Determination Of Thiodiglycol In Groundwater Using Solid Phase Extraction Followed By Gas Chromatography With Mass Spectrometric Detection In The Selected Ion Mode

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A highly-sensitive analytical procedure is described for determining thiodiglycol in groundwater. Samples are initially fortified with 3,3'-thiodipropanol (surrogate), then both species are extracted using sequential solid phase extraction with both C_{18} and Ambersorb 572 columns. The C_{18} column, which removes extraneous groundwater components, is discarded; the Ambersorb 572 column is dried thoroughly before eluting polar components with a small volume of dichloromethane. The extract is taken to dryness using dry flowing nitrogen, and the resulting residue is derivatized using MTBSTFA and pyridine. The derivatized products are diluted to a final volume with toluene, chromatographed using a fused-silica capillary column, and detected with a quadrupole mass spectrometric detector in its selective-ion mode. Two independent statistically-unbiased procedures were used to evaluate the detection limits for thiodiglycol; the values ranged between 4 and 16 $\mu g\ L^{-1}$ groundwater.

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