

Aquivion® E87-12S

Perfluorosulfonic Acid

Solvay Specialty Polymers

Описание материалов:

Aquivion® E87-12S is a chemically-stabilized (denoted by the S-suffix) perfluorosulfonic acid (PFSA) ionomer membrane that exhibits an Equivalent Weight (EW) of 870 g/eq. Nominal thickness is 120 microns.

Aquivion® PFSA ionomer membranes are melt-extruded products based on the unique Short Side Chain copolymer of Tetrafluoroethylene (TFE) and Sulfonyl Fluoride Vinyl Ether (SFVE) $F_2C=CF-O-CF_2CF_2-SO_2F$ produced by Solvay. They are available in the acid form and feature a lower Equivalent Weight (EW) than most commercial proton exchange membranes. The unique Short Side Chain copolymer allows higher crystallinity, improved mechanical properties and better proton conductivity.

Typical applications include PEM fuel cells, water electrolyzers, separators for hydrogen or redox flow batteries, and pervaporation or gas humidification systems.

Главная Информация			
Физический	Номинальное значение	Единица измерения	Метод испытания
Эквивалент (EW) ¹	870	g/eq	Internal method
Плотность-23 °C, 50% R.H. ²	1.930	g/cm ³	Internal method
Мембрана ³			
Thickness	120.0	µm	
Weight	232	g/m ²	
Общее содержание кислоты	> 1.12	sec/100cc	Internal method
Tensile Stress ⁴			ASTM D882
MD: fracture	40.0	MPa	ASTM D882
TD: fracture	30.0	MPa	ASTM D882
Удлинение при растяжении ⁵			ASTM D882
MD: fracture	140	MPa	ASTM D882
TD: fracture	175	MPa	ASTM D882
Модуль растяжения	250	MPa	
Проводимость ⁶	> 228	mS/cm	Internal method
Характеристики поглощения воды (жидкость) ⁷			Internal method
By weight		%	Internal method
Elongation at break (MD)		%	Internal method
Elongation at break (TD)		%	Internal method
Дополнительная информация	Номинальное значение	Единица измерения	Метод испытания

HEALTH, SAFETY AND ENVIRONMENT

Aquivion® PFSA membranes are not harmful if used and handled according to standard processing procedures (see for example the "Guide to the Safe Handling of Fluoropolymer Resins" issued by the Society of the Plastics Industry). If handled inappropriately, membranes may release harmful toxic chemicals. Please refer to the Material Safety Data Sheets for more information on handling and safety.

PACKAGING, SHIPMENT AND STORAGE

The membranes are usually available in sheets of customized formats or rolls in various lengths (dimensions are based on dry product conditioned at 23 °C and 50 % Relative Humidity). They are sealed in an inert environment with a multilayer protection film before packaging inside a shock-protected cardboard box. It is recommended to store the product in a clean, controlled humidity environment and protected from direct sun light or other sources of heat.

NOTE

1.	eq = mol SO ₃ H
2.	Inferred water absorption 0%
3.	23°C, 50% R.H.
4.	-Measure E87-05S mechanical properties-23°C,50% R.H.
5.	-Measure E87-05S mechanical properties-23°C,50% R.H.
6.	When R.H. 100%, it is set to four Probe In-Plane Measurement. Steps: Tcell = 80°C, Tgas = 90°C humidity 100%, flow rate 800sccm.
7.	Immersed in liquid for 4 hours at 100°C

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