

Certificate of Analysis

Standard Reference Material 114L

Portland Cement

Residue on No. 325 sieve bronze cloth, wet method	6.8 percent
Residue on No. 325 sieve electro-formed sheet (45.0 μm), wet method	11.6 percent ^a
Surface area (Wagner turbidimeter)	
By ASTM Method C115-67	1820 cm ² /g
By ASTM Method C115-70	1800 cm ² /g
Surface area (air-permeability)	3380 cm ² /g
Mean particle diameter (air-permeability)	5.64 micrometers

^aSince the original certificate for SRM 114L was issued, the opening for the No. 325 sieve has been redefined as 45.0 μm (see ASTM Standard Specification E11-70). The value for the residue has been adjusted accordingly.

These values are for use in calibrating the Wagner turbidimeter and Blaine fineness meter in accordance with the methods of Federal Test Method Standard 158 or ASTM methods of test for fineness of cement. The air-permeability tests should be made at a porosity of 0.500.

The surface areas and mean particle diameter reported on this standard reference material are calculated on the assumption that its specific gravity is 3.15, and, therefore, the value 3.15 should be used in all calibration computations.

The certificate value for residue on the No. 325 sieve assigned to the first issue of Standard Reference Material 114 over 30 years ago was based on a set of carefully selected sieves with bronze cloth. Subsequent issues of SRM No. 114 have had assigned residues consistent with the first issue. Over the years, woven cloth has become available with more uniform hole size than the cloth upon which the No. 114 residue figure is based. An anomaly has developed, thereby, where the better sieves have the larger correction factors.

As a first step in correcting this situation, Standard Reference Material No. 114L has two assigned residues, one on bronze cloth, which is consistent with values for previous issues, and one on electro-formed sheet, which is based on measurements with sieves fitted with such material. Electro-formed sheet differs from wire cloth in not being woven, and in being free from grossly oversize openings.

As a second step, the ASTM Standard Method of Fineness of Portland Cement by the Turbidimeter, C115, has been changed in its 1970 edition to accommodate the use of No. 325 sieve residues corrected to the electro-formed sheet value. The accommodation is not perfect, at least for SRM 114L, and therefore two values for the Wagner surface are now given for SRM 114L.

When using ASTM Method C115-67, the No. 325 sieve residue should be corrected to the bronze-cloth figure given above. When using ASTM Method C115-70, the No. 325 sieve residue should be corrected to the electro-formed sheet figure given above.

In other specifications, such as those for fineness of fly ash, the specification limit will need to be adjusted before the electro-formed figure can be substituted for the bronze figure.

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J. Paul Cali, Acting Chief
Office of Standard Reference Materials

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Directions for Use

To open the vial, make a deep scratch with a file about $\frac{1}{4}$ inch from the bottom of the vial. Invert the vial and press a red hot file point against the scratch to cause a circumferential crack around the vial. Remove the end of the vial carefully and remove any glass fragments which may have fallen into the sample.

The specific surface of cement changes on being exposed to the air. Therefore, after opening the container, the sample must be protected from atmospheric moisture until the time of test. The sample should be used as soon as possible after opening—in any case within 8 hrs.

For use with the Blaine air-permeability apparatus, the sample should be fluffed in a 4- to 6-ounce bottle as described in the current issue of Federal Test Method Standard 158 or ASTM Method C 204, before being used.

This standard was prepared and calibrated in the Institute for Applied Technology, Building Research Division, by members of the Codes and Standards Section.