

# BOROFLOAT® 33 – Optical Properties

The sum of its properties is what makes it unique.

BOROFLOAT® 33 from Germany is the world's first floated borosilicate flat glass. Its superior quality and excellent flatness combine with outstanding thermal, optical, chemical and mechanical features. The chemical composition of BOROFLOAT® 33 is in accordance with ASTM E 438-92 (2001), Type 1, class A. Rediscover BOROFLOAT® 33 and experience the infinite potential of our most versatile material platform. BOROFLOAT® – Inspiration through Quality.



Optical wheel made of BOROFLOAT® 33.

## Optical index of refraction

Wavelength	Index of refraction n
435.8	1.48015
479.9	1.47676 ( $n_F$ )
546.1	1.47311 ( $n_D$ )
589.3	1.47133
643.8	1.46953 ( $n_C$ )
656.3	1.46916

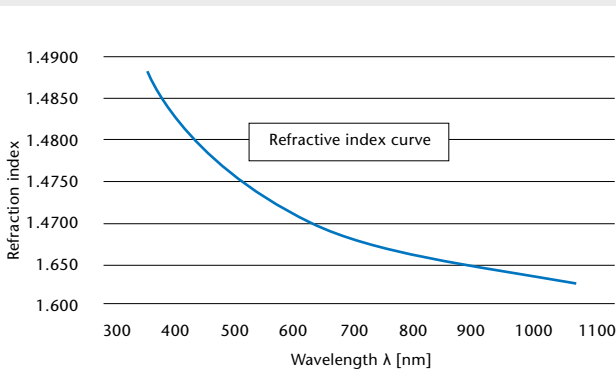
Mean reference values, not guaranteed values.

## Optical data

Abbe number ( $v_e = (n_D - 1) / (n_F - n_C)$ )	65.41
Refraction index ( $n_D (\lambda_{587.6 \text{ nm}})$ )	1.47140
Dispersion ( $n_F - n_C$ )	$71.4 \times 10^{-4}$
Stress-optical co-efficient (K)	$4.0 \times 10^{-6} \text{ mm}^2 \text{ N}^{-1}$

Average reference values, not guaranteed values.

## Dispersion

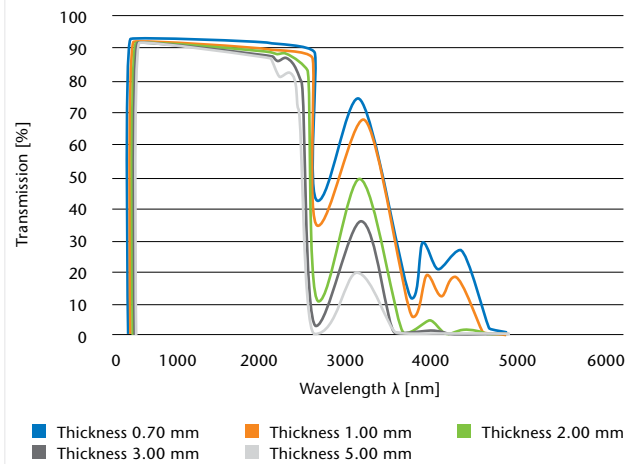


## Key benefits:

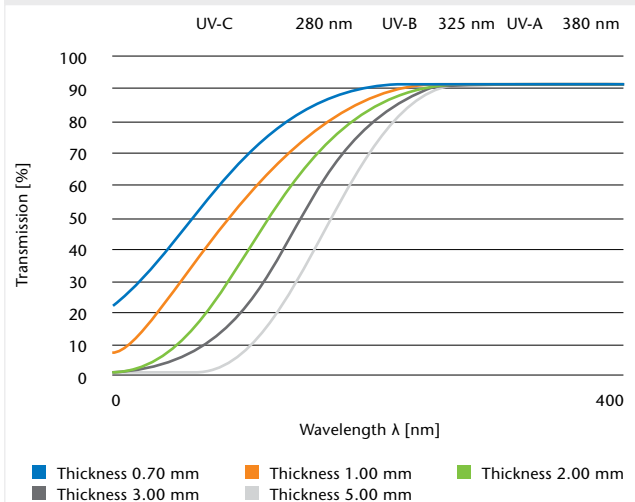
### Exceptionally high transparency

- High transparency in visible and near IR- & UV range of wavelengths
- Outstanding visual quality due to colorlessness
- Low inherent fluorescence and solarisation tendency

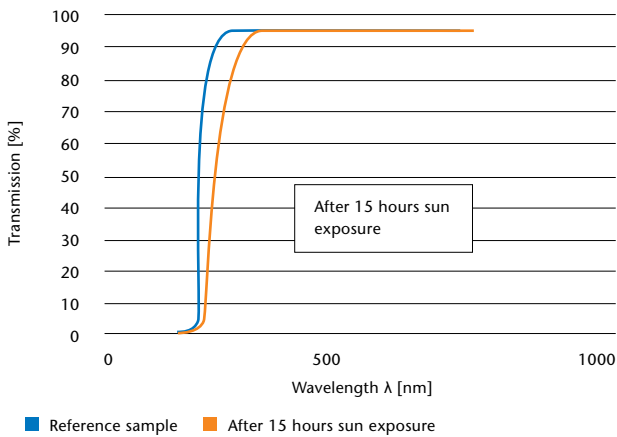
## Transmission



## Transmission in UV range

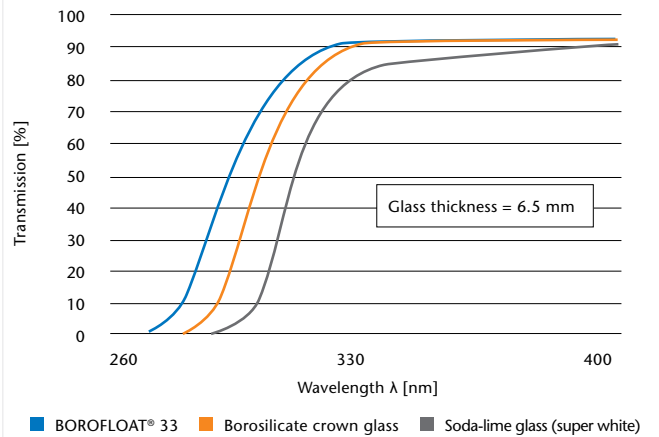


### Solarisation



The effect of radiation on the transmission properties of BOROFLOAT® 33 are tested as follows: A mercury vapor lamp (Type HOK 4/120) with a radiation of 850  $\mu\text{W}/\text{cm}^2$  and a principle wavelength of 365 nm is used to irradiate a glass sample sized 30 x 15 x 1 mm<sup>3</sup>.

### Transmission



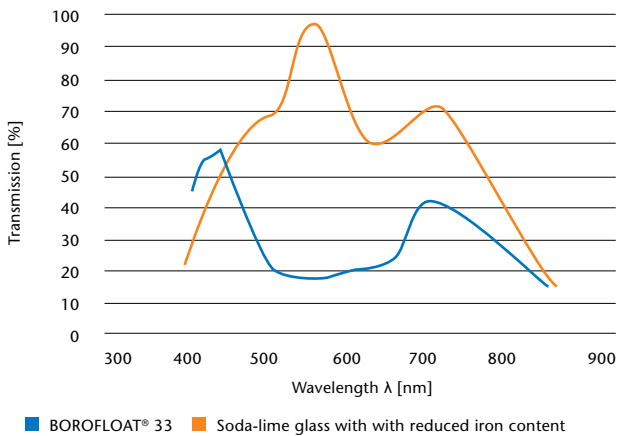
Transmission of BOROFLOAT® 33 in comparison to borosilicate crown glass and soda-lime glass (super white).

### Inherent fluorescence of BOROFLOAT® 33

Some materials have the ability to emit electromagnetic radiation after being activated by high frequency short-wave radiation. This property is referred to as fluorescence. It depends on the material's purity and structural characteristics as well as the radiation's excitation energy and excitation wavelength.

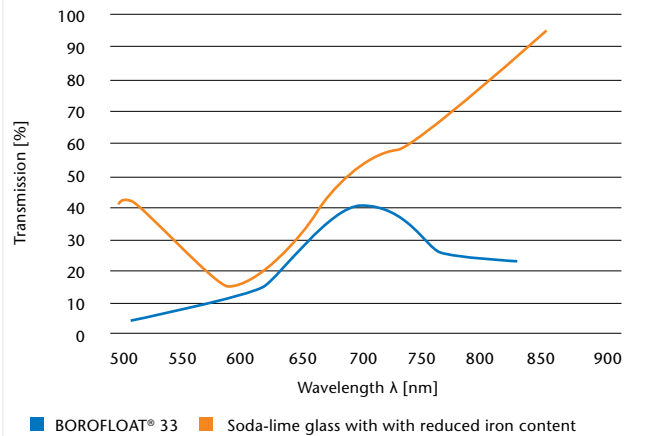
BOROFLOAT® 33 is a highly transparent glass with a much lower inherent fluorescence than soda-lime glass.

### Inherent fluorescence at 365 nm



Inherent fluorescence of BOROFLOAT® 33 and soda-lime glass with an excitation wavelength of 365 nm.

### Inherent fluorescence at 488 nm



Inherent fluorescence of BOROFLOAT® 33 and soda-lime glass with an excitation wavelength of 488 nm.

Further data and information available on request.

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 glass made of ideas