

TSC-T

Characteristics

- Highest purity synthetic quartz material
- lowest in class bubbles
- free of mineral inclusions

Applications

- Leading edge high-end semiconductor plasma etch applications

TSC-T is part of Heraeus' new synthetic material family: Neonyx. With Neonyx we address the increasing challenges and material requirements in the high-end semiconductor environment.

Focusing on the challenges and roadblock for next generation plasma etch tools, with TSC-T Heraeus is providing the best in class solution for today's and future leading-edge process developments. TSC-T is fully manufactured from synthetic raw material, guaranteeing highest levels of purity and consistency, along lowest in class contamination, inclusion and bubble content. These aspects ensure a longer time to particle in contrast to natural material solutions.

Available Dimensions

- Heavy Wall Hollow Ingot
- Wall thickness up to 35mm
- Outer diameter up to 385mm
- Please contact us to discuss the availability of your required dimension

Chemical Purity

Typical trace elements and OH content in quartz glass (in ppm)

Elements	Li	Na	K	Mg	Ca	Fe	Cu	Al	OH
TSC-3N	0.2	0.3	0.2	0.01	0.4	0.05	0.01	15	170
TSC-4	0.04	0.2	0.08	< 0.01	0.7	0.1	< 0.01	8	170
TSC-T	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	150-200

Electrical Data

Dielectric loss angle (tg δ)

1 kHz	5.0×10^{-4}
1 MHz	1.0×10^{-4}
3×10^{10} Hz	4.0×10^{-4}



Bubbles and inclusions

Heraeus' TSC-T has been specially developed to ensure highest consistency, lowest in class bubble content and zero mineral inclusions.

Typical combined bubble and inclusion counts per 100 cm³

Diameter [mm]	TSC-3N	TSC-4	TSC-T
< 0.1	n. sp.	n. sp.	n. sp.
0.1 - 0.2	< 5	< 5	0
0.2 - 0.5	< 0.1	< 0.1	0
0.5 - 1	0	0	0
> 1	0	0	0

Dielectric constant (ε)

20 °C 0 ... 10 ⁸ Hz	3.70
23 °C 9 ... 10 ⁸ Hz	3.77
23 °C 3 ... 10 ¹⁰ Hz	3.81

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