

## Material for EM-Tec ZC ceramic tweezers tips

The material used for manufacturing the EM-Tec ZC ceramic tweezers tips is a zirconia toughened alumina (ZTA).

### It is used for the following products:

[#50-009020 EM-Tec 2A.ZC ceramic replaceable tips tweezers, flat rounded tips](#)

[#50-009070 EM-Tec 7.ZC ceramic replaceable tips tweezers, curved fine tips](#)

[#50-009071 EM-Tec 71.ZC ceramic replaceable tips tweezers, sharp pointed tips](#)

[#50-009072 EM-Tec 72.ZC ceramic replaceable tips tweezers, fine strong tips](#)

[#50-009073 EM-Tec 73.ZC ceramic replaceable tips tweezers, pointed strong tips](#)

[#50-009074 EM-Tec 74.ZC ceramic replaceable tips tweezers, strong tips](#)

### General remarks:

- Zirconia toughened alumina (ZTA)
- Insulating 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 for handling samples 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	8.0 x 10 <sup>-6</sup> /°C (25-1000°C)
Continuous use (service) temperature	1400°C
Electrical Properties	
Surface resistivity	10E12 Ohm
Shock resistance ( ΔT °C)	325
Other properties	
Density	4.1 g/cm <sup>3</sup>
Colour	White

### TSB 50-009020 Material for EM-Tec ZC ceramic tweezers tips, 2018-02-15 Revision 1