Turbidimetric method of determination of sulfates' microquantity to ascertain a falsification of Borjomi mineral water

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Annotation

Turbidimetric method of determination of sulfates microquantity can be successfully used in order to ascertain a falsification of Borjomi mineral water.

The most common method of Borjomi falsification is the insertion of some components ($NaHCO_3$, NaCl, CO_2 etc.) into ordinary drinking water.

There are several options for identification of falsified Borjomi water (determination of microcomponents, complete analysis) that is labor-consuming and long-time process. For this purposes we can use sulfate-ion as controlling component. This selection is justified by the fact that artificial control of SO_4^{2-} content is virtually impossible.

For determination of SO_4^{2-} in mineral waters of carbonate class 100,0 ml of sample were preliminary neutralized with 1:1 HCl, were heated up to boiling for CO_2 removal, then were cooled, filled up to 100,0 ml and afterwards SO_4^{2-} was determined turbidimetrically in the aliquot (5,0ml). It is possible to insert surface active substance (synthanol DC-10) into a composition of precipitating agent, which increases by 30-50% optical density of $BaSO_4$ suspension.

According to Borjomi water standards a concentration of SO_4^{2-} should be < 10 mg/l (usually it equals to 2-4 mg/l), while in falsified samples, if they are prepared from drinking water (Natakhtari or other), concentration of SO_4^{2-} is more than 20-30 mg/l.