



National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 165a

Glass Sand

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

This Standard Reference Material (SRM) has been blended to ensure homogeneity. It is intended for use in evaluating methods used to determine trace constituents in starting materials for the manufacture of glasses and similar products. It should be dried for 2 h at 105 °C before use. SRM 165a is issued in units of 75 g.

<u>Constituent</u>	<u>wt. %</u>	<u>Range</u>	<u>s</u>
Al ₂ O ₃	0.059	0.051 - 0.066	0.0024
Fe ₂ O ₃	0.012	0.007 - 0.017	0.0018
TiO ₂	0.011	0.0065 - 0.015	0.0016
ZrO ₂	0.006	0.0005 - 0.012	0.002

The value listed for each oxide is the present best estimate of the "true" value based on the analytical data from both cooperators and NIST. The range of values listed is the tolerance interval, constructed such that it will cover at least 95% of the population with a probability of 0.99. It is computed as $X \pm Ks$, where s is the standard deviation, K is a factor that depends on n (the number of samples measured), p , the proportion of the total samples covered (95%) and γ , the probability level (99%). The uncertainty includes both material variability and between laboratory variability.

The overall direction and coordination of the round-robin analysis leading to certification were performed by P. Close, Chairman of ASTM Subcommittee C-14.02 on Chemical Analysis of Glass and Glass Products.

The technical and support aspects involved in the original preparation, certification, and issuance of this Standard Reference Material were coordinated through the Standard Reference Materials Program by W.P. Reed. Revision of the certificate was coordinated through the Standard Reference Materials Program by J.S. Kane.

This Certificate of Analysis has undergone editorial revision to reflect program and organizational changes at NIST and at the Department of Commerce. No attempt was made to reevaluate the certificate value or any technical data presented in this certificate.

Gaithersburg, MD 20899
November 9, 1992
(Revision of Certificate dated 10-16-78)

William P. Reed, Chief
Standard Reference Materials Program

(over)

Supplemental Information

A content of 1 $\mu\text{g/g}$ for Cr_2O_3 is not certified and is provided for information only.

Chemical analyses for certification were performed in the following laboratories:

- Anchor Hocking Corp., Lancaster, OH, R.E. Carr.
- Brockway Glass Co., Inc., Brockway, PA, E.L. McKinley.
- Corning Glass Works, Corning, NY, Y.S. Su.
- Ford Motor Co., Lincoln Park, MI, T.L. LaFramboise.
- National Institute of Standards and Technology, E.J. Maienthal, J.D. Messman, and T.C. Rains.
- Kimble Div. Owens-IL, Vineland, NJ, H.S. Moser.
- Penn State Univ., University Park, PA, J.B. Bodkin.