

Steel Pin Reference Material

Product No: AR546

Lot No: 240626

Material and Intended Use

AR546 is a steel pin reference material (RM). The intended use of this RM is for the verification of inert gas fusion for the determination of hydrogen. This RM can also be used to verify value assignment of in-house reference materials. A unit consists of one bottle containing 100 g of pins of nominal mass 1.0 g. All reference materials should be verified as fit for purpose prior to use.

Reported Values

Reference values for AR546 are given in Table 1. Sampling and calculation of reported values for each measurand were performed using practices consistent with ISO 17034:2016 (1) and ISO 33405:2024 (2).

Table 1. Reference values for AR546, Lot 240626.

Property	Value
% Hydrogen	(0.00006)

% Hydrogen – Values indicate the amount of the element present in the material matrix as determined using inert gas fusion and are metrologically traceable to the International System of Units (SI) derived unit of mass fraction expressed as percent (%).

Instructions for Use

Pins should be rinsed in acetone and dried before use. Bottles of pins should be kept sealed tight and stored in a cool, dry location.

Minimum Sample Size

It is recommended that no less than 1 pin of RM material be used for destructive test methods.

Period of Validity

This certification is valid for 20 years from the initial certification date, within the measurement uncertainties specified, provided the RM is handled and stored in accordance with the instructions given in this certificate (see “Instructions for Use”). Accordingly, periodic recalibration or recertification of this RM is not required. The certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Homogeneity

This product was manufactured from a single heat lot of commercial wire. Samples were randomly selected using practices consistent with ISO 33405:2024. Homogeneity was evaluated by replicate analysis. Within- and between-sample variance was evaluated using Analysis of Variance (ANOVA).

Maintenance of the Reference Material Certificate

Alpha Resources will monitor this RM throughout the period of its availability. If substantive technical changes occur that affect the value assignment, AR will notify the purchaser.

Users of this RM should ensure the Reference Material Certificate in their possession is current. This can be accomplished by contacting Alpha Resources at the following: Telephone - (269) 465-5559; Email - info@alpharesources.com; or via the Internet - <https://www.alpharesources.com>.

Methods and References

- (1) ISO 17034:2016 – General requirements for the competence of reference material producers.
- (2) ISO 33405:2024 – Reference materials – Approaches for characterization and assessment of homogeneity and stability.

**Dustin Jenkins, Ph.D.****Global Technical Director****Certification Date:** October 23, 2025

This certificate cannot be reproduced except in full. Remedies for any claimed defect in this product will be limited to product replacement or refund of the purchase price. In no event shall Alpha Resources, LLC be liable for incidental or consequential damages. Produced in accordance with ISO 17025 and ISO 17034. Certified values are accredited under Alpha Resources, LLC ISO/IEC 17025 and ISO 17034 certificates issued by ANSI National Accreditation Board (ANAB), AT-1200 and AR1920.