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Standard Specification for Isotropic Pure Molybdenum[1]

This standard is issued under the fixed designation B1024/B1024M; 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 specification covers monolithic forms of unalloyed molybdenum.

1.2 *Grade 1 (UNS R03610)*—Unalloyed monolithic forms molybdenum.

1.3 *Grade 2 (UNS R03610)*—Unalloyed monolithic forms molybdenum.

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

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

1.6 *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]

E8/E8M Test Methods for Tension Testing of Metallic Materials

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

2.2 *ISO Standard:*

ISO 2768 General Tolerances Package[3]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *batch, n—for chemical composition,* the ingots obtained from a single blend of powder sintered together under the same conditions.

3.1.2 *batch, n—for mechanical property measurement,* the product manufactured from ingots sintered from a single powder lot in a single sintering run in the same furnace and, when required, in a single post-sintering thermal treatment.

3.1.3 *monolithic form, n*—any form with a cross section up to a maximum of 156 000 mm^2 [242 in.] and a length of 1000 mm [39 in.].

4. Ordering Information

4.1 Orders for material produced to this specification shall include the following information as applicable:

4.1.1 Product form and grade (Section 5) and metallurgical condition (Section 7),

4.1.2 Mechanical requirements (Section 8) and tolerances (Section 9),

4.1.3 Workmanship and quality level requirements (Section 10),

4.1.4 Disposition of rejected material (Section 13),

4.1.5 Certification and reports (Section 14),

4.1.6 Marking (Section 15), and

4.1.7 Packaging (Section 16).

5. Materials and Manufacture

5.1 The molybdenum product covered by this specification shall be manufactured by conventional powder metallurgical processes such as powder compaction, pressing, sintering, and high-temperature thermal processing.

5.1.1 *Material Grades:*

5.1.2 *Grade 1*—The molybdenum product of Grade 1 shall be manufactured by conventional powder metallurgical processes such as powder compaction, pressing, and sintering.

[1] This specification is under the jurisdiction of ASTM Committee B10 on Reactive and Refractory Metals and Alloys and is the direct responsibility of Subcommittee B10.04 on Molybdenum and Tungsten.

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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.

[3] Available from the American National Standards Institute, 25 W. 43rd St., 4th Floor, New York, NY 10036, www.ansi.org.