

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 352b

Hydrogen in Unalloyed Titanium

Hydrogen Concentration $46.9 \pm 0.8 \mu\text{g/g}$

This Standard Reference Material (SRM) is intended for use in the evaluation of methods and the calibration of equipment used in the determination of hydrogen in titanium. SRM 352b consists of 20 g of small titanium platelets, approximately 3.0 mm square and 1.5 mm thick. This SRM should be washed in acetone or trichloroethylene and thoroughly dried before use. When not in use the bottle should be kept tightly closed.

PREPARATION, TESTING, ANALYSIS:

The base material for this SRM was a selected sheet of commercial unalloyed titanium, approximately 1 m x 3 m x 1.5 mm thick. At the Albany Research Center, U.S. Bureau of Mines, Albany, Oregon, samples were punched from the sheet and hydrogen determinations were made to provide a concentration profile of the entire sheet. The sheet was cut into panels approximately 1 m long and approximately 0.3 m wide and sent to NBS.

At NBS the edges of selected panels were removed and the remaining material was nibbled (sheared) to form the platelets. The platelets were vapor degreased and ultrasonically cleaned with trichloroethylene; then tumble dried and placed in bulk containers.

The certification of SRM 352b is based upon two independent techniques involving three separate laboratories. These techniques include the use of both hot-extraction and vacuum-fusion equipment. The uncertainty of the certified value is two times the standard deviation. A minimum of 200 mg of the material should be used for any analytical determination.

The analytical work for homogeneity testing and certification was performed in the Inorganic Analytical Research Division at NBS by D.E. Brown and B.I. Diamondstone.

Cooperative analyses for certification were performed at the Albany Research Center, U.S. Bureau of Mines, Albany, Oregon, by A.J. Mackie and D.M. Bollman, and at I.ECO Corporation, St. Joseph, Michigan, by Dennis Lorenz.

The statistical analysis was performed in the National Measurement Laboratory by R.C. Paule.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by T. E. Gills.