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The Influence of Clayey Pellet Size on Adsorption Efficiency of Metal Ions Removal from Waste Printing Developer

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Abstract : The adsorption efficiency of fired clayey pellets of 5 and 8 mm diameter size for Cu(II) and Zn(II) ions removal from a waste printing developer was studied. In order to investigate the influence of contact time, adsorbent mass and pellet size on the adsorption efficiency the batch mode was carried out. Faster uptake of copper ions was obtained with the fired clay pellets of 5 mm diameter size within 30 minutes. The pellets of 8 mm diameter size showed the higher equilibrium time (60 to 75 minutes) for copper and zinc ions. The results pointed out that adsorption efficiency increases with the increase of adsorbent mass. The maximal efficiency is different for Cu(II) and Zn(II) ions due to the pellet size. Therefore, the fired clay pellets of 5 mm diameter size present an effective adsorbent for Cu(II) ions removal (adsorption efficiency is 63.6%), whereas the fired clay pellets of 8 mm diameter size are the best alternative for Zn(II) ions removal (adsorption efficiency is 92.8%) from a waste printing developer.

Keywords : adsorption efficiency, clayey pellet, metal ions, waste printing developer
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