

Sulfur copolymer nanofiber prepared via inverse vulcanization and electrospinning for heavy metal sequestration from wastewater

Limiuco Lawrence, Grace Nisola, Romulo Macadangdang, 이성풍, 정옥진[†]

Department of Energy Science and Technology (DEST), Energy and Environment Fusion Technology Center (E2FTC), Myongji University
(wjchung1226@gmail.com[†])

Processable sulfur copolymer was synthesized via facile inverse vulcanization of elemental sulfur with 2-carboxyethyl acrylate (CEA). Copolymerization with CEA stabilized the diradical sulfur from depolymerization. The resulting sulfur-CEA copolymer (poly(S-r-CEA)) dope solution can be processed into nanofiber (NF) via electrospinning. The poly(S-r-CEA) NF was characterized in terms of its physico-chemical and mechanical properties. The developed poly(S-r-CEA) NF can be applied as an adsorbent of Hg^{2+} , Pb^{2+} , and Cd^{2+} from wastewater. This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT and future Planning (2015R1A2A1A15055407) and by the Ministry of Education (No. 2009-0093816).