



Designation: ~~C748 – 98 (Reapproved 2010)~~^{ε1} C748 – 98 (Reapproved 2015) American National Standard

Standard Test Method for Rockwell Hardness of Graphite Materials¹

This standard is issued under the fixed designation C748; 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.

^{ε1} NOTE—Updated units of measurement throughout editorially in May 2010.

1. Scope

1.1 This test method covers Rockwell L scale hardness testing of graphite materials with grain size less than ~~0.8 mm~~ 0.8 mm and a hardness range between 0 and 120.

1.2 Test Methods **E18** shall be followed except where otherwise indicated.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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:*²

E18 Test Methods for Rockwell Hardness of Metallic Materials

E171 Practice for Conditioning and Testing Flexible Barrier Packaging

3. Summary of Test Method

3.1 The specimen is held in position and the load is applied. Final position of the indicator on the scale is observed and recorded as the hardness number.

4. Significance and Use

4.1 A Rockwell L scale hardness number is a number derived from the net increase in depth of impression as the load on a ~~6.35006.3500 mm~~ $\pm 0.0025\text{-mm}$ 0.0025 mm diameter steel-ball indenter is increased from a fixed ~~10-kg~~ 10 kg minor load to a ~~60-kg~~ 60 kg major load and then returned to the minor load.

4.2 A Rockwell hardness number is directly related to the indentation hardness of a material; the higher the Rockwell L scale reading, the harder the material. The test is useful in the evaluation and the manufacturing control of carbon and graphite materials.

5. Apparatus

5.1 *Rockwell Hardness Tester*, calibrated in accordance with the requirements of Section 7.

5.2 *Rockwell Hardness Tester Anvil*, appropriate for the material shall be used as the specimen base plate.

6. Test Specimen

6.1 The recommended test specimen shall be flat and have a minimum thickness of ~~6.35 mm~~ 6.35 mm.

6.2 The test surface roughness shall not exceed ~~3175 nm~~ 3175 nm arithmetical average.

6.3 The test surface to opposite face parallelism for flat specimens shall be within 1 %. For all other specimen shapes, the test surface must be maintained normal to the direction of load application.

¹ This test method is under the jurisdiction of ASTM Committee **D02** on Petroleum Products—Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee **D02.F0** on Manufactured Carbon and Graphite Products.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.