

ADSORPTIVE PROPERTIES OF SILICA SULFONATO HYBRID OF RICE HUSK ASH ON METAL IONS OF Ag (I) AND Cr (III) IN SOLUTION

By:
M. Hadi Sulhan
05307141038

First Consultant : Susila Kristianingrum, M. Si
Second Consultant : Hj. Siti Sulastri, M.S

ABSTRACT

This research aims at determining the adsorptive properties of silica sulfonato hybrid (HSS) of rice husk ash through the leaching of metal ions of Ag (I) and Cr (III) in solution. Adsorptive properties of silica sulfonato hybrid could be seen from the power of adsorption on variations of mass, contact time, and pH.

The research subject was rice husk ash. The object of this study was adsorptive properties of silica sulfonato hybrid of rice husk ash. The adsorptive property testing was begun with adsorbent mass variations. Adsorbent mass variations used were 10, 25, 50, and 100 mg. The effective mass obtained on mass variations of adsorbent was used as the adsorbent mass on the time variations. The variations of the time used were 1, 30, 60, 90, 120, 150, 180 minutes, and 21 hours. The effective mass and time contact gained on the adsorbent mass and time contact variations were used as the adsorbent mass and contact time on pH variations. The variations of pH used ranged from 1 to 5 for metal ions of Ag (I) and Cr (III).

Silica sulfonato hybrid adsorptive properties were affected by the adsorbent mass and pH, while contact times did not influence HSS adsorptive properties towards metal ions of Ag (I) and Cr (III). The adsorbent mass used was 25 mg to all types of HSS-Nitrate (HSS of rice husk ash without leaching oxidized with nitrate), HSSC-Nitrate (HSS of rice husk ash by leaching oxidized with nitrate), HSS-peroxide (HSS of rice husk ash without leaching oxidized with peroxide), and HSSC-peroxide (HSS of rice husk ash by leaching oxidized with peroxide) either to Ag (I) and Cr (III). The pH giving the percentage of the most adsorbed metal ions to the metal ion of Cr (III) was pH 4 for HSS-Nitrate and pH 5 for HSSC-Nitrate, HSS-Peroxide, and HSSC-Peroxide. To metal ion of Ag (I), pH variations only gave influences on the adsorptive properties of HSS-Nitrate and gave the percentage of the highest adsorbed metal ions at pH 4.