

عنوان مقاله:

Graphene Based Membrane Modified Silica Nanoparticles for Seawater Desalination and Wastewater Treatment: Salt Rejection and Dyes

محل انتشار:

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تعداد صفحات اصل مقاله: 11

نویسندگان:

N. Munasir - *Department of Physics, Faculty of Mathematics and Sciences, Universitas Negeri Surabaya (UNESA), Indonesia*

S. R. Lutfiana - *Department of Physics, Faculty of Mathematics and Sciences, Universitas Negeri Surabaya (UNESA), Indonesia*

F. Nuhaa - *Department of Chemistry, FSAD, Institut Teknologi Sepuluh Nopember Surabaya (ITS), Indonesia*

S. Evi - *Department of Physics, Faculty of Mathematics and Sciences, Universitas Negeri Surabaya (UNESA), Indonesia*

R. Lydia - *Department of Physics, Faculty of Mathematics and Sciences, Universitas Negeri Surabaya (UNESA), Indonesia*

S. S. Ezaa - *Department of Physics, Universitas Teknologi Malaysia (UTM), Malaysia*

T. Ahmad - *Department of Physics, Universitas Negeri Malang (UM), Indonesia*

خلاصه مقاله:

The clean water crisis in Indonesia is increasing every year, and waste from the textile industry sector can also add to this problem. There are various water treatment processes to deal with the clean water crisis, one of which is the desalination process using graphene oxide. With the addition of hydrophilic nanoparticles, graphene oxide (GO) membranes can increase roughness and have good mechanical strength. SiO₂ nanoparticles also have a high specific surface to absorb water or are hydrophilic. This study aims to determine the ability of the GO-SiO₂/Psf membrane to reject salt (NaCl solution) and filtering of methylene blue solutions. Membrane prepared by variations of Tetraethyl orthosilicate (TEOS) ۰.۶; ۰.۸; ۱.۰; and ۱.۲ ml for GO/SiO₂ composite synthesis. The results showed that the GO-SiO₂/Psf membrane could absorb methylene blue solution. The most optimum absorption value occurred at a TEOS concentration of ۰.۸ ml and had the most effective salt rejection value for NaCl solution equal to ۶۷.۲۳%.

کلمات کلیدی:

Graphen oxide, Polysulfones Membrane, Nanoparticle Silica, Desalination, Filtration

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