

Material for EM-Tec ZE ESD safe ceramic tweezers tips

The material used for manufacturing the EM-Tec ZE ESD safe ceramic tweezers tips is a doped zirconia toughened alumina (ZTA)

It is used for the following products:

[#50-008020 EM-Tec 2A.ZE ESD safe ceramic replaceable tips tweezers, flat rounded tips](#)

[#50-008071 EM-Tec 71.ZE ESD safe ceramic replaceable tips tweezers, sharp pointed tips](#)

[#50-008072 EM-Tec 72.ZE ESD safe ceramic replaceable tips tweezers, pointed strong tips](#)

General remarks:

- Zirconia toughened alumina (ZTA)
- ESD safe static dissipative material
- superior combination of high strength and high hardness
- Very high rigidity, good flexural strength and fracture toughness
- relatively low density
- no open porosity
- very hard surface, excellent wear and abrasion resistance
- excellent thermal properties and high temperature stability
- extreme corrosion resistance; nearly chemically inert
- Typical applications include tweezers handling of ESD sensitive components, handling of sample during thermal, chemical and soldering processes. Handling of hard materials and where very rigid tips are required.

Properties of zirconia toughened alumina (ZTA)

| Mechanical Properties | |
|---|--|
| Young's modulus | 310 GPa |
| Bend strength | 760 MPa |
| Tensile strength | 117 Mpa |
| Hardness Vickers (Hv) | 1750 |
| Thermal Properties | |
| Coefficient of thermal linear expansion | 9.5 x 10 ⁻⁶ /°C (25-1000°C) |
| Continuous use (service) temperature | 1400°C |
| Electrical Properties | |
| Surface resistivity (100V) | 10E2 - 10E5 Ohm |
| Decay time | <0.5 sec |
| Shock resistance (ΔT °C) | 325 |
| Other properties | |
| Density | 4.1 g/cm ³ |
| Colour | Black |

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