



# National Institute of Standards & Technology

## Certificate of Analysis

### Standard Reference Material 89

#### Lead-Barium Glass

This Standard Reference Material (SRM) is in the form of a powder and is intended for use in evaluating chemical and instrumental methods of analyses. The SRM slowly absorbs carbon dioxide and water. Therefore, the analyst must determine the loss on ignition at 900 to 1000 °C and correct all determinations for the difference between the value found and the original value of 0.32 weight percent. The recommended values are given below.

[All results are based on a sample dried for one hour at 105 to 110 °C]

Analyst*	SiO <sub>2</sub>	PbO	K <sub>2</sub> O	Na <sub>2</sub> O	BaO	TiO <sub>2</sub>	ZrO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	MgO	P <sub>2</sub> O <sub>5</sub>	MnO	As <sub>2</sub> O <sub>5</sub>	As <sub>2</sub> O <sub>3</sub>	SO <sub>3</sub>	Cl	Loss on Ignition
1	65.36	17.50	8.38	5.73	1.41	0.011	0.003	0.048	0.181	0.21	0.029	0.22	0.089	0.39	0.03	0.031	0.051	0.30
2	65.37	17.51	8.41	5.68	1.39	.020	.006	.051	.178	.208	.032	.243	.088	.348	.032	.031	.054	.37
3	65.28	17.36	8.20	5.64	1.49	.011	---	.044	.130	.21	.04	.22	---	---	---	---	---	.26
4	65.41	17.38	8.30	5.74	1.45	.006	---	.047	.149	.203	.033	.216	.087	.332	---	.041	.05	.20
5	65.38	17.38	8.19	<sup>1</sup> 5.99	1.42	.02	---	.050	.12	.14	<sup>1</sup> 0.06	.29	.060	.36	.07	---	---	.36
6	65.28	17.41	8.40	5.62	1.41	---	---	.052	.148	.23	.032	.20	---	---	---	---	---	.30
7	65.26	17.51	8.38	5.72	1.39	---	---	.049	.18	.18	<sup>1</sup> 0.09	.24	.081	.383	---	---	---	.46
Averages	65.33	17.44	8.32	5.69	1.42	.014	.005	.049	.155	.197	.033	.233	.081	.362	.044	.034	.052	.32
Recommended percentages <sup>2</sup>	65.35	17.50	8.40	5.70	1.40	0.01	0.005	0.049	0.18	0.21	0.03	0.23	0.088	0.36	0.03	0.03	0.05	0.32

<sup>1</sup> Omitted from average.

<sup>2</sup> The recommended value listed for a constituent is the present best estimate of the "true" value. The recommended values, except for Cl, are given as the oxide on an equivalent weight basis and assume stoichiometry in the form of the oxide listed.

#### \* List of Analysts

- H.B. Knowles, Bureau of Standards.
- M.O. Lamar, Norton Co., Worcester, MA.
- P.E. Corbin, Corning Glass Works, Corning, N.Y.
- R.H. Lardin, Pittsburgh Plate Glass Co., Creighton, PA
- D.W. Moore, 3d, Libbey-Owens-Ford Glass Co., Charleston, W.V.
- R.W. Goodwin, Glass Technology Laboratory, Incandescent Lamp Department of General Electric Co., Cleveland, Ohio.
- The Sharp-Schurtz Co., Lancaster, Ohio

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