

Characterization of resin gels used for determination of different mercury fractions in natural waters by DGT technique

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During more the last ten years, from the time when diffusive gradients in thin films technique (DGT) was introduced to scientific community for the first time, this technique has been intensively studied and developed. However, only little attention was attended to application of DGT technique for mercury measurement. In our laboratory, this issue is studied for more than five years. After solving the problems with accumulation of mercury in diffusive gel, Spheron Thiol resin gel as the best for determination of mercury by DGT was recommended. Unfortunately, this resin is not available on the market nowadays. From this reason, another work in this area was focused on preparation of new resin gels, capable to replace Spheron Thiol resin gel in DGT technique. During last two years, several resin gels were proposed and prepared, however, their characteristic was not tested until now.

This work summarized the results from laboratory testing of resin gels used in diffusive gradients in thin films technique for determination of different mercury fractions in natural waters. The sorbents chosen for preparation of resin gels were: Duolite GT-73, Spheron Thiol, chemically modified Iontosorb AV and Chelex 100. First of all, the preparation procedure of all resin gels was optimized. After optimization of preparation procedure, the resin gels were tested in mercury model solutions. The recovery test and the time dependence test were performed. When the basic tests were finished, they were followed by the tests of influence of natural ligands (humic substances, chlorides) and other parameters (above all pH and ionic strength) on mercury determination by DGT technique.

Recommended literature:

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