

研究简报

同位素稀释多接收电感耦合等离子体质谱法测定血铅

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收稿日期 2007-7-11 修回日期 2007-11-29 网络版发布日期:

摘要

采用同位素稀释多接收电感耦合等离子体质谱 (ID-MC-ICP-MS) 法测定血铅。运用同位素稀释法测得整个实验的流程空白Pb的浓度平均值为5.6 ng。对SRM 955b level 1和SRM 955b level 3标准血样进行分析, 测得血样浓度分别为40.2、207.8 $\mu\text{g}\cdot\text{L}^{-1}$, 测定值落在血样参考值范围之内, 证明该方法有效、可靠。利用建立的血铅分析方法, 参加了络合型血铅标准物质的定值, 得到3种血铅标准样中铅的浓度分别为 (102.7 \pm 5.5)、(181.7 \pm 4.0)、(304.1 \pm 3.9) $\mu\text{g}\cdot\text{L}^{-1}$ 。

关键词 [血液](#) [铅浓度](#) [同位素稀释多接收电感耦合等离子体质谱](#)

分类号 [O 657.63](#)

Determination of Lead in Blood by Isotope Dilution Multicollector Inductively Coupled Plasma Mass Spectrometry

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Abstract

A method for determination of trace Pb in blood was established by isotope dilution multicollector inductively coupled plasma mass spectrometry (MC-ICP-MS). The average Pb analytical blank obtained in this laboratory is 5.6 ng. A Nist standard reference materials of (SRM) 955b level 1 and (SRM) 955b level 3 were used to evaluate the accuracy of Pb concentration in blood. The measured values are 40.2 and 207.8 $\mu\text{g}\cdot\text{L}^{-1}$ respectively, in good agreement with their certified value. The established method was used for determination the Pb concentration of three blood samples, the uncertainty of measurement results were also analyzed and evaluated. The Pb concentration of three blood samples are (102.7 \pm 5.5), (181.7 \pm 4.0) and (304.1 \pm 3.9) $\mu\text{g}\cdot\text{L}^{-1}$.

Key words

[blood](#) [Pb concentration](#) [isotope dilution](#) [multicollector](#) [inductively coupled plasma mass spectrometry](#) [\(ID-MC-ICP-MS\)](#)

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