

Material for EM-Tec high precision titanium tweezers

The material used for manufacturing the EM-Tec high precision titanium tweezers is a selected non-alloyed titanium Grade 1.

It is used for the following titanium tweezers:

[#50-006010 EM-Tec 1.TI high precision titanium tweezers, style 1](#)
[#50-006020 EM-Tec 2A.TI high precision titanium tweezers, style 2A](#)
[#50-006030 EM-Tec 3.TI high precision titanium tweezers, style 3](#)
[#50-006035 EM-Tec 3C.TI high precision titanium tweezers, style 3C](#)
[#50-006040 EM-Tec 4.TI high precision titanium tweezers, style 4](#)
[#50-006050 EM-Tec 5.TI high precision titanium tweezers, style 5](#)
[#50-006070 EM-Tec 7.TI high precision titanium tweezers, style 7](#)

General remarks:

- Titanium Grade 1 (non-alloy Titanium)
- Fully non-magnetisable
- Engineering material with an extraordinary combination of properties:
 - low density
 - strong
 - very 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
- Generally used where corrosion resistance and high strength-to weight ratio are primary requirements
- Typical applications include tweezers for medical, surgery, magnetic fields, biology, histology and high temperature use.

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	$9.2 \times 10^{-6} / ^\circ\text{C}$ (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	0.45×10^{-4} Ohm.cm

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