

Removal of iron and manganese from underground water by use of natural minerals in batch mode treatment

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ABSTRACT

In the present study natural clinoptilolite and vermiculite as well as their Na-forms are used for simultaneous removal of Fe (1.5 ppm) and Mn (0.5 ppm) from underground water samples. Vermiculite exhibited higher removal levels than clinoptilolite for both Fe and Mn. In general, Fe removal is higher than Mn for vermiculite and the opposite holds for clinoptilolite. In particular, Fe and Mn removal levels are between 88–94% and 65–100% for vermiculite and 22–90% and 61–100% for clinoptilolite, respectively. Pretreatment as well as the use of smaller particle size increased the removal of both metals. The experimental results showed that the maximum permissible concentrations according to the legislation can be achieved.

Keywords: Drinking water; Manganese; Iron; Clinoptilolite; Vermiculite

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