

Proton Exchange Membrane for Fuel Cell



Product Description

- The HPM series proton exchange membrane for fuel cell is reinforced perfluorosulfonic acid proton exchange membrane (PEM). It has properties of high proton conductivity, high selectivity and high stability in both acidic and corrosive environments, and is widely used in stack. It is identified by membrane type and identification number (batch number).

Specification	HPM-1806		HPM-1809		HPM-1812		HPM-1815	
Thickness, μm	6 \pm 0.5		9 \pm 0.5		12 \pm 1.0		15 \pm 1.0	
Density, g/cm^3	2.05 \pm 0.05							
Ionic Exchange Equivalent Weight, g/mol	950-1050		950-1050		950-1050		950-1100	
H ₂ Crossover Rate, $\text{cm}^3/\text{cm}^2\cdot\text{min}$	<0.01							
Tensile Strength, MPa	TD	MD	TD	MD	TD	MD	TD	MD
	≥ 60	≥ 60	≥ 50	≥ 50	≥ 50	≥ 50	≥ 40	≥ 40
Breaking Elongation, %	≥ 80		≥ 100		≥ 100		≥ 100	
Elastic Modulus, MPa	≥ 250							
Linear Swelling Rate(25°C/24h), %	≤ 3							
Linear Swelling Rate(80°C/1h), %	≤ 3							
Test Standards	GB/T 20042.3-2022							

Test Requirements

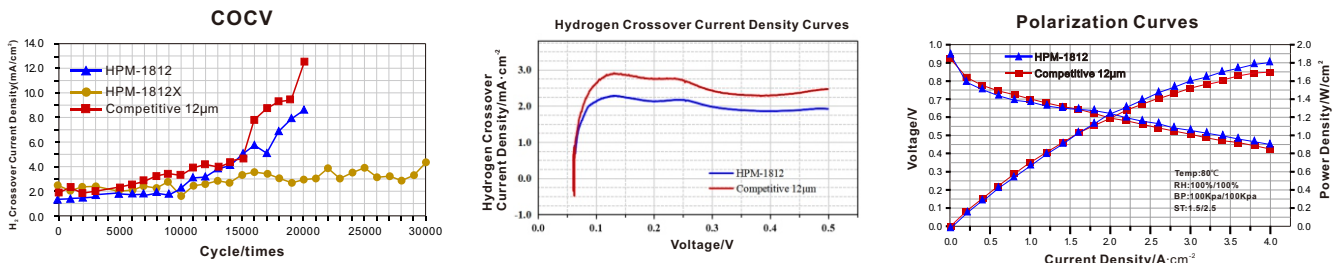
- Before testing, please place the membrane samples in a laboratory environment (23 \pm 2°C/73.4 \pm 3.6°F, 50 \pm 5%RH) for 24h;
- It is tested with 10mm rectangular sample, tensile rate: 50mm/min.

Activation Methods

It is recommended to refer to the description of section 6.6 of "GB/T 20042.5-2009 Proton Exchange Membrane Fuel Cell Part 5: Test Methods for Membrane Electrode" for single-cell activation. The steps are as follows:

1. Install the single cell on the fuel cell test platform;
2. Use the reactive gas as the activation medium, the activation process is according to the following operating conditions:
 - Reaction temperature I: 75°C/167°F;
 - Relative humidity of reaction gas (RH): 100%;
 - Stoichiometric ratio of reaction gas: St H₂: 1.2, St Air: 2.5;
 - Outlet back pressure: 0.1MPa;
 - Current density of operating: $i \geq 500 \text{ mA/cm}^2$;
 - Running time: $\geq 4 \text{ h}$;

Note: The activation conditions of the cell can also be carried out according to the customer's standards, or by mutual agreement.



Delivery Methods

Product information: Products are cut as required at (23±2°C/73.4±3.6°F, 50±5%RH). The fluctuation of ambient temperature and humidity will cause the size change of the membrane. It is recommended to confirm the membrane size requirements with customer service before shipping.

1. The standard size of sheet product includes:

Width: 0.2m - 0.6m

Length: 0.2 m - 0.6m

2. The standard size of roll product includes:

Standard width of roll product: 0.31m and 0.72m

Standard length of roll product: 100m and 200m

3. For non-standard customized size:

Roll width for special orders is 0.2m - 1.2m, minimum order requirement is 100m² (note: special requirements will add additional cost and lead time).

4. Transportation mode: The product is delivered in form of flat sheet or roll. Before use. Please contact customer service if you have special needs.

Notes

1. Keep the membrane package closed/sealed before use;
2. Open the package and handle it in a clean and dust-free area in use, all surfaces in contact with the membrane must be smooth and flat (experimental gloves must be worn during operation);
3. Store the membrane in its original packaging and stack horizontally to avoid prolonged exposure to light or high temperatures (> 40°C/104°F) after use.

