

**1. General:**

This Material Specification describes the chemical and physical properties of RQ 500 of Raesch Quarz (Germany) GmbH.

**2. Chemical Composition:**

SiO<sub>2</sub> [%]                      99.9

RQ 500 contains the following impurities in ppm:

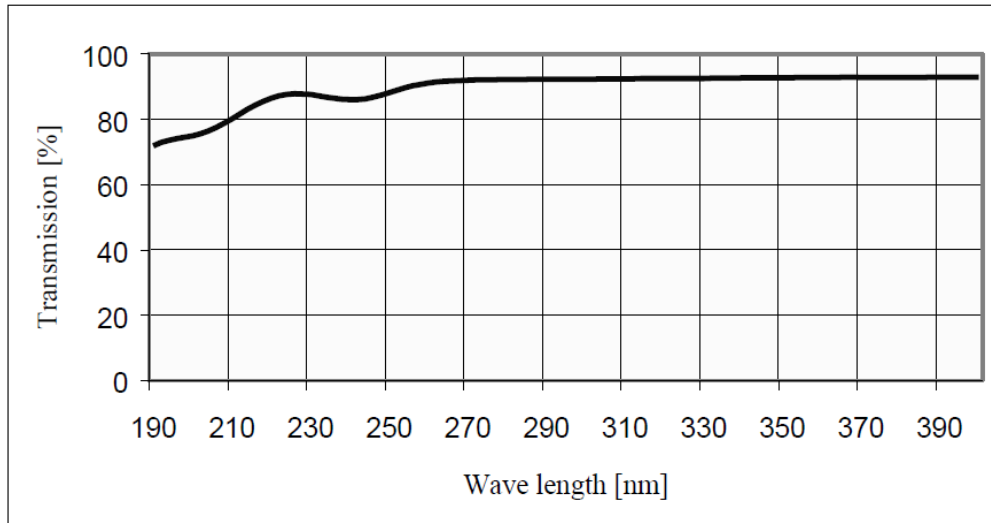
Elements	RQ500	
	Typical	Max
Al	15	18
B	<0.1	0.1
Ca	0.7	1
Co	≤0.01	0.01
Cr	≤0.01	0.05
Cu	<0.02	0.05
Fe	0.15	0.3
K	0.2	0.5
Li	0.7	1.1
Mg	0.03	0.2
Mn	≤0.05	0.05
Na	0.2	0.5
Ni	≤0.01	0.05
Ti	1.3	1.9

**3. Transmission Properties:**

Limits for transmission values of 1 [mm] wall thickness:

wave length λ [nm]	200	250	254	360	400
transmission T [%]	> 65	> 85	> 87	> 90	> 91

**Transmission curve RQ 500**



**4. Physical Properties:**

Linear thermal expansion coefficient	(20 - 320)°C	[10 <sup>-6</sup> K <sup>-1</sup> ]	0.54
Modulus of elasticity		[GPa]	66
Poisson-Number		[1]	0.17
Density		[gcm <sup>-3</sup> ]	2.2
Transformation temperature		[°C]	ca. 1200
Viscosity		[dPas]	[°C]
	10 <sup>14.7</sup>	Strain point	1167
	10 <sup>13.2</sup>	Annealing point	1255
	10 <sup>7.6</sup>	Softening temperature	1760
	10 <sup>4</sup>	Working temperature	1990
Devitrification range		[°C]	1000 - 1700
Max working temperature		[°C]	
Permanent with cooling to room temperature			1000
Permanent with cooling to 300°C			1200
Short time			1300
Electrical resistance		[Ωcm]	[°C]
	10 <sup>4</sup>		1660
	10 <sup>6</sup>		1000
	10 <sup>8</sup>		510
Dielectric constant	at 20°C, 1 MHz	[1]	3.7
Dielectric loss factor	at 20°C, 1 MHz	[10 <sup>-4</sup> ]	<1
Refractive index	at λ = 587.6 nm	[1]	1.459
Thermal conductivity	at 20°C	[Wm <sup>-1</sup> K <sup>-1</sup> ]	1.4

**Address:**

Raesch Quarz (Germany) GmbH  
In den Folgen 3  
D-98693 Ilmenau  
Phone 0049-3677-4696-0 / Fax 0049-3677-4696-3690  
Mail: info@raesch.net  
Website: www.raesch.net

**Effective Documents:**

Product Specifications

<b>Revision History</b>		
<b>Rev.</b>	<b>date</b>	<b>Description of Change</b>
0	01.04.2019	<ul style="list-style-type: none"><li>• new document</li></ul>