

## Aemion+ Polymer Materials Comparison

Parameter	Conditions	Unit	AF2-HWP8-75	AF3-HWK9-75
Thickness	Dry membrane	μm	85	85
Residual Solvent	80 °C, 2h	Δ wt%	12	
<b>Mechanical Properties</b>				
Tensile Strength	Ambient, MD	MPa	43	52
	Ambient, TD		41	55
Elongation at Break	Ambient, MD	%	37	21
	Ambient, TD		37	21
Elastic Modulus	Ambient, MD	MPa	329	680
	Ambient, TD		309	610
<b>Hydrolytic Properties</b>				
Water uptake	80 °C	%	29	12
Z-expansion	80 °C	%	11	5
Linear expansion	80 °C, MD/TD average	%	3.2	0.85/1.4
<b>Electrochemical Properties</b>				
In-Plane Cl <sup>-</sup> Conductivity	22 °C Liquid water	mS·cm <sup>-1</sup>	5	4.4 (5xRef) <sup>‡</sup>
Thru-plane Cl <sup>-</sup> conductivity	22 °C Liquid water	mS·cm <sup>-1</sup>	-	4.9

<sup>‡</sup> Electrolyte solution for AF3 refreshed 5 times. Exchange may proceed slower in AF3 series membranes than previous generation

Note: The presented data provides comparative values based on monolithic membrane films as a means of polymer comparison. These are prototype materials only intended to be used for early development activities and not intended for production items. Product information is to be used as a guide only, not as a design specification, and is subject to change at any time as part of ongoing product development. Ionomr makes no warranties, express or implied, and assumes no obligation or liability in connection with any use of this information or for results obtained in reliance thereon.

Document ID: FM-7040-b	Title: AP2 vs. AP3 Polymer Comparison	
Revision: b	Prepared By: Tong Li	Effective Date: 2022-05-04
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This document is reviewed to ensure its continuing relevance to the systems and process that it describes.

**Revision History:**

Revision	Date	Description of Changes	Approved By
A	2021-11-04	Initial Release	Ryan Jansonius
B	2022-05-04	Data Update	Andrew Belletti

PRELIMINARY INFORMATION