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## The Preservation Method of Water Samples to Determine Sulfide in Groundwater by the Methylene Blue Spectrophotometric Method

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英文关键词: [groundwater](#) [sulfide](#) [methylene blue spectrophotometric method](#) [preservation method of samples](#)

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中文摘要:

硫化物是评价地下水污染的重要特征指标之一。为了使硫化物的测定结果更加准确可靠, 在硫化物水样采集过程中通常加入乙酸锌溶液和氢氧化钠溶液作为固定剂, 以抑制硫离子被氧化生成硫化氢从水样中逸出。但已有的标准方法和文献中对加入乙酸锌溶液和氢氧化钠溶液的顺序和加入量不尽相同, 回收率范围为65%~108%。本研究采用亚甲基蓝分光光度法测定地下水中的硫化物, 考察了采样时乙酸锌溶液和氢氧化钠溶液的加入顺序和加入量对硫化物回收率的影响。结果表明, 在采样过程中应先加1.0 mL乙酸锌溶液, 再加500 mL水样, 最后加入2.0 mL氢氧化钠溶液, 其低浓度和高浓度加标水样的回收率达到94.2%~98.0%, 优于文献的回收率, 硫的测定结果令人满意。对硫化物浓度高的水样, 可增加乙酸锌溶液和氢氧化钠溶液的加入量, 硫化物同样有着较高的回收率。

英文摘要:

Sulfide is one of the important characteristic indices of groundwater pollution evaluation. In order to obtain accurate results for sulfide in water samples, Zn(Ac)<sub>2</sub> solution and NaOH solution are usually used as fixatives to reduce the loss of sulfide and H<sub>2</sub>S from the water by oxidation. The numerous preservation methods from the national standard methods and documents have differing adding sequences and amounts of Zn(Ac)<sub>2</sub> solution and NaOH solution. Using these methods, the recovery rates of sulfide were in the range of 65%-108%. For this experiment the sulfide in the water sample was measured by using the methylene blue spectrophotometric method. The effects on the sulfide recovery rate are discussed in this paper, including different addition sequences and amounts of Zn(Ac)<sub>2</sub> solution and NaOH solution. The

experimental results showed that the recovery and accuracy of sulfide are improved when the adding sequence and amounts are 1.0 mL of Zn(Ac)<sub>2</sub> solution, 500 mL of water sample and 2.0 mL of NaOH solution. The recovery rates of sulfide were in the range of 94.2%-98.0% for low and high concentration samples, which were higher when compared to other results in the literatures. The recovery rates of sulfide were satisfied with high concentration samples through increasing amounts of Zn(Ac)<sub>2</sub> solution and NaOH solution.

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