A review of polymer nanofibres by electrospinning and their application in oil–water separation for cleaning up marine oil spills

Abstract

The growths of oil and gas exploration and production activities have increased environmental problems, such as oil spillage and the resulting pollution. The study of the methods for cleaning up oil spills is a critical issue to protect the environment. Various techniques are available to contain oil spills, but they are typically time consuming, energy inefficient and create secondary pollution. The use of a sorbent, such as a nanofibre sorbent, is a technique for controlling oil spills because of its good physical and oil sorption properties. This review discusses about the application of nanofibre sorbent for oil removal from water and its current developments. With their unique physical and mechanical properties coupled with their very high surface area and small pore sizes, nanofibre sorbents are alternative materials for cleaning up oil spills.