

TECHNICAL DATA SHEET

High-tek coating DC

General notes:

» This coating is composed of carbon clusters which develop a crystal structure similar to a natural diamond and practically retain the same properties of the diamond. The quota of the sp³-configured carbon lies at around 80-95%, which is the reason for the high quota of diamond structure. This high-tech coating is done by a very innovative plasma-assisted deposition technique. Furthermore, due to its procedure, the coating is completely free of hydrogen. During this process a pure diamond film grows directly on the exposed surfaces of the metallic substrate (this is not diamond powder adhesively bonded on the metal surface)



High hardness (up to 80 GPa)
 High adhesion to the metallic substrate
 Black colour
 Low thickness (2 microns), high elasticity



Extremely high wear and abrasion resistance (protects fine tip tweezers from wear)
 No particulate shedding (no contamination of the handled components)



Chemically inert up to 350°C
 Bio-compatible (maintain cell integrity, no inflammatory response), no contamination of biological tissue with metal particles

Very clean material

NVR (Non Volatile Residue)
LPC 0.5 µm (Liquid Particle Count)
IC (Ion Chromatography)

0.088 µg/cm²
7043 counts/cm²
chloride 0.039 µg/cm²
nitrate not detected
sulfate 0.005 µg/cm²
total anions 0.114 µg/cm²



ESD safe coating

Static Charge	1.30 Volts
Triboelectric Charge	2.30 Volts
Surface Resistance	10⁶ ohms
Decay Time	1.10 sec

This document contains information based on average values as obtained from the results of laboratory tests and observations made on the material. Ideal-Tek SA declines all responsibility from an improper use of the product described in this document.

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Stainless steel type SA

General notes:

- » **Low carbon austenitic steel** (Material number 1.4435, DIN X2CrNiMo18-14-3, AISI number 316L)
- » contains from 16.5 to 18.5 wt% chromium and has important quantities of nickel and molybdenum as additional alloying elements
- » non-magnetizable
- » good corrosion resistance to most chemicals, salts and acids
- » generally used where corrosion resistance and toughness are primary requirements
- » typical applications include tweezers for the electronic industry, watch-makers, jewelers and laboratory and medical applications in moderately aggressive chemical environments

Composition

Component	Wt. %	Component	Wt. %	Component	Wt. %
C	≤0.03	Si	≤1.0	Mn	≤2.0
P	≤0.045	S	≤0.03	Cr	17.0-19.0
Mo	2.5-3.0	Ni	12.5-15.0		

Mechanical properties

State	annealed
Density	8.0 g/cm³
Hardness HB30	≤ 215
Hardness Rockwell B	79
Tensile strength, ultimate	500-700 MPa
Tensile strength, yield	290
0.2% Yield stress	≥ 200 MPa
Elongation, break	40%
Modulus of elasticity	200 GPa

Thermal properties

Coef. of lin. therm expansion	16.0 E-6/°C	20°C-100°C
Coef. of lin. therm expansion	17.0 E-6/°C	20°C-300°C
Specific heat capacity	0.50 J/(g·K)	
Thermal conductivity	15 W/(m·K)	
Continuous use temperature	350°C	
Max service temperature, air	925°C	

Electrical properties

Resistivity	0.75 E-4 Ohm.cm
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