

## 氮气中六种氯代烷烃混合标准气体的研制

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## Development of standard gas mixture of six chlorinated hydrocarbons in nitrogen

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摘要

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**摘要** 介绍了氮气中6种氯代烷烃混合标准气体的制备和定值方法。标准气体的组分是二氯甲烷、三氯甲烷、1,1-二氯乙烷、1,2-二氯乙烷、1,1,1-三氯乙烷和1,1,2-三氯乙烷,标准值为5  $\mu\text{mol/mol}$ 。考察了标准气体的制备重现性、均匀性和稳定性。结果表明,标准气体在良好,扩展相对不确定度为5%,使用有效期为一年。经与国外的同类标准气体比对,量值有较好的一致性。氮气中6种氯代烷烃混合标准气体为挥发性氯代烷烃的检测提供了计量标准。

**关键词:** 氯代烷烃 标准气体 均匀性 稳定性 不确定度

**Abstract:** A method for the preparation of the standard gas mixture of 6 chlorinated hydrocarbons, containing dichloromethane, 1,1-dichloroethane, 1,2-dichloroethane, chloroform, 1,1,1-trichloroethane, and 1,1,2-trichloroethane at the concentration of 5  $\mu\text{mol/mol}$  in nitrogen was developed. The reproducibility of this method and the homogeneity and long-term stability of the standard mixture were evaluated. The results showed that all 6 chlorinated hydrocarbons have shown stability as long as 12 months and the expanded relative uncertainty of 5%. The certified value of the developed standard gas agreed with the similar standard gas from Scott Specialty Gases. This research established a foundation for the analysis of volatile chlorinated hydrocarbon gases.

**Keywords:** halogenated hydrocarbon gas standard homogeneity stability uncertainty

Received 2010-01-14; published 2010-05-28

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引用本文:

李宁\*, 王倩, 郭健, 王帅斌, 田文, 吴忠祥. 氮气中六种氯代烷烃混合标准气体的研制[J]. 色谱, 2010, 28(5): 521-524