



National Standard of the People's Republic of China

GB/T 38384-2019

Spherical molybdenum powder

球形钼粉

(English Translation)

Issue date: 2019-12-31

Implementation date: 2020-11-01

Issued by State Administration for Market Regulation

Standardization Administration of the People's Republic of China

Foreword

SAC/TC243 is in charge of this English translation. In case of any doubt about the contents of English translation, the Chinese original shall be considered authoritative.

This standard is drafted in accordance with the rules given in the GB/T 1.1-2009.

This standard was proposed by China Nonferrous Metals Industry Association.

This standard was prepared by SAC/TC243 National Technical Committee of Standardization for Nonferrous Metals.

Spherical molybdenum powder

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1 Scope 范围

This standard specifies the requirements, testing methods, inspection rules, marking, packaging, storage, transportation and quality certificates and contract (or order) contents of spherical molybdenum powder.

This standard is applicable to spherical molybdenum powder produced by plasma spheroidization.

本标准规定了球形钼粉的要求、试验方法、检验规则、包装、标志、贮运及质量证明书和合同（或订货单）内容等。

本标准适用于等离子体球化技术生产的球形钼粉。

2 Normative Documents 规范性引用文件

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

下列文件对于本文件的应用是必不可少的。凡是注日期的引用文件,仅注日期的版本适用于本文件。凡是不注日期的引用文件,其最新版本(包括所有的修改单)适用于本文件。

GB/T 1479.1, Metallic powders—Determination of apparent density - Part1: Funnel method

GB/T 1479.1 金属粉末 松装密度的测定 第一部分:漏斗法

GB/T 1480, Metallic powders—Determination of particle size by dry sieving

GB-T 1480 金属粉末 干筛分法测定粒度

GB/T 1482, Metallic powders—Determination of flowability by means of a calibrated funnel (Hall flowmeter)

GB/T 1482 金属粉末 流动性的测定 标准漏斗法(霍尔流速计)

GB/T 4325, Methods for chemical analysis of molybdenum (all parts)

GB/T 4325 (所有部分) 钼化学分析方法

GB/T 5314, Powder for powder metallurgical purposes—Sampling

GB/T 5314 粉末冶金用粉末 取样方法

GB/T 8170, Rules of rounding off for numerical values & expression and judgement of limiting values

GB/T 8170 数值修约规则与极限数值的表示和判定

YS/T 1297, Measuring method for sphericity ratio of titanium and titanium alloy powders

YS/T 1297 钛及钛合金粉末球形率测定方法

3 Requirements 技术要求

3.1 Chemical Composition 化学成分

The chemical composition of spherical molybdenum powder shall be in accordance with the requirements given in Table 1.

产品的化学成分应符合表 1 规定。

Table 1 Chemical composition of spherical molybdenum powder

表 1 化学成分

Element 元素		PMo-1
Mo (mass fraction)*质量分数, %, not less than 不小于		99.95
Impurity content (mass fraction) 质量分数, %, not more than 不大于	Fe	0.0050
	Ni	0.0020
	Si	0.0020
	W	0.020
	C	0.0080
	O	0.0800
* The main content is calculated by the method of impurity reduction (exclusion of gas elements such as C and O).		

3.2 Particle Size 粒度

Spherical molybdenum powder particle size shall be as specified in Table 2.

产品的粒度应符合表 2 规定。

Table 2 Particle size of spherical molybdenum powder 粒度

Type	Particle size range*粒度范围, μm
I	20~45
II	>45~150

* 超出规定粒度范围的产品总量不大于批重的5%。

* The total amount of products exceeding the specified particle size range shall not be greater than 5% of the lot weight.

3.3 Loose Density 松装密度

Spherical molybdenum powder loose density shall be $4.0\text{g}/\text{cm}^3 \sim 6.0\text{g}/\text{cm}^3$.

产品的松装密度应为 $4.0\text{g}/\text{cm}^3 \sim 6.0\text{g}/\text{cm}^3$ 。

3.4 Flowability 流动性

Spherical molybdenum powder flowability shall be $10\text{s}/50\text{g} \sim 20\text{s}/50\text{g}$.

产品的流动性应为 $10\text{s}/50\text{g} \sim 20\text{s}/50\text{g}$ 。

3.5 Sphericity Ratio 球形率

Spherical molybdenum powder sphericity ratio shall be not less than 85%.

产品的球形率应不小于 85%。

3.6 Appearance 外观质量

Spherical molybdenum powder shall be dark gray, loose and no caking, no visible impurities.

产品呈深灰色粉末，松散无结块，无肉眼可见的杂质。

4 Testing Methods 试验方法

4.1 Chemical Composition 化学成分的测定

Chemical composition shall be determined according to GB/T 4325.

产品化学成分的测定按 GB/T 4325 的规定进行。

4.2 Particle Size 粒度的测定

Particle size shall be determined according to GB/T 1480.

产品粒度的测定按 GB/T 1480 的规定进行。

4.3 Loose Density 松装密度的测定

Loose density shall be determined according to GB/T 1479.1.

产品松装密度的测定按 GB/T 1479.1 的规定进行。

4.4 Flowability 流动性的测定

Flowability shall be determined according to GB/T 1482.

产品流动性的测定按 GB/T 1482 的规定进行。

4.5 Sphericity Ratio 球形率的测定

Sphericity ratio shall be determined according to YS/T 1297.

产品球形率的测定按 YS/T 1297 的规定进行。

4.6 Appearance 外观质量

Appearance shall be determined by visual observation.

产品的外观质量用目视检验。

5 Inspection Rules 检验规则

5.1 Inspection and Acceptance 检查和验收

5.1.1 The quality department from the supplier will check the products and fill in the quality certificate to insure the quality of the product in accordance with this standard (or order contract).

5.1.1 产品应由供方质量检验部门进行检验，产品应符合本标准（或订货合同）规定，并填写质量证明书。

5.1.2 The purchasers shall recheck the received products in accordance with the standard. In case of the unconformity is found between check results and the standard (or the contract), it shall be fed back the manufacturer in 45 days from the date receiving of the product or within the specifying time in the sales contract, and shall be settled through consultation between the purchaser and the manufacturer. If any arbitration is needed, the arbitral material shall not be less than 60% of the lot of product and arbitration sampling shall be carried out bilaterally on spot of deposition, and the arbitration institution shall be mutually agreed upon.

5.1.2 需方应对收到的产品按本标准的规定进行检验。如检验结果与本标准（或订货合同）的规定不符时，应在收到产品之日起 45d 内或销售合同规定的时间内向供方提出，由供需双方协商解决。如需仲裁，仲裁物料应不少于该批产品的 60%，仲裁取样在货物存放地由供需双方共同进行，仲裁机构由供需双方共同商定。

5.2 Lot 组批

Products shall be delivered for acceptance in lots. Each lots products shall be composed of the same designation material, the same producing period and the same particle size range. The weight of each lot shall be decided by manufacture and purchaser.

产品应成批提交验收。每批应由同一批号的原料、采用同一生产工艺、同一生产周期制备的同一粒度范围的产品组成。每批重量由供需双方协商确定。