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Comb-shaped polysulfones containing sulfonated polytriazole side chains for proton exchange membranes

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Abstract

Comb-shaped polysulfone copolymers were synthesized by the click reaction, copper (I) catalyzed azide-alkyne 1,3-dipolar cycloaddition, using polysulfone having azidomethyl side group (PSf-N_3) and sulfonated polytriazole having one ethynyl chain-end group. PSf-N_3 was prepared by the substitution reaction of polysulfone through chloromethylation followed by azidation, and sulfonated polytriazoles having one ethynyl chain-end group was synthesized *via* the click reaction using 1,4-diethynylbenzene and 4,4′-diazido-2,2′-stilbenedisulfonic acid disodium salt tetrahydrate with CuI followed by end-capping process. Tough, flexible, and transparent membranes could be prepared by solution casting from the comb-shaped

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