DETERMINATION OF COBALT IN ENVIRONMENTAL OBJECTS USING SORBENT ON THE BASE OF DI-(*TERT*-BUTYLBENZO)-18-CROWN-6

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Extraction of cobalt in dynamic conditions by sorbent impregnated type on the base of di-(*tert*-butilbenzo)-18-crown-6 and octanol-1 was investigated. It is established that the breakthrough occurs after passing 100 ml (43 column volumes) of the solution, and equilibrium is established after passing 600 ml of the solution. All sorbed cobalt is completely desorbed with 200 ml of 1 mol/l solution of nitric acid.

The dynamic exchange capacity of sorbent on the base of di-(*tert*-butylbenzo)-18-crown-6 and octanol-1 is 1.72 mg/g, the total dynamic exchange capacity is 10.3 mg/g.

On the base of data obtained, a sorbent test on a natural object – a water sample of a surface water body at the water intake of the Chernaya River, Shturmovoye village (Republic of Crimea) conducted.

The concentration of cobalt in water was determined by method of additives. The reproducibility of the obtained results was evaluated by calculating statistical indicators (arithmetic mean, dispersion, standard deviation, relative standard deviation, standard deviation of the average result, confidence interval). Results of the analysis of the statistical processing of the results showed that the concentration of cobalt in the Chernaya River is 0.075 ± 0.002 mg/l.

The method for determining the concentration of cobalt ions and the specific activity of cobalt radionuclides in water objects of the environment (sewage and natural waters) using sorbent impregnated type on the base of di-(*tert*-butylbenzo)-18-crown-6 and octanol-1 is developed.

Keywords: sorbent, cobalt, di-(*tert*-butylbenzo)-18-crown-6, octanol-1, sorption, dynamics.

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