Designation: ~~C562 – 15~~ C562 – 23

Standard Test Method for Moisture in a Graphite Sample[1]

This standard is issued under the fixed designation C562; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This test method provides a practical determination for the percentage of moisture in a graphite sample.

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

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~~safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C561 Test Method for Ash in a Graphite Sample

D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this test method, refer to Terminology D4175.

3.1.2 *moisture content, n*—percentage content by weight of volatile moisture present in the graphite specimen that has been exposed to ambient conditions.

4. Significance and Use

4.1 This test method is applicable only for determination of the volatile moisture content resulting from adsorption of water vapor from the atmosphere, and is not intended to give representative moisture data for graphite that has been exposed to liquid water contamination.

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[1] This test method is under the jurisdiction of ASTM Committee D02 on Petroleum 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.

***A Summary of Changes section appears at the end of this standard**

5. Interferences

5.1 Final weights (and therefore percent moisture values) may be influenced by the following:

5.1.1 Type and condition of desiccant.

5.1.2 Ambient relative humidity at the time of the test.

5.1.3 Timing and procedure for moving samples from desiccator to the balance.

5.1.4 Adsorptivity of the graphite sample relative to the adsorptivity of the desiccant used.

5.1.5 Residency time in the desiccator.

6. Apparatus

6.1 *Alumina Ceramic or Platinum Crucible or Dish,* suitable for holding sample (subsequently called sample holder).

6.2 *Analytical Balance,* capable of weighing to ±0.0002 g.

6.3 *Drying Oven,* air convection type, capable of being controlled to 110 °C ± 2 °C.

6.4 *Desiccator,* charged with indicating desiccant.

7. Sampling

7.1 Samples may be solid or particulate. Solid bodies may be sampled by removing one or more solid pieces from the body by, for example, sawing, turning, milling, or fracturing. Particulate samples may be generated from solid bodies by drilling, using a carbide drill to minimize contamination, or by other crushing and grinding methods.

8. Procedure

8.1 Tare a dried sample holder using an analytical balance. Weigh a 25 g to 50 g sample into the tared sample holder and reweigh both. (Perform all weighings to a precision of ±0.002 g.)

8.2 Place the sample holder containing the sample in a drying oven maintained at 110 °C ± 2 °C for 2 h. Remove from the oven and immediately place in the desiccator. When the sample has reached room temperature, remove from the desiccator and weigh immediately.

8.3 Repeat the procedure prescribed in 8.2 until a constant weight of ±0.002 g is achieved.

8.4 The dried sample may be reserved for ash determination. (See Test Method C561.)

9. Calculation

9.1 Calculate the percentage of moisture content as follows:

$$\text{Moisture, } \% = [(B - C)/(B - A)] \times 100$$

where:

A = weight of sample holder,
B = weight of sample holder and sample, and
C = weight of sample holder and dried sample.

10. Report

10.1 The report shall include the following information: