result is extraordinary good. The membrane surface of the filterbags was integrated. The strength index on the top of the filterbag only decreased to 90%. And the strength index on the bottom of the filterbag only decreased 20% maximum. So we can conclude that the filterbags can work for at least five years.

Testing report after use MS® filter bag for 3 years				
	27th, Sept. 2006	8th, Aug. 2007		
Test position	Air Permeability (cc/cm2sec)	tensile strength (25mm)	Air Permeability (cc/cm2sec)	Tensile strength (25mm)
Top	7.07	1212	5.15	1385.7
		1733.3		1421.7
Middle	6.81	1361.7	4.79	1513
		1572.3		1279.3
Bottom	7.34	1256	3.52	1294.3
		1247.7		1303.3

Application in dust collection of cement kiln front

Shanghai Pudong Cement Factory (collect slag power)

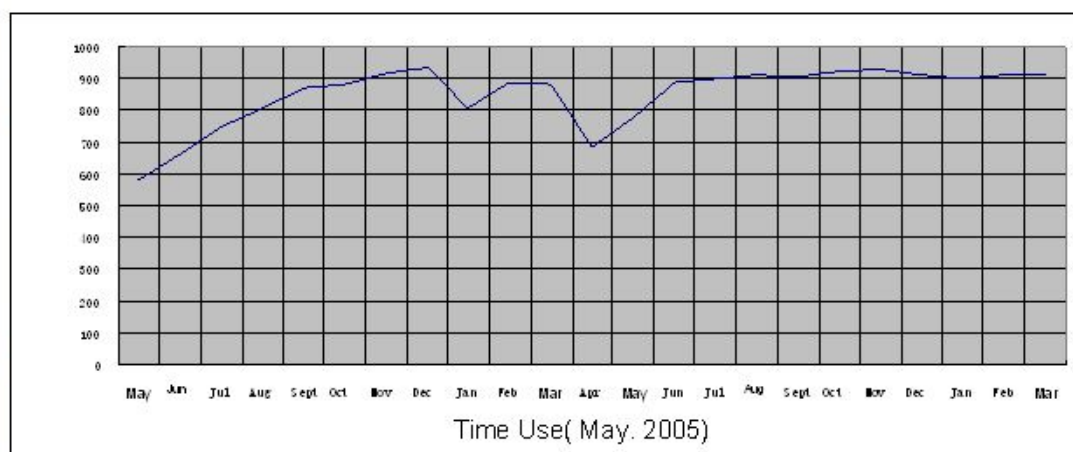
The system of cement adopts electricity-bag pulse dust collector, its technical parameter as follow:

Ventilation of filtration	180000 m³/h
Working temperature	150~220?
Quantity of Filterbags	1092pieces /set
Consuming of compressed air	180 m³/h
Pressure of dust removing	0.35MPa
Concentration of dust treating	150 g/m³
Filtration area	3566 m²
Air filtration velocity	0.84~1.0 m/min



Shanghai Pudong Cement Factory

That company has adopted MS® filter bags laminated PTFE membrane since May. 2005. During three years, the adoption is very successful. The pressure was maintained at 70~95mmHg, the concentration of dust emission is less than 20mg/Nm³.



Shanghai Pudong Cement Factory

Zhongjieneng (Suqian) biological power Co. Ltd

Adopts PTFE membrane filter media of Membrane Solutions

Filtration ventilation	185000 m³/h
Filterbag specification	Φ156×5780 mm
Work temperature	<100? momentary200?
Quantity of filterbags	1152pieces/set
Air consuming	3 m³/min
Pressure of dust removing	0.3 MPa
Concentration of treating dust	20 g/m³
Filtration area	3358 m²
Air filtration velocity	0.8~0.95 m/min

Installed capacity	6*104 kw 220T/h
Ventilation	550000Nm ³ /h
Equipment specification	electricity-bag pulse dust collector,10 sets
Filterbag specification	Φ160x7000mm
Quantity of filterbags	2088 pieces
Total filtration area	7348m ²
Working temperature	156?
Resistance	1200Pa
Emission standard	30mg/Nm ³
Run Starts 23th, Nov., 2005, Starts:	400Pa Maintain: less than600Pa
Test result(Test time:May 2006)	
Test ventilation	430000Nm ³ /h
Test resistance	569Pa
Outlet emission	9mg/Nm ³



Tianjin Jinyuan Power Co. Ltd

Tianjin Jinyuan Power Co. Ltd

Installed capacity5millionkw Machine	240 t/h
Design ventilation	460000Nm ³ /h
Filterbag specification	Φ160x7000mm
Number of Filterbags	1768pieces
Total filtration Area	6220m ²
Air filtration velocity	1.23m/min
Operating temperature	140?
Design resistance	1200Pa
Emission standard	30mg/Nm ³
starts run time	Apr. 2005
Test result (test time: end of 2005)	
Ventilation	578726Nm ³ /h
Resistance	999Pa
Outlet concentration	12.2mg/Nm ³
Filtration Ventilation	1.55m/min

Superiority of PTFE membrane filter media of Membrane Solutions

- Good quality, complete test devices, perfect test method
- Meet with the newest emission index
- Run at low pressure, ensure to increase the yield
- Best dust cleaning effect, reduce the amount of compressing air
- Run at high temperature for more than 3 years
- High performance and price ratio

Perfect service after sale

- Reliable installation protection measurement
- Florescence powder leakage test
- Periodical detect for filtration material's fading character

www.membrane-solutions.com

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Japan	Toll free: 0066- 33-800658 Address: Suite 803# 3-2-10, Kachidoki, Chou- ku, Tokyo, 104-0054
China	Tel: 0086-21-61478115 Fax: 0086-21-61478117 / 51687551 Address: 2202 , No.1759 North Zhongshan Road, Shanghai E-mail: info@membrane-solutions.com