

4. PROPERTIES

4.1 Physical Properties (conforming to ASTM B193-02)

Sl. no.	Property	Value
1.	Density at 20°C (approx.)	$\geq 8.89 \text{ g/cm}^3$
2.	Minimum electrical conductivity at 20°C	101% IACS (equivalent to maximum mass resistivity $0.15176 \Omega \text{ g/m}^2$)

4.2 Chemical Properties (conforming to ASTM B170-99)

The chemical composition of the material should meet the requirements as per ASTM B170 Grade 1 specified in table below.

Sl. No.	Element	Weight Percentage (%)
1.	Copper	≥ 99.99
2.	Antimony	≤ 0.0004
3.	Arsenic	≤ 0.0005
4.	Bismuth	≤ 0.0001
5.	Cadmium	≤ 0.0001
6.	Iron	≤ 0.0010
7.	Lead	≤ 0.0005
8.	Manganese	≤ 0.00005
9.	Nickel	≤ 0.0010
10.	Oxygen	≤ 0.0005
11.	Phosphorous	≤ 0.0003
12.	Selenium	≤ 0.0003
13.	Silver	≤ 0.0025
14.	Sulphur	≤ 0.0015
15.	Tellurium	≤ 0.0002
16.	Tin	≤ 0.0002
17.	Zinc	≤ 0.0001

4.3 Mechanical properties (conforming to ASTM B152M)

Sl. No.	Property	Value
1.	Temper	Hot Rolled – M20
2.	Ultimate strength	200 MPa (min) and 260 MPa (max)
3.	Elongation	25% (min)

Testing to be done as per ASTM E8M – 02

4.4 Embrittlement:

Material shall be accepted in accordance with Test Method B or D as per standard ASTM B 577-93 (1998)

4.5 Microporosity:

In accordance with standard ASTM F68. Products whose samples have an appearance conforming to Class 1 would be accepted.