



# National Institute of Standards & Technology

## Certificate

### Standard Reference Material 43h

#### Zinc

#### Freezing Point on the International Temperature Scale of 1990

**419.52 °C**

Standard Reference Material (SRM) 43h is intended primarily for use in preparing secondary reference-point devices for calibrating thermometers, thermocouples and other temperature measuring devices. It consists of a 350 gram bar of a carefully selected lot of electrolytic special high-grade zinc of purity 99.99 + %.

The freezing-point temperature of SRM 43h, 419.52 °C, is the value assigned based on the relative chemical purity with respect to all former SRM 43 standards and with respect to the highest purity zinc freezing point standard, SRM 740. It is estimated that the freezing point will not deviate from the assigned temperature by more than  $\pm 0.01$  °C.

Full details of the precautions that should be observed in freezing point determinations are given in National Bureau of Standards Circular 590, and in Metrologia 7, No. 3, 108-130 (July 1971). The International Temperature Scale of 1990 is described in Metrologia 27, No. 1, 3 (January 1990).

The zinc metal for the preparation of this Standard Reference Material was obtained from Cominco American Incorporated of Spokane, Washington. Evaluation of purity and homogeneity were performed in the NBS Institute for Materials Research by Robert Powell of the Cryogenic Properties of Solids Section and by Robert Alvarez and Paul Paulsen of the Spectrochemical Analysis Section. Temperature studies were performed in the NBS Institute for Basic Standards by John P. Evans of the Temperature Section.

This certificate is a revision of the certificate dated August 12, 1973. The changes consist primarily of the conversion of temperatures on the IPTS-68 to those on the ITS-90 by B.W. Mangum of the Chemical Process Metrology Division.

The technical and support aspects involved in the revision, update and issuance of this Standard Reference Material were coordinated through the Standard Reference Materials Program by J. C. Colbert. The original coordination of certification efforts was performed by R.E. Michaelis.

Gaithersburg, MD 20899  
April 5, 1990  
(Revision of certificate dated 8-15-73)

William P. Reed, Acting Chief  
Standard Reference Materials Program