Aquivion® E98-09S

Perfluorosulfonic Acid

Solvay Specialty Polymers

Message:

Aquivion® E98-09S is a chemically-stabilized (denoted by S-suffix) perfluorosulfonic acid (PFSA) ionomer membrane that exhibits an Equivalent Weight (EW) of 980 g/eq. Nominal thickness is 90 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) F2C=CF-O-CF2CF2-SO2F 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.

General Information			
Physical	Nominal Value	Unit	Test Method
Equivalent (EW) [1]	980	g/eq	Internal method
Density-23°C, 50%R.H. [2]	1.930	g/cm³	Internal method
Membrane [3]			
Thickness	90.0	µm	
Weight	174	g/m²	
Total acid content	> 1.00	meq/g	Internal method
Tensile Stress			
MD: fracture [4]	40.0	MPa	ASTM D882
TD : Break [5]	30.0	MPa	
Tensile Elongation			ASTM D882
MD: fracture [6]	140	MPa	ASTM D882
TD : Break [7]	175	MPa	ASTM D882
Tensile Modulus [8]	290	MPa	ASTM D882
Conductivity [9]	> 160	mS/cm	Internal method
Water absorption characteristics (liquid) [10]			Internal method
By weight	30	%	Internal method
Elongation at break (MD)		%	Internal method
Elongation at break (TD)		%	Internal method

Additional Information	Nominal Value	Unit	Test Method

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 improperly, 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 SO3H

2.	Inferred water absorption 0%
3.	23°C, 50% R.H.
4.	-Measure E98-05S mechanical properties-23°C, 50% R.H.
5.	Mechanical properties measured on E98-05S at 23°C, 25% R.H.
6.	-Measure E98-05S mechanical properties-23°C, 50% R.H.
7.	Mechanical properties measured on E98-05S at 23°C, 25% R.H.
8.	Mechanical properties measured on E98-05S at 23°C, 25% R.H.
9.	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.
10.	Immersed in liquid for 4 hours at 100°C

Recommended distributors for this material

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