



Designation: A 146 – 64 (Reapproved 2000)

Standard Specification for Molybdenum Oxide Products¹

This standard is issued under the fixed designation A 146; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers three grades of molybdenum oxide, designated as A, B, and molybdc oxide briquets.

1.2 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 *ASTM Standards:*

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications²

E 31 Methods for Chemical Analysis of Ferroalloys³

3. Ordering Information

3.1 Orders for material under this specification shall include the following information:

3.1.1 Quantity,

3.1.2 Name of material,

3.1.3 ASTM designation and year of issue,

3.1.4 Grade,

3.1.5 Size, if appropriate, and

3.1.6 Requirements for packaging, analysis reports, etc. as appropriate.

3.2 Although molybdenum oxide is ordered by total net weight, or contained weight, the customary basis of payment is per pound of contained molybdenum.

4. Chemical Requirements

4.1 The various grades shall conform to the requirements as to chemical composition specified in Tables 1 and 2.

4.2 The manufacturer shall furnish an analysis of each shipment showing the elements specified in Table 1.

4.3 The values shown in Table 2 are expected maximums. Upon request of the purchaser, the manufacturer shall furnish an analysis for any of these elements on a cumulative basis over a period mutually agreed upon by the manufacturer and the purchaser.

¹ This specification is under the jurisdiction of ASTM Committee A-1 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.18 on Castings.

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

³ *Annual Book of ASTM Standards*, Vol 03.05.

TABLE 1 Chemical Requirements^A

	Molybdenum Oxide		Molybdc Oxide Briquets
	Grade A	Grade B	
Molybdenum, min ^B	55.0	57.0	51.6
Sulfur, max	0.25	0.10	0.15
Copper, max	1.0	1.0 ^C	0.15

^AFor purposes of determining conformance with this specification, the reported analysis shall be rounded to the nearest unit in the last right-hand place of figures used in expressing the limiting value, in accordance with the rounding method of Practice E 29.

^BFor the purposes of determining the molybdenum content of any shipment, molybdenum shall be reported to the nearest 0.1 %, applying the same rounding procedure as prescribed in Footnote A.

^CCopper content may be supplied to 0.15 %, max, when requested by the purchaser.

5. Size

5.1 Molybdenum oxide is available in bags, steel drums, or other suitable containers, each with either 5 lb (2.3 kg) or 20 lb (9.1 kg) of contained molybdenum.

5.2 Molybdc oxide briquets weigh about 5 lb each and contain 2.5 lb (1.13 kg) of molybdenum.

6. Sampling

6.1 *Sampling Small Bags*—When packed in the standardized small packages, each holding contained molybdenum, the material shall be sampled by selecting at random one twentieth of the bags that may bear the same manufacturing lot number, and the combined content of these bags shall be reduced and analyzed as a separate sample. When a shipment cannot be divided by lot numbers, one twentieth of the total number of bags constituting the shipment shall be selected and treated as one sample. The material forming a sample shall be crushed if

TABLE 2 Supplementary Chemical Requirements^{A,B}

	Composition, %		
	Molybdenum Oxide		Molybdc Oxide Briquets
	Grade A	Grade B	
Carbon	trace	trace	12.0 (approx)
Phosphorus, max	0.050	0.050	0.050

^ASee Footnote A of Table 1.

^BThe composition of molybdenum oxide shall be within these limits; however, an analysis of each lot is not required. The manufacturer shall supply upon request the results of an analysis for these elements on a cumulative basis over a period mutually agreed upon by the manufacturer and the purchaser.