

Material for #50-040004 Micro-Tec titanium AFM/SPM cantilever tweezers

General remarks:

- Titanium Grade 1 (non-alloy Titanium)
- Fully non-magnetisable
- Engineering material which is strong, light-weight and a high melting point
- Good cold form ability, high ductility
- Bio compatible material; cell integrity is maintained, no inflammatory response
- Good corrosion resistance at room temperature to air, marine and industrial environments
- Typical use for magnetic cantilevers or in magnetic fields

General composition of Titanium grad 1

Element	Wt. %
Ti	99.5
C	≤0.1
O	≤0.18
N	≤0.03
Fe	≤0.2
H	≤0.015

Properties of Titanium Grade 1

Mechanical Properties	
State	Annealed
Density	4.51 g/cm ³
Hardness, Vickers	122 HV
Tensile strength, ultimate	330 MPa
Tensile strength, yield	240 MPa
Elongation until break	30%
Modulus of Elasticity	100 GPa
Thermal Properties	
Coefficient of linear thermal expansion	9.2 x 10 ⁻⁶ /°C (0-315°C)
Specific heat capacity	0.52 J/(g.K)
Thermal conductivity	16W/(m.K)
Continuous use (service) temperature	350°C
Maximum service temperature (short)	860°C
Electrical Properties	
Resistivity	0.45 x 10 ⁻⁴ Ohm.cm

TSB 50-040004 Material for Micro-Tec titanium AFM/SPM cantilever tweezers 2015-10-24 Revision 1