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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 3462-2017

Bars and plate blanks of molybdenum

钼条和钼板坯

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1 Scope

China's national standard for molybdenum bars and plate blanks. It specifies the requirements, the test methods, the inspection rules, the marking, packaging, transport, storage and quality certificate, and the content of the order form or contract. These are the semi-finished shapes that come out of the powder metallurgy route and go into everything else: a sintered compact, worked hot to break down its as-sintered structure, supplied as bar for machining or as a blank for rolling into sheet. Molybdenum's appeal is a rare combination - it keeps useful strength above a thousand degrees C, conducts heat about as well as many steels conduct it at room temperature, and expands very little when heated. That last property is why it holds glass and ceramic seals, and why it backs semiconductor devices. What it will not do is survive in air when hot: above about 600 degrees C it oxidises to a volatile oxide that simply leaves, so every high temperature use is in vacuum, in hydrogen or under an inert gas. The standard grades the product by purity and by the working it has received.

This standard specifies the requirements, test methods, inspection rules and markings, packaging, transportation, storage, quality certificates and order forms (contract) for bars and plate blanks of molybdenum. This standard applies to bars and plate blanks of molybdenum produced by powder metallurgy and smelting methods.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 3850 Impermeable sintered metal materials and hard metals - Determination of density

GB/T 4325 (all parts) Molybdenum chemical analysis method

GB/T 6394 Metal - Methods for estimating the average grain size

3 Requirements

3.1 Product classification The product designations are divided into two designations: Mo-1 and Mo-2 according to different chemical compositions.

3.2 Chemical composition The chemical composition of the product shall meet the requirements of Table 1.

3.5.4 The curvature of Mo-1 vertical frit bar is not more than 4 mm.

3.5.5 When the buyer has requirements for dimensional tolerances, it shall be determined through negotiation between the supplier and the buyer.

3.6 Appearance quality

3.6.1 The surface of Mo-1 product is gray or dark gray metallic luster; there shall be no water absorption. Oxidation color is allowed on the surface of the straightening bar.

3.6.2 The sintered bar and plate blank are allowed to have traces formed by the contact between the product and the product, and the product and the sintering furnace body.

3.6.3 Mo-1 products shall not have over-melting, bubbling, delamination, cracks, coarse surface crystals; there shall be no missing edges, missing corners, or pits that may affect the use.

3.6.4 The chuck part of the Mo-1 vertical frit bar shall be cut off.

4 Test method

4.1 The chemical analysis method of the product is carried out in accordance with the provisions of GB/T 4325 (all parts).

4.2 The density measurement of the product shall be carried out in accordance with the provisions of GB/T 3850.

4.3 The grain size determination of the product's cross-section shall be carried out in accordance with the provisions of GB/T 6394.

4.4 The product size and shape shall be measured by the tools of corresponding precision.

4.5 The appearance quality of the product shall be inspected visually.

5.1 Inspection and acceptance

5.1.1 The product shall be inspected by the supplier, to ensure that the product meets the requirements of this standard; meanwhile the product quality certificate shall be filled in.

5.1.2 The purchaser shall inspect the received product in accordance with the

6 Marking, packaging, transportation, storage and

quality certificate

6.1 Marking The outer packaging of the product shall indicate: the supplier's name, product name and designation, specifications, batch number, net weight.

6.2 Packaging The product is packed in wooden or carton outside; packed in grooved foam board or moisture-proof paper inside. If there are special requirements, they shall be negotiated and determined by both parties.

6.3 Transportation When the product is transported, it shall be protected from moisture and severe collision.

6.4 Storage The product shall be stored in a ventilated, dry and acid-free atmosphere to prevent oxidation.

6.5 Quality certificate Each batch of products shall be accompanied by a product quality certificate, which shall indicate:

- a) The name and address of the supplier;
- b) Product name, designation, specification;
- c) Batch number;
- e) Number of this standard;
- f) Analytical testing results and the mark of the quality supervision department;