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# Metal-organic framework anchored sulfonated poly(ether sulfone) as a high temperature proton exchange membrane for fuel cells

Nosaibe Anahidzade[a], Amir Abdolmaleki[a,b*], Mohammad Dinari[a*], Koorosh Firouz Tadavani[a], Mohammad Zhiani[a]

[a]Department of Chemistry, Isfahan University of Technology, Isfahan 84156-83111, I. R. Iran

[b]Department of Chemistry, College of Sciences, Shiraz University, Shiraz 71467-13565, I. R. Iran

abdolmaleki@cc.iut.ac.ir,

abdolmaleki@shirazu.ac.ir

dinari@cc.iut.ac.ir;

mdinary@gmail.com

*Corresponding author: Tel.: +98 3133913249; Fax: +98 3133912350.



**ABSTRACT:**

A proton-conducting sulfonated poly(ether sulfone)-metal-organic framework membrane with high proton conductivity at high temperature and anhydrous conditions was synthesized by anchoring the Cr-MIL-101-$NH_2$ to the aromatic polymer backbone via a Hinsberg reaction. The effect of metal-organic frameworks as the pendant porous aminated moieties on membrane features such as water uptake, swelling ratio, mechanical, oxidative and thermal stabilities, morphology, acid retention capacity, ion exchange capacity, long-term durability, hydrogen crossover, proton conductivity and fuel cell performance was methodically studied. The presence