Agilent

# Certificate of Analysis

**ULTRAgrade$^{TM}$ Solution**
**Silica ICP Standard**
**1000 µg/mL**

**Catalog Number:** ICP-014A
**Lot Number:** T00628
**Lot Issue Date:** 05/29/2014
**Expiration Date:** 06/30/2021

|  |  |
|---|---|
| Starting Material: | Silicon dioxide |
| Starting Material Purity: | 99.999% |
| Starting Material Lot #: | BH02957 |
| Matrix: | Dilute sodium hydroxide in low TOC water (< 50 ppb) |
| Atomic Weight $SiO_2$: | 60.09 |

## Certified Value: 1000 ± 2 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentration(s) were prepared and verified by an ISO Guide 34 / ISO 17025 accredited laboratory, and compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value at the 95% confidence level for each analyte is determined gravimetrically.

## Classical Wet Assay Method: Theoretical, based on gravimetric measurements

## Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP/MS) vs. NIST SRM 3150

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001.

## Trace Metallic Impurities in Solution Standard in µg/mL:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | Al | <0.005 | ND | * | Ga | <0.005 | ND | n | Nb |  |  | n | S |  |  |
| * | Sb | <0.005 | ND | n | Ge |  |  | n | Os |  |  | n | Ta |  |  |
| * | As | <0.005 | ND | n | Au |  |  | * | Pd | <0.005 | ND | n | Te |  |  |
| * | Ba | <0.005 | ND | n | Hf |  |  | s | P |  |  | n | Tb |  |  |
| * | Be | <0.005 | ND | n | Ho |  |  | * | Pt | <0.005 | ND | * | Tl | <0.005 | ND |
| * | Bi | <0.005 | ND | * | In | <0.005 | ND | * | K | <0.005 | ND | n | Th |  |  |
| * | B | <0.005 | ND | n | Ir |  |  | n | Pr |  |  | n | Tm |  |  |
| * | Cd | <0.005 | ND | * | Fe | <0.005 | ND | n | Re |  |  | * | Sn | <0.005 | ND |
| * | Ca | <0.005 | ND | * | La | <0.005 | ND | n | Rh |  |  | * | Ti | <0.005 | ND |
| n | Ce |  |  | * | Pb | <0.005 | ND | n | Rb |  |  | n | W |  |  |
| n | Cs |  |  | * | Li | <0.005 | ND | n | Ru |  |  | n | U |  |  |
| * | Cr | <0.005 | ND | n | Lu |  |  | n | Sm |  |  | * | V | <0.005 | ND |
| * | Co | <0.005 | ND | * | Mg | <0.005 | ND | n | Sc |  |  | n | Yb |  |  |
| * | Cu | <0.005 | ND | * | Mn | <0.005 | ND | * | Se | <0.005 | ND | n | Y |  |  |
| n | Dy |  |  | * | Hg | <0.005 | ND | s | Si |  |  | * | Zn | <0.005 | ND |
| * | Er | <0.005 | ND | * | Mo | <0.005 | ND | * | Ag | <0.005 | ND | n | Zr |  |  |
| * | Eu | <0.005 | ND | n | Nd |  |  | * | Na | <0.005 | ND |  |  |  |  |
| * | Gd | <0.005 | ND | * | Ni | <0.005 | ND | * | Sr | <0.005 | ND |  |  |  |  |

* - element checked for
ND – not detected
I – spectral interference
D – detected
n – not checked for
s – solution standard element

## Density of Solution (measured at 20.00°C ± 0.05°C): 1.0018 g/mL

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ANAB
ACCREDITED
ISO/IEC 17025
TESTING LABORATORY

ISO 9001 Registered Quality System – TUV USA