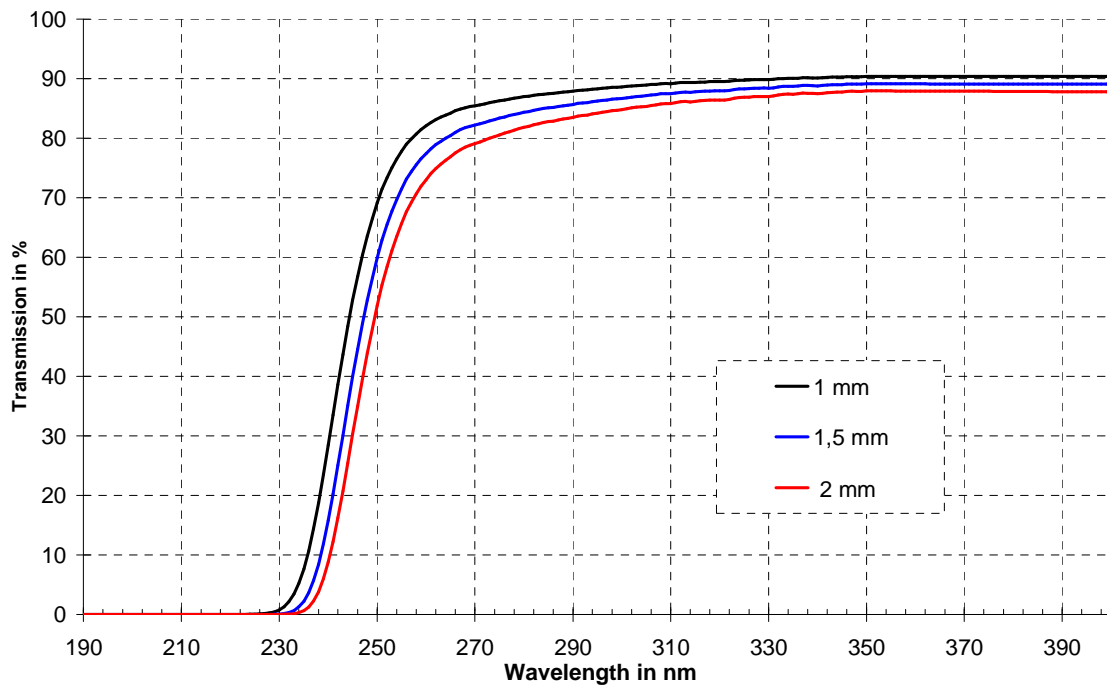


**Application:** **ilmasil® PN 240** is a doped, clear fused quartz (quartz glass). This specification is applicable to all products produced with **ilmasil® PN 240**.

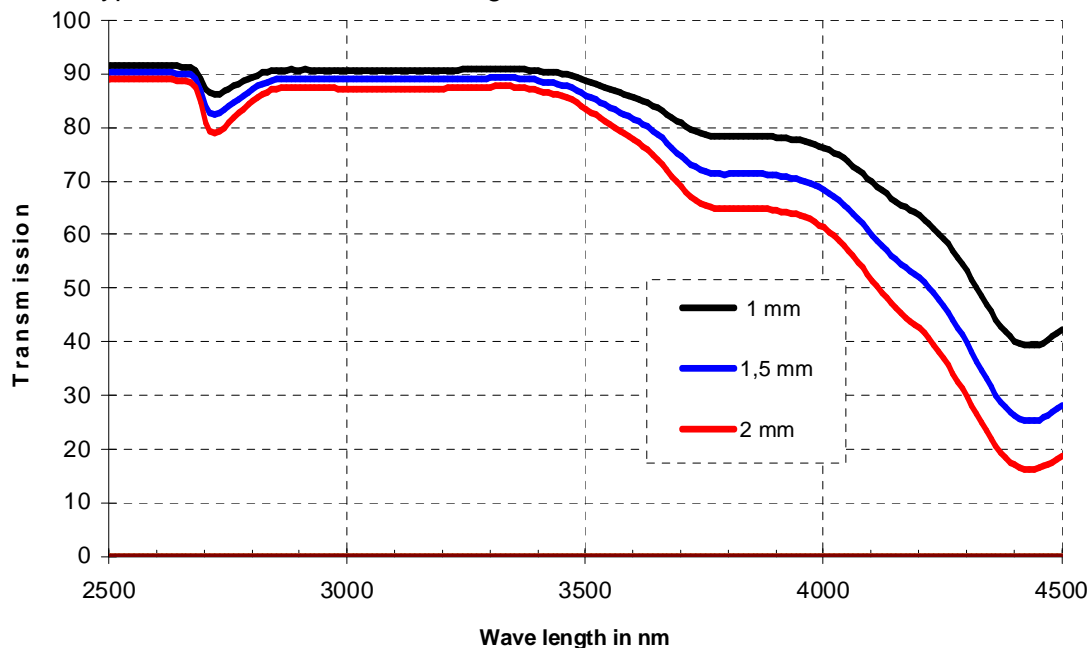
## 1 Optical Properties

### 1.1 Transmission


#### 1.1.2 Typical Transmission in UV-range



#### 1.1.3 Typical Transmission in IR-range



**Remark:** transmission measured on a plane surface

		Material Specification Clear Fused Quartz <b>ilmasil<sup>®</sup> PN 240</b>		
Seite	2 of 3	Version	S-101-01-PN240	Index:C (Nov 2013)

## 2 Chemical Properties

### 2.1 OH-content

Typical: 15 - 55 ppm \*

Tolerance: max. 55 ppm \*

Stability: After thermal treatment, a decrease of maximum 3 ppm is obtainable by tempering the material at 1000°C under vacuum for a period of 30 hours.

\* OH-content: values are applicable for non-flameworked material only

### 2.2 chemical resistances

Hydrolytic resistance per DIN 12111: 1st. class

Acid resistance per DIN 12116: 1st.class

Alkaline resistance per DIN 52322: 1st.class

Seite	3 of 3	Version	S-101-01-PN240	Index:C (Nov 2013)
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### 3 Thermal Properties

<b>Softening Point</b> ( $\lg \eta$ (in dPas) = 7.6)	ca. 1730 °C
<b>Annealing Point</b> ( $\lg \eta$ (in dPas) = 13.0)	1109 °C
<b>Strain Point</b> ( $\lg \eta$ (in dPas) = 14.5)	959 °C
<b>Processing Range</b> $\lg \eta$ (in dPa s) = 5 – 8	1700 – 2100°C
<b>Max. usable temperature</b>	
Long term	1100 °C
Short term	1300 °C
<b>Coefficient of Thermal Expansion</b>	
20 ... 300 °C	$5.5 \times 10^{-7} \text{ } ^\circ\text{K}^{-1}$

### 4 Mechanical Properties

(at 20°C)

Density	2.2 g/cm <sup>3</sup>
Mohs Hardness	5.5 ... 6.5
Elasticity modulus	$7.5 \times 10^4 \text{ N/mm}^2$
Compressive Strength	1150 N/mm <sup>2</sup>
Tensile Strength	50 N/mm <sup>2</sup>
Bending Strength	68 N/mm <sup>2</sup>

Mechanical property measurements are dependent upon geometry, thermal gradient and the surface quality.

### 5 Electrical Properties

<b>Specific electrical resistance</b>	
20 °C	$10^{18} \Omega \times \text{m}$
400 °C	$10^{10} \Omega \times \text{m}$
800 °C	$6.3 \times 10^6 \Omega \times \text{m}$
1200 °C	$1.3 \times 10^5 \Omega \times \text{m}$
<b>Dielectric strength</b>	
20 °C	25 ... 40 KV/mm
500 °C	4 ... 5 KV/mm
<b>Dielectric loss factor</b>	
at 7,5 kHz	$\text{tg } \delta \approx 5.0 \times 10^{-4}$
<b>Dielectric constant</b>	
at 20 °C and 7,5 GHz	$\epsilon \approx 3.7$