

BRIGHTRAY® alloy B (UNS N06004/W. Nr. 2.4867) is a nickel-chromium electrical-resistance alloy for use at operating temperatures up to 2010°F (1100°C). It contains rare-earth additions for increased oxidation resistance, especially under conditions of frequent switching or wide temperature fluctuations. The alloy has a relatively high temperature coefficient of resistance. BRIGHTRAY alloy B is used for heating elements in domestic appliances and industrial equipment.

Physical Constants & Thermal Properties

Table 2 - Physical Constants & Thermal Properties

Density, lb/in ³	0.302
g/cm ³	8.36
Melting Range, °F.....	2550-2590
°C	1400-1420
Specific Heat, Btu/lb•°F	0.110
J/kg•°K	461
Permeability at 200 Oersted (15.9 kA/m)	1.68
Coefficient of Expansion, 68-212°F, 10 ⁻⁶ in/in•°F.....	6.9
20-100°C, μm/m•°C	12.5
Electrical Resistivity, ohm•circ mil/ft	662
μohm•m	1.10
Temp. Coefficient of Resistance,	
68-932°F, 10 ⁻⁶ ohm/ohm•°F.....	100
20-500°C, μohm/ohm•°C	180

Table 1 - Limiting Chemical Composition^a, %

Nickel (Plus Cobalt)	57.0 min.
Chromium.....	14-18
Silicon.....	0.75-1.6
Manganese	1.0 max.
Carbon	0.15 max.
Sulfur.....	0.01 max.
Iron.....	Balance*

^a As in UNS N06004. Also contains rare-earth additions.

*Reference to the 'balance' of a composition does not guarantee this is exclusively of the element mentioned but that it predominates and others are present only in minimal quantities.

Available Products and Specifications

BRIGHTRAY alloy B is designated UNS N06004 and W. Nr. 2.4867 and is available as sheet, strip and wire.

Major specifications:

DIN 17742, 17750, 17753

Typical Mechanical Properties

Table 3 - Typical Mechanical Properties of Annealed BRIGHTRAY alloy B

Tensile Strength, ksi.....	90
MPa.....	620
Yield Strength (0.2% Offset), ksi	30
MPa	210

Publication Number SMC-116
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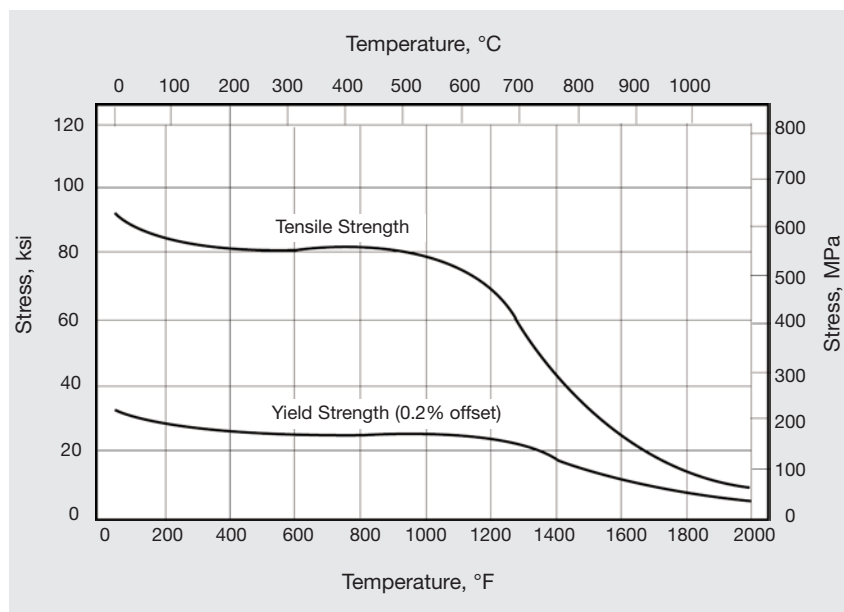


Figure 1. Typical mechanical properties of annealed BRIGHTRAY alloy B





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