

# Specification



Auer Lighting

No.:

SPEC 8488-13\_E

Revision:

13

Borosilicate glass

Date:

09. Jan. 2015

SUPRAX 8488<sup>®</sup>

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## Physical characteristics

Coefficient of thermal expansion $\alpha$ 20°C; 300°C	4.1 x10 <sup>-6</sup> /K
Density $\rho$ at 25°	2.3 g/cm <sup>3</sup>
Young's modulus E	67x10 <sup>3</sup> N/mm <sup>2</sup>
Poisson's ratio $\mu$	0.20
Refractive index $n_d$ ( $\lambda$ = 587.6 nm )	1.482
Abbe number $v_d$	64.5
Internal transmittance at 550 nm	98.9% at 10mm thickness
Permanent operating temperature	400°C 300°C for thermally toughened glass Thermally toughened glass should not be used permanently above operating temperature of 300°C (Loss of toughening)
Maximum short-term application temperature	450°C for 10 min
Thermal shock resistance $\Delta T$	130°C 265°C for thermally toughened glass
Thermal conductivity $\lambda$ at 90°C	1.2W/(m K)
Transformation temperature Tg	545 °C
Glass temperature at viscosity dPas (Poise)	Annealing point : 10 <sup>13</sup> dPas 560°C  Strain point: 10 <sup>14.5</sup> dPas 530°C  Littleton point : 10 <sup>7.6</sup> dPas 800°C  Working point : 10 <sup>4.0</sup> dPas 1210°C

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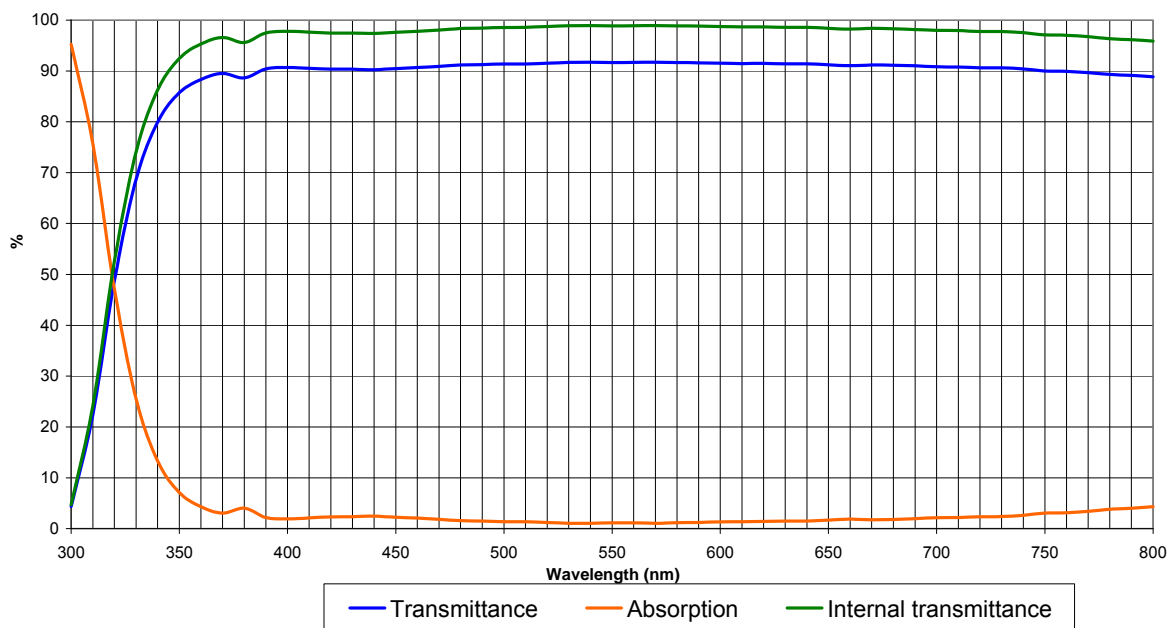
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**SUPRAX 8488®**

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## Optical characteristics

Transmittance / Absorption graph (Thickness d=10mm)



**Solarization resistance**

**Solarization stable in entire VIS region**

## Electrical characteristics

at 1 MHz/25°C

Dielectric constant  $\epsilon_r$  **5.4**  
 Loss tangent  $\tan \delta$  **93**

at 2.466 GHz (Microwave)

Temperature	20 °C	400 °C
Real part of the complex dielectric constant $\epsilon'$	<b>5.1 ± 0.1</b>	<b>5.7 ± 0.1</b>
Imaginary part of the complex dielectric constant $\epsilon''$	<b>0.050 ± 0.005</b>	<b>0.26 ± 0.03</b>
Loss tangent $\tan \delta$	<b>0.010 ± 0.001</b>	<b>0.045 ± 0.004</b>
TEM half-value layer (mm)	<b>610 ± 50</b>	<b>125 ± 10</b>

at 50 Hz

Temperature	250 °C	350 °C
Volume resistance $\Omega \times \text{cm}$	<b>7.1</b>	<b>5.8</b>

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## Chemical composition

<b>SiO<sub>2</sub></b>	<b>76%</b>
<b>Al<sub>2</sub>O<sub>3</sub></b>	<b>4%</b>
<b>B<sub>2</sub>O<sub>3</sub></b>	<b>12%</b>
<b>Na<sub>2</sub>O</b>	<b>6%</b>
<b>BaO</b>	<b>1%</b>
<b>ZrO<sub>2</sub></b>	<b>1%</b>

## Chemical characteristics

Chemical characteristic	Hydrolytic resistance	Acid resistance	Alkaline resistance
Test acc. to	DIN ISO 720 Class 1 (HGA1)	DIN ISO 1776	DIN ISO 695 (identical to DIN 52322 ) Class A2
max. abrasion acc. to DIN ISO	0,1	<100 µg Na <sub>2</sub> O/dm <sup>2</sup>	>75–175 mg/ dm <sup>2</sup>
max. abrasion MAXOS <sup>®</sup>	0,050	<60 µg Na <sub>2</sub> O/dm <sup>2</sup>	>100 mg/dm <sup>2</sup>

## Food safety

Tested in order to the German regulations „§ 31 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuch (LFGB or LMBG)“ and „Bedarfsgegenständeverordnung“. The paragraph 31, article 1 of LFGB reads. (Investigation dated from 04.02.2014)

The total migration of the detected elements is less than 1mg/dm<sup>2</sup>. According to this testing parameters the glass sample SUPRAX 8488 is conform to the quality standards of the specified regulations § 31 Abs. 1 LMBG and regulation (EC) No 1935/2004.

The values shown in this Specification represent measurements taken on samples and will vary depending upon the natural variance of glass components. Users should be aware that the values shown in this Material Specification are typical properties, and are not intended as absolute nor warrantable, therefore each user is recommended to perform tests to assure that finished parts will be suitable under end - use conditions.