



# National Institute of Standards & Technology

## Certificate of Analysis

### Standard Reference Material 352c

#### Hydrogen in Unalloyed Titanium

(In Cooperation with the American Society for Testing and Materials)

Hydrogen Concentration..... $49.0 \pm 0.9 \mu\text{g/g}$

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 352c 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. The material was then sheared to form platelets. The platelets were ultrasonically cleaned and placed in bulk containers.

The certification of SRM 352c is based upon independent techniques involving six cooperating laboratories. These techniques include the use of hot-extraction and vacuum-fusion instruments. A minimum of 200 mg of the material should be used for any analytical determination.

Cooperative analyses for certification were performed in the following laboratories:

- Analytical Associates, Inc., Detroit, Michigan, C.K. Deak and V.A. Fair.
- Leco Corporation, St. Joseph, Michigan, D. Lorenz and R. Hancock.
- Oremet Metallurgical Corporation, Albany, Oregon, A.D. Fryer and E. Giedd.
- Timet, Henderson Technical Laboratory, Henderson, Nevada, G.F. Boesenecker.
- Timet, Toronto, Ohio, O. Bunker.
- Wyman-Gordon Company, Eastern Division, North Grafton, Massachusetts, K.D. Norlin.

The overall coordination of the technical measurements leading to certification was performed under the direction of J.I. Shultz, Research Associate, ASTM/NIST Research Associate Program.

The technical and support aspects involved in the preparation, certification and issuance of this Standard Reference Material were coordinated through the Standard Reference Materials Program by P.A. Lundberg.

Gaithersburg, MD  
June 14, 1990

William P. Reed, Acting Chief  
Standard Reference Materials Program