Designation: C 925 – 79 (Reapproved 2000)

Standard Test Method for Precision Electroformed Wet Sieve Analysis of Nonplastic Ceramic Powders[1]

This standard is issued under the fixed designation C 925; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the determination of the particle size distribution of pulverized alumina and quartz for particle sizes from 45 to 5 μm by wet sieving.

1.2 *This standard does not purport to address the safety concerns associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

E 161 Specification for Precision Electroformed Sieves (Square Opening Series)[2]

3. Summary of Test Method

3.1 A separate dispersed suspension of the powder is wet sieved through each sieve, using vacuum and vibration. The sieve and sample are dried and weighed.

4. Significance and Use

4.1 Both suppliers and users of pulverized ceramic powders will find this test method useful to determine particle size distributions for materials specifications, manufacturing control, development, and research.

4.2 The test method is simple, although tedious, uses inexpensive equipment, and will provide a continuous curve with data obtained with standardized woven sieves.

5. Apparatus

5.1 *Precision Electroformed Sieves*, 3-in., mounted in brass frames, having nominal apertures of 45, 30, 20, 10, and 5 μm and a support grid having 5.7 lines per centimetre.[3] Intermediate sizes may also be used.

5.2 *Sieving Device* (Fig. 1):

5.2.1 *Filtering Flask* (suction flask), 1-L, with side arm,

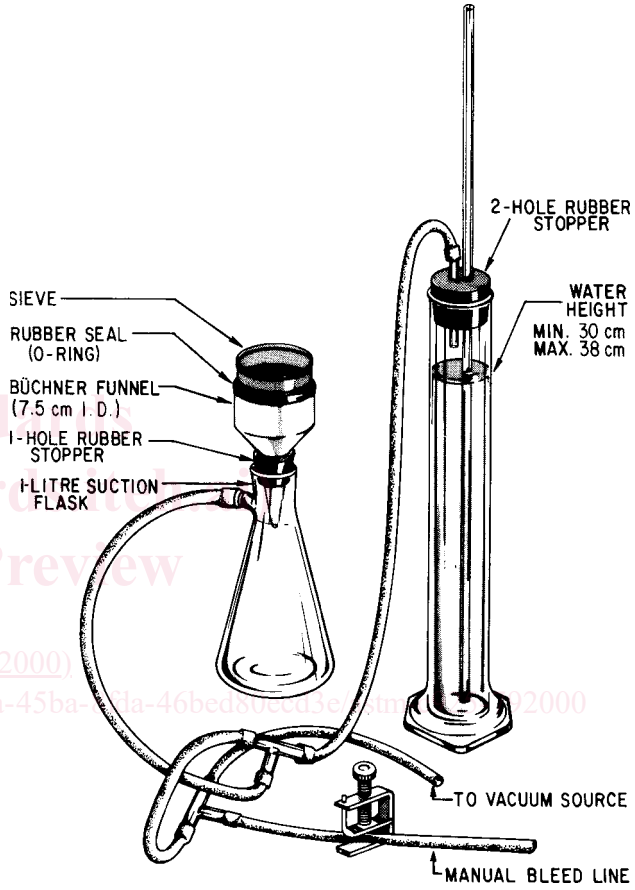

FIG. 1 Wet Sieving Apparatus

5.2.2 *Büchner Funnel* (for example, Coors No. 2),

5.2.3 *O-Ring*, 7.5-cm, rubber,

5.2.4 *Graduate*, 1-L,

5.2.5 *Rubber Stoppers*, one-hole to fit the flask and the funnel, two-hole to fit the graduate,

5.2.6 Quantity of glass tubing and rubber tubing,

5.2.7 *Metal Rod*, 15 to 20-cm, about 5 mm in diameter, and,

5.2.8 *Vacuum Source*.

5.3 *Ultrasonic Cleaner*, required to clean all sieves below 20 μm. It should be low-powered (for example, 100 W).

5.4 *Analytical Balance*, capable of weighing up to 100 g and having at least three significant digits after the decimal.

[1] This test method is under the jurisdiction of ASTM Committee C-21 on Ceramic Whitewares and Related Products and is the direct responsibility of Subcommittee C21.07 on Nonplastics.

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[2] *Annual Book of ASTM Standards*, Vol 14.02.

[3] A support grid, manufactured by Buckbee Mears Co., 245 E. Sixth St., St. Paul, MN 55101, has been found satisfactory for this purpose.