Properties of DuPont™ Nafion® PFSA Membranes

Thickness and Basis Weight Properties[1]

Membrane Type	Typical Thickness (micrometer)	Basis Weight (g/m²)
Nafion® HP Membrane	22	43.5

Physical Properties[2]	Typical Values MD	Typical Values TD	Test Method
Measured at 50% RH, 23 °C			
Tensile Strength, max., MPa	38	41	ASTM D 882
Non-Std Modulus, MPa	391	555	ASTM D 882
Elongation to Break, %	182	89	ASTM D 882

Other Properties	Typical Values	Test Method
Conductivity[3], mS/cm		DuPont NAE305
- In-Plane	> 72.0	
- Through-Plane	> 50.5	
Hydrogen Crossover[4], (ml/min·cm²)	< 0.015	DuPont

Hydrolytic Properties	Typical Values	Test Method
Water content, % water[5]	5.0 ± 3.0%	ASTM D 570
Water uptake, % water[6]	50.0 ± 5.0%	ASTM D 570
Linear expansion, % increase		
from 50% RH, 23 °C to water soaked, 23 °C	1% (MD), 5% (TD)	DuPont
from 50% RH, 23 °C to water soaked, 100 °C	3% (MD), 11% (TD)	DuPont