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Technical Support Bulletin

Material for EM-Tec biology tweezers with serrated grips

The material used for manufacturing the EM-Tec biology tweezers with ultra-fine tips and serrated grips is the proprietary C-Star Ni-Cr-Mo super alloy.

It is used for the EM-Tec high precision super alloy tweezers:

- #50-003030 EM-Tec biology tweezers, style 3SG.CX
- #50-003040 EM-Tec biology tweezers, style 4SG.CX
- #50-003050 EM-Tec biology tweezers, style 5SG.CX
- #50-003070 EM-Tec biology tweezers, style 7SG.CX

General remarks:

- Proprietary C-Star Ni-Cr-Mo super alloy
- Six times harder than anti-magnetic stainless steel
- Highest hardness at tweezers tips
- Excellent strength from room temperature to 800°C
- Excellent shape retention, resistant to fatigue
- Fully non-magnetic
- Excellent corrosion resistance to most chemicals, salts and acids
- Excellent wear resistance
- Allows for optimum strength for biology tweezers profile
- Generally used for delicate tasks in harsh chemical environments and at elevated temperatures
- Typical applications include ultra-high precision delicate tweezers for microscopy, sample preparation, laboratory, medical and for aggressive chemical requirements

Properties of Ni-Cr-Mo super alloy

Mechanical Properties	
State	50% cold reduction
Density	8.4 g/cm^3
Hardness Rockwell C	60-64
Tensile strength, ultimate	1500 MPa
Tensile strength, yield	1250 MPa
Elongation until break	5%
Modulus of Elasticity	208 GPa

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Vof Micro to Nano
Wateringweg 79
2031EK Haarlem
The Netherlands

T +31-85-2013155
E info@microtonano.com
W www.microtonano.com
Kvk AMS: # 62301959

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Thermal Properties	
Coefficient of linear thermal expansion	12.8 x 10^{-6} /°C (25-100°C)
Coefficient of linear thermal expansion	13.4 x 10^{-6}/°C (25-300°C)
Specific heat capacity	0.41 J/(g.K)
Thermal conductivity	10W/(m.K)
Continuous use (service) temperature	600°C
Maximum service temperature (short)	980°C
Electrical Properties	
Resistivity	1.29 x 10^{-4} Ohm.cm

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