

# Product Specification

CERTIFIED REFERENCE MATERIAL

## VeriSpec® Iron (Fe) Standard for AAS 1000 ppm in 2% HCl

### Manufactured and Tested in an ISO 17025/ISO 17034 Accredited Facility

**Lot Number:** SAMPLE

**Product Number:** RV010019

**Manufacture Date:** N/A

**Expiration Date:** N/A

This is a single element solution that was prepared volumetrically to contain the certified value reported. The uncertainty associated with the certified value is the sum of the estimated errors due to the purity of the raw material, the volumetric preparation of the solution, and transpiration of the solution through the container wall.

The final solution concentration is confirmed by AA, ICP, or ICP-MS, and is traceable to NIST Standard Reference Material 3126.

Component	Certified Value	Uncertainty	Traceability
Fe	1000 ppm <sup>(a)</sup>		

\* Starting material purity is not a certified value.

#### Method(s) of certification used:

(a) *The certified value was obtained using IC or ICP-OES calibration*

#### Concept of certification and traceability statement:

This certified reference material is produced using a high-purity starting material, acid from sub-boiling and 18 MOhm deionized water. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k = 2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA 4/02 Property of the result of a measurement whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties (ISO VIM) The metrological traceability is assured through calibration on AAS. The calibration curve is drawn using a series of standard solutions prepared from a certified reference material traceable to SI of NIST (SRM) and of accredited according to ISO/IEC 17025 and/or ISO Guide 34 laboratories/producers. All contributions in relation to the certification of standard solutions are considered when evaluating the uncertainty. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

#### Level of homogeneity:

The solution was mixed according to an in-house procedure and is guaranteed to be homogeneous.

To ensure sufficient homogeneity, mix thoroughly by inversion prior to each use.

#### Intended use:

For Laboratory Use Only

This CRM is intended for:

Calibration of AAS

Validation of analytical methods

Preparation of "working reference samples"

Detection limit and linearity studies

This statement is not intended to restrict the use for other purposes.

#### Instructions for the correct use of this reference material:

This certified reference material can be used directly or can be diluted in an appropriate high-purity matrix. Only clean class A glassware should be used. Do not pipet from container. Obtained concentration (in mg/l) after dilution is a result from the multiplication of certified value of CRM concentration and the CRM's volume used for dilution and divided into the flask's volume used for dilution.

#### Hazardous situation:

The normal laboratory safety precautions should be observed when working with this certified reference material. Refer to the Safety Data Sheet for detailed information on hazards associated with this material.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
RV010019-100N	100 mL natural LDPE	36 months
RV010019-1N	1 L natural poly	36 months
RV010019-500N	500 mL natural poly	36 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This Certified Reference material was produced under a quality management system that is accredited to ISO/IEC 17025 and ISO 17034.

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