The Effect of Chlorination and Sand Grain Size on Adsorption-Retention of Some Heavy Elements in Sulfide Water.

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Abstract

Groundwater in the Murzeq Basin (Libya) is a major source of water supply for all human activities, especially drinking water, and the presence of groundwater in the geological formations bearing it in the layers of the earth is one of the primary factors that control the quality and quantity of dissolved salts. Sulfur ores in the entire Wadi Al Shati area, as these sulfur minerals were associated with the presence of mineral ores such as gypsum, anhydrite, pyrite and chalcopyrite. This study aims at measuring the concentrations of Fe, Cu, Co, Ni, Zn and Cr by using the Atomic Absorption Spectrometry for water samples from Wadi Madi, Tarout, Ain Mashashia, Wadi Al Shati, which have been shown to have significant concentrations of sulphide before and after chlorination. This study was done through sand filters in chromatographic columns, as well as the effect of the size of sand filter granules on the adsorption and retention of heavy elements as a catalyst. The results showed that the concentrations of some heavy elements decreased in the wells after the chlorination process as chlorination helped the process of oxidation and composition of compounds in the form of fixed oxides made it less concentrated and this is evident in the element, as for cobalt, while other elements increased its concentration in The presence of sulphide in these waters formed sulfide compounds in stable form and chlorination. Chlorine, an oxidizing agent, disassembled these compounds. This was evident for the nickel and copper component and some cobalt values according to the diameter of the sand grains inside the columns Due to the large role played by sand granules and this was clear when treated columns with empty water. Key Word: Chlorination, Grain Size, Adsorption, Sulfide, Retention.