

# National Bureau of Standards

## Certificate

### Standard Reference Material 91

#### Opal Glass Powder

This Standard Reference Material is intended for use in checking chemical methods of analysis and for calibrating optical emission and x-ray spectrometric methods of analysis.

<u>Constituent</u>	<u>Percent by Weight</u>
SiO <sub>2</sub>	67.5
CaO	10.49
Na <sub>2</sub> O	8.47
Al <sub>2</sub> O <sub>3</sub>	6.01
F	5.73
K <sub>2</sub> O	3.24
As <sub>2</sub> O <sub>5</sub>	0.10
As <sub>2</sub> O <sub>3</sub>	0.09
PbO	0.10
ZnO	0.08
Fe <sub>2</sub> O <sub>3</sub>	0.079
P <sub>2</sub> O <sub>5</sub>	0.023
TiO <sub>2</sub>	0.019
Cl	0.015
ZrO <sub>2</sub>	0.009

Values are based on drying the sample for one hour at 105 to 110 °C. The determinations of silica and fluorine followed the fusion of a 0.5-g sample with sodium or potassium carbonate according to Hoffman and Lundell, B.S. Jour. Research 3, 581 (1930). The other constituents were determined by methods described by Lundell and Hoffman, B.S. Jour. Research 1, 91 (1928) and by Lundell and Knowles, J. Am. Ceram. Soc. 10, 829 (1927).

Washington, D.C. 20234  
October 28, 1982  
(Revision of Certificate  
dated 6-15-31)

(over)

George A. Uriano, Chief  
Office of Standard Reference Materials

Present day procedures should follow the ASTM Standard Methods for Chemical Analysis of Soda-Lime and Borosilicate Glass, C169.

MnO and MgO were both reported to be about 0.008%. No value is given for loss on ignition because reliable results could not be obtained.

Laboratories that contributed to the certification of this glass were located at:

National Bureau of Standards, Washington, D.C.  
Newburgh Steel Works, Cleveland, Ohio  
Booth, Garrett, & Blair, Philadelphia, Pa.  
Libby-Owens Sheet Glass Co., Charleston, W. Va.  
Corning Glass Works, Corning, N.Y.