

SORPTION PURIFICATION FROM STRONTIUM OF NATURAL WATER BY SORBENT ON THE BASIS OF MANGANESE OXIDE (III, IV)

Saenko E.V., Valtsifer V.A.

Institute of Technical Chemistry Ural Branch of the Russian Academy of Sciences – Branch of the Federal State Budgetary Institution of Science of the Perm Federal Research Center Ural Branch of the Russian Academy of Sciences, 614013, Perm, Akademika Koroleva, 3, e-mail: saenko_ekaterina@mail.ru

Currently, the problem of selective extraction of natural water from strontium is becoming more urgent. First of all, this is due to the involvement in the drinking water supply of large volumes of artesian water aquifers with a content of Sr^{2+} 5-20 times higher than the maximum permissible value. Long-term use of such water leads to the development of morbidity among the population. There is no stage of purification from strontium ions in the technological schemes of water treatment at the treatment facilities of the Russian Federation. There is little information about the methods of removing Sr^{2+} from natural waters when solving the problem of water softening (the term “hardness” describes the total concentration of calcium, magnesium and strontium in equivalent terms).

The sorption method with the use of selective inorganic sorbents is the most promising, from the technological and economic points of view, to solve the problem of strontium extraction. A study on the preparation and study of the properties of the sorbent based on manganese oxide (III, IV), selective to strontium ions on the background of hardness salts (Ca^{2+} , Mg^{2+}). The synthesis conditions are optimized in order to increase the sorption characteristics, in particular, to stabilize the selective capacity during operation in desorption cycles. The results of the studies have allowed to develop recommendations for the synthesis of sorbents for ions when extracting it from liquids of different composition.

This work was supported by the Russian Foundation for Basic Research, project 19-43-590012.