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Removal Of Copper In An Aqueous Solution Through The Application Of Natural And Synthetic Zeolites

The removal of hazardous copper ions by means of natural and synthetic zeolites was conducted in this study. Two separate columns were packed with 60 mL of natural and synthetic zeolites. In the case of the natural zeolites, enough distilled water was passed through the column to remove any dust particles so that the transmittance reading of the solution was 100. A 0.1 M cupric nitrate solution was passed through the columns in 10 mL tests and the transmittance of the solution that came out was measured by the use of a colorimeter. Tests were run until the zeolites produced a solution with a significant change in transmittance reading (around 10% transmittance). A 1 M sodium chloride solution then was passed through the columns to see if the zeolites could be recharged for multiple uses. The 0.1 M cupric nitrate solution was then passed through the columns to see if the copper ion would again be taken out of the solution. These exact measures were repeated through the use of a 0.1 M cupric sulfate solution to simulate an acid mine drainage scenario. The pH of the solution was tested and found to contain a pH of 3.