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Gang Wang, Michael D. Guiver



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**Proton exchange membranes derived from sulfonated polybenzothiazoles containing naphthalene units**

Gang Wang<sup>a\*</sup>, Michael D. Guiver<sup>b,c\*\*</sup>

<sup>a</sup>*College of Chemistry, Chemical and Environmental Engineering, Henan University of Technology, Zhengzhou 450000, PR China*

<sup>b</sup>*State Key Laboratory of Engines, School of Mechanical Engineering, Tianjin University, Tianjin 300072, PR China*

<sup>c</sup>*Collaborative Innovation Center of Chemical Science and Engineering (Tianjin), Tianjin 300072, PR China*

gwang198@gmail.com (G.W.)

michael.guiver@outlook.com (M.D.Guiver)

\*Corresponding author. Tel.: +86 371 67756718; Fax: +86 371 67756718.

\*\*Corresponding author. Tel.: +86 22 27404479; Fax: +86 22 27404479.

**ABSTRACT**

Sulfonated polybenzothiazoles were synthesized by polycondensation of 6-sulfonate-1,4-naphthalene dicarboxylic acid, 2,5-diamino-1,4-benzenedithiol dihydrochloride and either 1,4-naphthalene dicarboxylic acid or 2,2-bis(4-carboxyphenyl) hexafluoropropane. The two series are denoted sPBT-NA and sPBT-6F, respectively. While the sPBT-NA series are insoluble in common solvents, the sPBT-6F series are soluble due to the incorporation of hexafluoroisopropylidene moieties, which impart more chain flexibility rather than disrupting the regular packing of the polymer main chain. The sPBT-6F series exhibited high proton conductivity, high thermal and oxidative stability, good mechanical properties and appropriate water uptake and dimensional swelling

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