

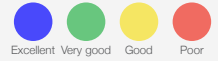
# ideal-tek





























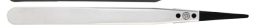



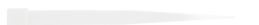
SWISS TECHNOLOGY AT YOUR FINGERTIPS



## Training Program - 01. Tweezer materials

# Tweezer material selection guide\*



									
	<b>METAL</b>	NON-MAGNETIC	HARDNESS	CORROSION RESIST.	CHEMICAL RESIST.	CLEANROOM	TEMPERATURE RESIST.	ESD SAFE	BIOCOMPATIBILITY
	DX	●	●	●	●	●	●	●	●
	CX	●	●	●	●	●	●	●	●
	SA	●	●	●	●	●	●	●	●
	S	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●
	NC	●	●	●	●	●	●	●	●
	TA	●	●	●	●	●	●	●	●
	N	●	●	●	●	●	●	●	●
	BR	●	●	●	●	●	●	●	●
	PB	●	●	●	●	●	●	●	●
	<b>COATING</b>	NON-MAGNETIC	HARDNESS	CORROSION RESIST.	CHEMICAL RESIST.	CLEANROOM	TEMPERATURE RESIST.	ESD SAFE	BIOCOMPATIBILITY
	SA+DC	●	●	●	●	●	●	●	●
	SA+NE	●	●	●	●	●	●	●	●
	SA+T	●	●	●	●	●	●	●	●
	SA+GP	●	●	●	●	●	●	●	●
	SA+DR	●	●	●	●	●	●	●	●
	SA+DN	●	●	●	●	●	●	●	●
	<b>PLASTIC</b>	NON-MAGNETIC	HARDNESS	CORROSION RESIST.	CHEMICAL RESIST.	CLEANROOM	TEMPERATURE RESIST.	ESD SAFE	BIOCOMPATIBILITY
	CP	●	●	●	●	●	●	●	●
	CF	●	●	●	●	●	●	●	●
	SV	●	●	●	●	●	●	●	●
	DG	●	●	●	●	●	●	●	●
	LC	●	●	●	●	●	●	●	●
	LR	●	●	●	●	●	●	●	●
	<b>CERAMIC</b>	NON-MAGNETIC	HARDNESS	CORROSION RESIST.	CHEMICAL RESIST.	CLEANROOM	TEMPERATURE RESIST.	ESD SAFE	BIOCOMPATIBILITY
	SA+MZ	●	●	●	●	●	●	●	●
	SA+ZJ	●	●	●	●	●	●	●	●
	PSZ	●	●	●	●	●	●	●	●

## DEFINITION

**NON-MAGNETIC** Those materials which do not acquire magnetic properties, either transient or permanent, when placed in a magnetic field or subjected to a magnetization process

**HARDNESS** The resistance of a material to penetration

**CORROSION RESISTANCE** The capability of material to withstand the deterioration and chemical breakdown during surface exposure in a specific environment

**CHEMICAL RESISTANCE** The strength of a material to protect against chemical attack or solvent reaction

**CLEANROOM** A controlled environment typically used in manufacturing

**TEMPERATURE RESISTANCE** The resistance of material properties to decrease as temperature increases

**ESD SAFE** A material that reduce static electricity to protect electrostatic-sensitive devices

**BIOCOMPATIBILITY** The capability of a material to exist in harmony with tissue without causing deleterious changes

\* Material selection chart is intended as a starting point to select material. Ideal-tek recommends always testing our specific product with your application

# Metal tweezer materials

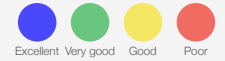


**DX**

MATERIAL DESCRIPTION	MAIN FEATURES & APPLICATIONS
High-alloy Anti-Acid, Anti-Magnetic Stainless Steel (AISI 904L)	Non-magnetic - <span style="color: blue;">●</span> toughness - <span style="color: blue;">●</span> formability and weldability - <span style="color: blue;">●</span> resistance to severe corrosive conditions - <span style="color: blue;">●</span> resistance to acidic environments - <span style="color: blue;">●</span> resistance to stress corrosion cracking - <span style="color: blue;">●</span> cleanliness - maximum service temperature 450°C <b>TYPICAL APPLICATIONS</b> Chemical and pharmaceutical industries, cryogenic laboratories, process industries, etc.
Superalloy Anti-Acid, Anti-Magnetic (Superalloy Ni-Cr-Mo)	Fully non-magnetic - <span style="color: blue;">●</span> strength - <span style="color: blue;">●</span> hardness - <span style="color: yellow;">●</span> resistance to fatigue - <span style="color: blue;">●</span> shape retention - <span style="color: green;">●</span> corrosion resistance to most chemicals, salts and acids <b>TYPICAL APPLICATIONS</b> Non-magnetic tools for electronic and watch industry applications and for laboratory and medical applications in aggressive chemical environments
Anti-Acid, Anti-Magnetic Stainless Steel (AISI 316L)	Non-magnetic - <span style="color: green;">●</span> toughness - <span style="color: green;">●</span> corrosion resistance to most chemicals, salts and acids <b>TYPICAL APPLICATIONS</b> Tweezers for the electronic industry, watch-makers, jewelers and laboratory and medical applications in moderately aggressive chemical environments
Stainless Steel (AISI 420)	Magnetic - <span style="color: blue;">●</span> strength - <span style="color: blue;">●</span> hardness - <span style="color: yellow;">●</span> resistance to corrosion <b>TYPICAL APPLICATIONS</b> Tweezers and cutting tools for the electronic industry, watch-makers, jewelers and laboratory and medical applications in mild aggressive chemical environments
Carbon Steel (AISI 1060)	Magnetic - <span style="color: blue;">●</span> strength - <span style="color: blue;">●</span> hardness - <span style="color: red;">●</span> resistance to corrosion <b>TYPICAL APPLICATIONS</b> Tweezers and cutting tools for the electronic industry, watch-makers, jewelers applications
Superalloy Anti-Acid, Anti-Magnetic (Superalloy Ni-Cr-Mo)	Fully non-magnetic - <span style="color: blue;">●</span> strength - <span style="color: blue;">●</span> hardness - <span style="color: yellow;">●</span> resistance to fatigue - <span style="color: blue;">●</span> shape retention - <span style="color: green;">●</span> corrosion resistance to most chemicals, salts and acids <b>TYPICAL APPLICATIONS</b> Non-magnetic tools for electronic and watch industry applications and for laboratory and medical applications in aggressive chemical environments
Titanium (Nonferrous alloy, Grade 1)	Fully non-magnetic - <span style="color: green;">●</span> mechanical properties - <span style="color: blue;">●</span> ductility - <span style="color: green;">●</span> cold formability - <span style="color: blue;">●</span> corrosion resistance - <span style="color: green;">●</span> melting point (high temperature resistance) <b>TYPICAL APPLICATIONS</b> Handling of components in cleaning/chemical processes at high temperature, histology, biology, medicine, surgery. Used when high strength-to-weight ratio is required. Bio-compatible
Nickel (Nonferrous alloy CuNi18Zn20)	Non-magnetic - soft and elastic - <span style="color: green;">●</span> cold workability (forming) - <span style="color: yellow;">●</span> corrosion resistance by fresh water and steam - <span style="color: blue;">●</span> resistance to saltwater corrosion - <span style="color: blue;">●</span> resistance to alkalies and organic acids - <span style="color: red;">●</span> resistance to inorganic acids <b>TYPICAL APPLICATIONS</b> Handling of scratch-sensitive parts in electronic, micro-mechanical and jewellery applications
Brass (Nonferrous alloy CuZn37)	Non-magnetic - <span style="color: blue;">●</span> cold workability (forming) - <span style="color: blue;">●</span> mechanical properties - <span style="color: green;">●</span> corrosion resistance - <span style="color: yellow;">●</span> corrosion resistance by fresh water and steam <b>TYPICAL APPLICATIONS</b> Tweezers for handling scratch-sensitive mechanical parts, watch components, magnets
Bronze (Nonferrous alloy CuSn8P)	Non-magnetic - <span style="color: green;">●</span> cold workability (forming) - <span style="color: green;">●</span> tensile properties - <span style="color: green;">●</span> corrosion resistance - <span style="color: yellow;">●</span> corrosion resistance by fresh water and steam <b>TYPICAL APPLICATIONS</b> Tweezers for handling scratch-sensitive mechanical parts, watch components, magnets

# Coating tweezer materials

More TECHNICAL information on our material TDS



COATING DESCRIPTION	MAIN FEATURES & APPLICATIONS
<p><b>SA + DC</b></p> <p>High-tek Diamond coating</p>	<p>ESD-safe material - ● hardness - ● wear resistance - ● friction coefficient - ● adherence to the tweezers - ● humidity resistant - ● chemical stability and corrosion resistance - ● 100% biological compatibility</p> <p><b>TYPICAL APPLICATIONS</b> DLC tweezers are ideally suited for applications in medical, biological and clean room environments, as well as perfect for handling hard / abrasive materials.</p>
<p><b>SA + NE</b></p> <p>Engineering ESD epoxy coating (polyester + epoxy resins + conductive additives)</p>	<p>ESD-safe material - ● general resistance - ● dispersion - ● impact-resistant surface - ● elasticity - ● functional permanent graffiti protection - ● cleanliness</p> <p><b>TYPICAL APPLICATIONS</b> ESD tweezer coating for an enhanced operator comfort</p>
<p><b>SA + T</b></p> <p>Industrial Teflon coating (PTFE)</p>	<p>● abrasion resistance - ● toughness - ● chemical corrosion resistance - ● cleanliness - ● heat resistance - ● cryogenic stability</p> <p><b>TYPICAL APPLICATIONS</b> Teflon-coated tweezers are recommended when specimen material is fragile. It reduces the rate of heat during critical cryo work and reduces the corrosive action of acids and bases on tweezers tips. The PTFE coating also gives some protection of the metal when using with chemical compound.</p>
<p><b>SA + GP</b></p> <p>Gold plating coating</p>	<p>Pure 24-carat gold - ● chemical corrosion resistance - ● oxidation resistance - ● electrical conductor</p> <p><b>TYPICAL APPLICATIONS</b> Tweezers for microelectronics, TEM staining, immunogold work, electro-chemistry and nanotechnology work</p>
<p><b>SA + DR</b></p> <p>Engineering ESD rubber grip (NBR vulcanized nitrile rubber)</p>	<p>ESD-safe material - ● softness - ● flexibility - ● tear resistance - ● abrasion/wear resistance - ● hydrolytic resistance (hot water) - ● chemical resistance</p> <p><b>TYPICAL APPLICATIONS</b> ESD-safe handles, floor and work surface mats. ESD ergonomic tweezer cushion grips for an enhanced operator comfort. Ideal for repetitive handling tasks in specimen preparation, electronics, instrumentation, laboratories and forensics. Especially useful for handling ESD sensitive components or small static items</p>
<p><b>SA + DN</b></p> <p>Engineering ESD foam grip (PVC foam)</p>	<p>ESD-safe material - ● softness - ● flexibility - ● tear resistance - ● abrasion/wear resistance - ● chemical resistance</p> <p><b>TYPICAL APPLICATIONS</b> ESD-safe handles, floor and work surface mats. ESD ergonomic tweezer cushion grips for an enhanced operator comfort. Ideal for repetitive handling tasks in specimen preparation, electronics, instrumentation, laboratories and forensics. Especially useful for handling ESD sensitive components or small static items</p>

# Plastic tweezer materials



**CP**

**High-performance plastic - Carbon PEEK** (polyetheretherketone reinforced with carbon nano)



**CF**

**Engineering plastic - Carbon fiber** (PA66/CF30 polyamide 66 reinforced with 30 wt% carbon fibre)



**SV**

**High performance plastic - PVDF** (polyvinylidene fluoride carbon fibre reinforced)



**DG**

**Engineering plastic - Delrin** (POM/GF30 acetal resin reinforced with 30 wt% glass fibre)



**LC**

**Engineering plastic - Conductive Larton** (PPS/GF30 polyphenylene sulphide reinforced with 30 wt% glass fibre)



**LR**

**Engineering plastic - Larton** (PPS/GF30 polyphenylene sulphide reinforced with 30 wt% glass fibre)

MATERIAL DESCRIPTION	MAIN FEATURES & APPLICATIONS
<p><b>High-performance plastic - Carbon PEEK</b> (polyetheretherketone reinforced with carbon nano)</p>	<p>ESD safe material - ● hardness - ● rigidity - ● flexural strength - ● wear resistance - ● dimension stability - ● resistance to chemicals and aggressive agents - ● resistance to thermal ageing - ● heat capability</p> <p><b>TYPICAL APPLICATIONS</b> Handling of components in cleaning/chemical/assembly processes at high temperature (soldering).</p>
<p><b>Engineering plastic - Carbon fiber</b> (PA66/CF30 polyamide 66 reinforced with 30 wt% carbon fibre)</p>	<p>ESD safe material - ● rigidity - ● tensile strength - ● flexural strength - ● fatigue resistance - ● creep resistance - ● wear and abrasion resistance - ● chemical resistance - ● heat capability</p> <p><b>TYPICAL APPLICATIONS</b> Handling of sensitive components and devices in electronics assembly and lab applications. Clean room compatible.</p>
<p><b>High performance plastic - PVDF</b> (polyvinylidene fluoride carbon fibre reinforced)</p>	<p>ESD safe material - ● mechanical strength - ● toughness - ● abrasion resistant - ● high purity - ● chemical resistance - ● resistant to UV and nuclear radiation (sterilisation) - ● heat capability</p> <p><b>TYPICAL APPLICATIONS</b> Handling of very scratch - and contamination - sensitive components, cleaning and etching processes. Clean room and medical device approved material.</p>
<p><b>Engineering plastic - Delrin</b> (POM/GF30 acetal resin reinforced with 30 wt% glass fibre)</p>	<p>● tensile strength - ● flexural strength - ● fatigue resistance - ● creep resistance - ● wear resistance - ● abrasion resistance - ● hydrolytic resistance (hot water) - ● chemical resistance - insulating</p> <p><b>TYPICAL APPLICATIONS</b> Handling of very scratch sensitive components (ceramic and glass devices, wafers, capillary)</p>
<p><b>Engineering plastic - Conductive Larton</b> (PPS/GF30 polyphenylene sulphide reinforced with 30 wt% glass fibre)</p>	<p>ESD-safe material - ● hardness - ● rigidity - ● flexural strength - ● creep resistance - ● dimension stability - ● fume optical density and toxicity - ● chemical resistance - ● resistance to thermal ageing - ● heat capability - UL94V-0 self-extinguishing</p> <p><b>TYPICAL APPLICATIONS</b> Soldering and cleaning/chemical processes at high temperature. Used in clean room environment.</p>
<p><b>Engineering plastic - Larton</b> (PPS/GF30 polyphenylene sulphide reinforced with 30 wt% glass fibre)</p>	<p>● hardness - ● rigidity - ● flexural strength - ● creep resistance - ● dimension stability - ● fume optical density and toxicity - ● chemical resistance - ● resistance to thermal ageing - ● heat capability - UL94V-0 self-extinguishing - insulating</p> <p><b>TYPICAL APPLICATIONS</b> Soldering processes, handling of components in cleaning/chemical processes.</p>

# Ceramic tweezer materials

More TECHNICAL information on our material TDS



MATERIAL DESCRIPTION	MAIN FEATURES & APPLICATIONS
<p><b>SA + MZ</b></p> <p>Advanced white ceramic (Zirconia Toughened Alumina)</p>	<ul style="list-style-type: none"> <li>● strength - ● hardness - no open porosity - ● hard surface - ● abrasion resistance - ● wear resistance - ● flexural strength - ● fracture toughness - ● corrosion resistance - ● thermal properties - ● temperature stability - electrically insulating</li> </ul> <p><b>TYPICAL APPLICATIONS</b> Soldering processes, handling of components during thermal and chemical processes. Generally used when very rigid tips are required</p>
<p><b>SA + ZJ</b></p> <p>ESD advanced black ceramic (Zirconia Toughened Alumina)</p>	<ul style="list-style-type: none"> <li>● strength - ● hardness - no open porosity - ● hard surface - ● abrasion resistance - ● wear resistance - ● flexural strength - ● fracture toughness - ● corrosion resistance - ● thermal properties - ● temperature stability</li> </ul> <p><b>TYPICAL APPLICATIONS</b> Handling of EOS/ESD sensitive components, handling of components during thermal, chemical and soldering processes. Generally used when very rigid tips are required</p>
<p><b>PSZ</b></p> <p>Advanced Ceramic (Partially stabilized zirconia)</p>	<ul style="list-style-type: none"> <li>● hardness - ● fracture toughness - ● surface finish - no open porosity - ● abrasion resistance - ● wear resistance - ● flexural strength - ● corrosion resistance - ● thermal properties - ● temperature stability - ● electrical insulation</li> </ul> <p><b>TYPICAL APPLICATIONS</b> Tweezers for demanding requirements for high grade application in clean rooms, chemistry, semiconductor and electronics manufacturing, analytical chemistry, biotechnology and nanotechnology</p>