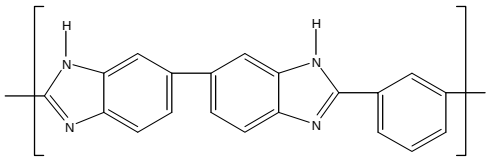
Polybenzimidazole (PBI) Film

PBI Performance Products' PBI Film is a solution cast Polybenzimidazole (PBI) film produced from narrow range high molecular weight PBI polymer chains for application in Membrane Electrode Assemblies for Fuel Cells, Flow Batteries, and Hydrogen Pumps.

These high strength films are ideal for electrochemical cells wherein the membrane will be imbibed with Sulfuric, Phosphoric or other strong acid such that the membrane shall function in an electrochemical cell.

PBI membranes are tolerant and operate most efficiently at temperatures greater than 150C; up to about 300C. PBI membranes will not hydrolyze in steam or water.

Chemical structure of PBI film:



Poly-2,2'-(m-phenylene)-5,5'-bibenzimidazole

Typical Properties of PBI Film

PROPERTIES	VALUE	ASTM METHOD
Thickness (microns)	55	
Width (m)	1	
Repeating unit MW (g/mol)	308	
Chain Avg WM	60,000	
Tear Strength (lb/mil)		
23C	1.47	D1004
300C	0.88	D1004
Tg (C)	427	DSC
Moisture Absorp (%)	0.95	D570
Density (g/cc)	1.3	D1505
Dielectric Strength (v/mil)		
50% RH	1400	D149
<1% RH	10,200	D149
Vol. Resist (ohm-cm)	10e14	D257

GAS	GAS PERMEATION (cm^3*mm/(m^2*day))		
	23C	80C	200C
H_2	674,600	2,229,900	
CO_2	14	56	123
O_2	4	21	104
N_2	1	4	22

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