

PURE MOLYBDENUM Powder Metallurgy Target

ST-100-1

Description of Product: This specification covers hot rolled molybdenum plates produced from pressed and sintered powder metallurgy sheet bar for sputtering applications.

Chemical Characteristics¹⁾ (Mass fraction in %)

Mo (by difference)	min.	99.95	%			
Ag	max.	0.0005	%	N	max.	0.001 %
Al	max.	0.002	%	Na	max.	0.001 %
As	max.	0.0005	%	Nb	max.	0.001 %
Ba	max.	0.001	%	Ni	max.	0.002 %
C	max.	0.003	%	O	max.	0.005 %
Ca	max.	0.002	%	P	max.	0.002 %
Cd	max.	0.001	%	Pb	max.	0.001 %
Co	max.	0.003	%	S	max.	0.002 %
Cr	max.	0.006	%	Si	max.	0.003 %
Cu	max.	0.002	%	Sn	max.	0.001 %
Fe	max.	0.006	%	Ta	max.	0.002 %
H	max.	0.0005	%	Ti	max.	0.001 %
K	max.	0.002	%	W	max.	0.030 %
Mg	max.	0.001	%	Zn	max.	0.0005 %
Mn	max.	0.001	%	Zr	max.	0.0005 %

The impurity levels of the above elements are based on historical data.

Density	Plate will be greater than or equal to 99.5 %. (Theoretical density is 10.2 g/cm ³)
Structure	Plates will be supplied in the recrystallized condition unless otherwise specified and agreed upon between the customer and the supplier.
Mechanical Properties	Tensile properties can be supplied if requested when the Purchase Order is placed.
Dimensional Tolerances	Tolerances as agreed upon at the time of order entry. Plate will be sheared, abrasive cut, band saw cut, or water jet cut to the agreed upon tolerances. The deviation from flatness will be determined by laying a straight edge across the plate and measuring the gap between the bottom of the straight edge and the plate. The flatness tolerance will be agreed upon at the time of order entry.
Surface Condition	The plate will not have cracks, surface contamination, pits, voids, stains, abrasions, and discolorations. When the order is placed, the customer will request a finish for each side from the list below: As rolled: rmatte finish Machined: ▽▽

1) Information on testing methods is available upon request.

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Machined: ∇∇∇

Identification

The material will be identified with appropriate specification number, ingot number, and nominal size. Shipping containers will be marked with the name of the customer and the purchase order number.

Packaging

The molybdenum plate shall be packed for shipment in accordance with the requirements of ASTM B386 Section 15. Specifically, the molybdenum plate shall be packaged in a properly labeled sturdy wood outer container closed with metal banding and nails. Machined surfaces will be protected with the application of low tack film. Internal packaging will provide moisture protection with desiccant and a dual layer vapor protection consisting of 6-mil poly film covered by marvapak 22 grade c (-greased proofed, water proofed, flexible, acid free, non-corrosive moldable and self adherent film per Govt. Spec. Jan-b-121 AMD #2). The material shall be protected from shock with the use of micro foam and corrugated void fillers.

Labeling

Labeling shall include:

Shipped from
Shipped to
MSDS
Gross wt
Net wt
Shop Order Number
Purchase Order Number
Box size
Pre-cautionary Labels (e.g. Do Not Stack)

Certification

Certification includes:

Identification (individual ingot number, sales order number)
Chemistry (Historical Data)
Dimensions
Weight

Hazards identification in Advertising (Directive 67/548/EEC Article 26, Directive 1999/45/EC Article 13 and REGULATION (EC) No 1272/2008 Article 48)

none.

Rejection

H.C. Starck must receive written notification of rejected material with the reason for rejection. The right is reserved to inspect rejected material at customer plant for claim validation. The material may be returned only after proper authorization.

H.C. Starck Inc.
1250 East 222nd Street
Euclid, OH 44117-1117/USA
Phone +1 (216) 692-3990, Fax +1 (216) 692-0031