



Designation: D 1937 – 98^{€1}

Standard Test Method for Carbon Black, Pelleted—Mass Strength¹

This standard is issued under the fixed designation D 1937; 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 ([€]) indicates an editorial change since the last revision or reapproval.

^{€1} NOTE—An incorrect value in 9.1 was editorially corrected in May 2003.

1. Scope

1.1 This test method covers the determination of the mass strength of pelleted carbon black. It is designed to determine the mass strength of a cylindrical column of pelleted carbon black. The results of this test are believed to relate to the ability of the carbon black to flow in bulk handling systems.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, 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:*

D 1799 Practice for Carbon Black—Sampling Packaged Shipments²

D 1900 Practice for Carbon Black—Sampling Bulk Shipments²

3. Significance and Use

3.1 Mass strength gives an indication of the flowability in bulk handling. Due to the influence of other variables, an acceptable mass strength level must be determined by the user and the producer.

4. Apparatus

4.1 *Mass Strength Tester.*³

4.2 *Calibrating Block*, made from a cylindrical wooden shaft, 47 mm (1.8 in.) in diameter and 250 mm (10 in.) long.

4.3 *Platform Scale*,⁴ to 50-kg (100 lb) capacity with a sensitivity of 0.1 kg (0.02 lb) for air pressure gage calibration.

5. Sampling

5.1 Samples shall be taken in accordance with Practices D 1799 or D 1900.

6. Calibration

6.1 Remove the original faceplate from the pressure gage and replace with a blank plate made from aluminum or other suitable material.

6.2 Place the platform scale under the cylinder. With the sliding door in an open position, pass the calibrating block through the cylinder so it will rest on the platform of the platform scale. The top of the calibrating block shall be near the cylinder top. The calibrating block must fit freely in the cylinder and not bind against any inside surface. Adjust the platform scale for zero position with the calibrating block in place. Mark the zero position on the blank plate.

6.3 Adjust the air-flow regulator until the needle on the air pressure gage has moved from rest or zero position, to one-third or more of total gage capacity.

6.4 Activate the timer, allowing the plunger to press against the calibrating block. Measure the equivalent mass produced by the plunger with the platform scale.

6.5 Repeat 6.4, adjusting the regulator until even multiples of 50 N or 10 lbf are obtained. Mark the plate at these values.

6.6 Between each 50 N or 10 lbf mark on the plate, place graduations representing each 10 N or 2 lbf. This may be done from measurement, since the gage should be linear in calibration. Check these marks for accuracy with the platform scale.

6.7 From this calibrated gage plate, another gage plate may be prepared by making the graduations coincide with those measured on the calibrated plate. All graduations shall be checked with the platform scale for accuracy.

6.8 The calibrated air pressure gage shall be recalibrated at least once a month, or more frequently as deemed necessary.

¹ This test method is under the jurisdiction of ASTM Committee D24 on Carbon Black and is the direct responsibility of Subcommittee D24.51 on Carbon Black Pellet Properties.

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² *Annual Book of ASTM Standards*, Vol 09.01

³ Available from Titan Specialties, Inc., P.O. Box 2316, Pampa, TX 79066-2316. Test Method D 1937 – 84 contains details for the construction of this apparatus.

⁴ A Fairbanks Morse platform scale, Model 41–1000 (beam suffix FM) is suitable for this purpose.