

# 准确定量校准 从安捷伦认证参比物质开始

The Measure of Confidence

## 安捷伦原子光谱认证参比物质 (CRM)

安捷伦无机标准品是全面按照 ISO 17025 和 ISO Guide 34 关于 AA、MP-AES、ICP-OES 和 ICP-MS 应用的相关要求生产的全系列无机、金属有机和生物柴油认证参比物质。因此，您可以对我们高质量的产品充满信心。

结合安捷伦原厂部件和备件，安捷伦认证参比物质能够让您的光谱实验室获得出色的仪器性能和更高的分析效率。

这些标准品适用于安捷伦、珀金埃尔默和赛默仪器，并具有多种规格和浓度，包括：

- 单元素标准品，10 至 10000 ug/mL
- 多元素标准品
- 磨损金属和金属有机标准品
- 生物柴油标准品
- 仪器调谐和波长校准标准品（安捷伦、珀金埃尔默）
- 基体改性剂和缓冲液

如需了解更多有关认证参比物质的信息，请访问  
[agilent.com/chem/spectroscopystandards](http://agilent.com/chem/spectroscopystandards)



## 索取海报

发现获得精密、准确校准数据的  
十个技巧 — 让您的安捷伦、  
珀金埃尔默和  
赛默光谱仪器  
时刻处于理想  
性能状态。



即刻点击以下网页索取海报

[agilent.com/chem/CRMposter](http://agilent.com/chem/CRMposter)

限时优惠 — 享六五折。



Agilent Technologies

# 安捷伦分析证书:

确保您得到的是高质量的标准品

所有安捷伦无机光谱标准品均具有分析证书 (CoA), 其中详细列出了标准浓度、测量不确定度以及多达 68 种痕量杂质的浓度值 (通过用于 ICP-OES/ICP-MS 标准品的 Agilent ICP-MS 分析所得)。此外, CoA 还详述了认证方法、预期用途、正确使用的说明书以及推荐储存条件。

预期用途  
在满足 ISO 9001、ISO Guide 34 要求的工厂生产，并在满足 ISO/IEC 17025 要求的测试实验室中认证  
使用高纯度的原材料和溶剂制成  
使用 Agilent ICP-MS\* 分析杂质含量  
可溯源至 NIST  
正确使用的说明书及适宜储存条件说明  
有效期  
发布日期  
所有标准品的失效日期均通过短期和长期稳定性研究验证

**CERTIFICATE OF ANALYSIS**

**Agilent Product Name:** Copper Standard: 1000 µg/mL Cu in 5% HNO<sub>3</sub>  
**Agilent Part No:** 5190-8348  
**Lot No:** Sample

**Product Specifications**

Analyte	Starting Material	CAS #	Matrix	Certified Concentration
Cu	Cu	7440-50-8	5% HNO <sub>3</sub>	994 ± 2 µg/mL (w/v) 984 ± 2 µg/g (w/w)

**Intended Use:** This solution is intended for use as a certified reference material or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), atomic absorption spectroscopy (flame AAS or GFAAS), microwave plasma atomic emission spectroscopy (MP-AES), x-ray fluorescence spectroscopy (XRF), and other techniques for elemental analysis.

**Certification & Traceability:** This CRM was manufactured under a quality management system that is accredited to ISO Guide 34, ISO/IEC 17025, and registered to ISO 9001. This CRM was prepared to a nominal concentration of 1000 µg/mL by gravimetric methods using 99.999% pure copper (Cu) metal dissolved in high purity nitric acid (HNO<sub>3</sub>) and diluted with ASTM Type I Water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration and uncertainty were determined using the "High Performance ICP-OES" protocol developed by NIST and both the certified concentration and uncertainty values are traceable to NIST SRM 3114, lot #011017. The uncertainty associated with the certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

**Uncertified Values:** Agilent ICP-MS was used to determine trace metal concentrations for this product (nd = not determined).

Trace Concentrations (µg/L)													
Ag	<0.5	Ca	<0.2	Gd	<0.2	Lu	<0.2	Pb	<1	Se	<2	Tl	<0.5
Al	<2	Co	<1	Ge	0.969	Mg	<5	Pd	<0.5	Si	<100	Tm	<0.2
As	<2	Cs	<0.5	Hf	<0.2	Mn	<1	Pr	<0.2	Sm	<0.2	U	<0.5
Au	<0.5	Cr	<0.5	Hg	<0.5	Mo	<0.5	Pt	<0.5	Sn	<0.5	V	<1
B	<5	Cu	Major	Ho	<0.2	Na	<25	Rb	<0.5	Sr	<1	W	<0.5
Ba	<1	Dy	<0.2	In	nd	Nb	<0.5	Re	<0.2	Ta	<0.5	Y	<0.5
Be	<0.5	Er	<0.2	Ir	<0.2	Nd	<0.2	Rh	<5	Tb	<0.5	Yb	<0.2
Bi	<0.2	Eu	<0.2	K	<25	Ni	9	Ru	<0.5	Te	<1	Zn	<2
Ca	<25	Fe	<10	La	<0.5	Os	<0.5	Sb	<0.5	Th	<0.5	Zr	<0.5
Cd	<0.5	Ga	<0.5	Li	<2	P	<100	Sc	<5	Ti	<2		

**Instructions for Use:** Agilent Technologies recommends that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy the analyst should: (1) use only pre-cleaned containers and transferware, (2) avoid pipetting directly from the CRM's original container, (3) use a minimum sub-sample size of 500 µL, (4) make dilutions using calibrated balances or certified volumetric class A flasks and pipettes, (5) dilute to volume using the same matrix as the original CRM, and (6) never pour used product back into the original container. The solution should be kept tightly capped. Store at controlled room temperature per USP 35 (10,30,60). Do not freeze, heat, or expose to direct sunlight. Minimize exposure to moisture or high humidity.

**Period of Validity:** Agilent Technologies ensures the accuracy of this solution until the expiration date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Date of release: 9 February 2015  
Date of expiration: 31 August 2016

Sample lot approver:  
John M. Macanton  
QA Manager

报告的标准浓度 (包括以 w/v 和 w/w 表示的不确定度值 )  
使用高性能 ICP-OES 进行含量分析, 采用 NIST 建立方法, 确保分析结果可直接溯源至相应的 NIST 3100 系列单元素 SRM  
用于测定标准浓度的方法  
报告多达 68 种杂质元素的实测浓度值

\*磨损金属、金属有机和生物柴油标准品中的杂质含量由 ICP-OES、XRF 或其他元素分析技术测得

如需了解更多有关 CRM 的信息, 请访问 [agilent.com/chem/spectroscopystandards](http://agilent.com/chem/spectroscopystandards)  
如需索取免费海报, 请访问 [agilent.com/chem/CRMposter](http://agilent.com/chem/CRMposter)

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