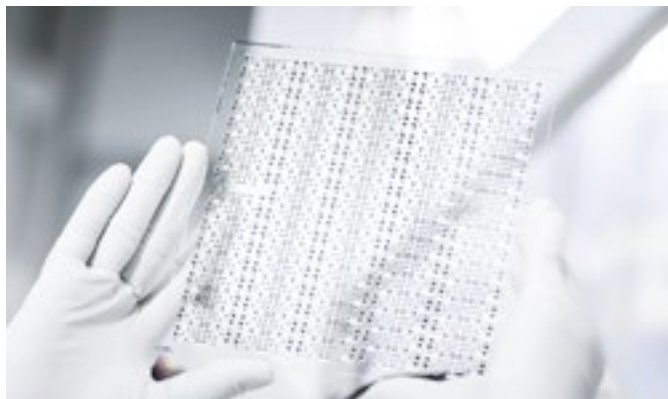


# BOROFLOAT® 33 – Chemical Properties

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.



Bonded glass for Lithium Monitoring Chips made of BOROFLOAT® 33.

## Chemical resistance

Water resistance	(according to ISO 719 / DIN 12 111)	HGB 1
	(according to ISO 720)	HGA 1
Acid resistance	(according to ISO 1776 / DIN 12 116)	1
Alkali resistance	(according to ISO 695 / DIN 52 322)	A 2

## Corrosion test for Display Glass

Reagent	Abrasion [mg/cm <sup>2</sup> ]	Visual observations
<b>24 h at 95 °C</b>		
5 Vol. % HCl	< 0.01	Unchanged
0.02 n H <sub>2</sub> SO <sub>4</sub>	< 0.01	Unchanged
H <sub>2</sub> O	< 0.01	Unchanged
<b>6 h at 95 °C</b>		
5 % NaOH	1.1	White spots
0.02 n NaOH	0.16	Cloudy white
0.02 n Na <sub>2</sub> CO <sub>3</sub>	0.16	Unchanged
<b>20 Min. at 23 °C</b>		
10 % HF	1.1	Spotty cloudy white
10 % NH <sub>4</sub> F x HF	0.14	Unchanged

Comparison of BOROFLOAT® 33 with selected reagents.

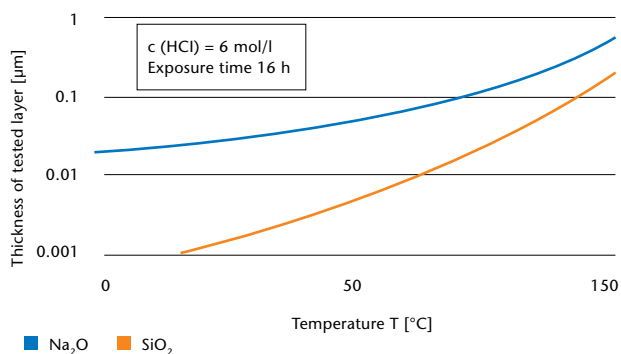
Further data and information available on request.

## Key benefits:

### High chemical durability

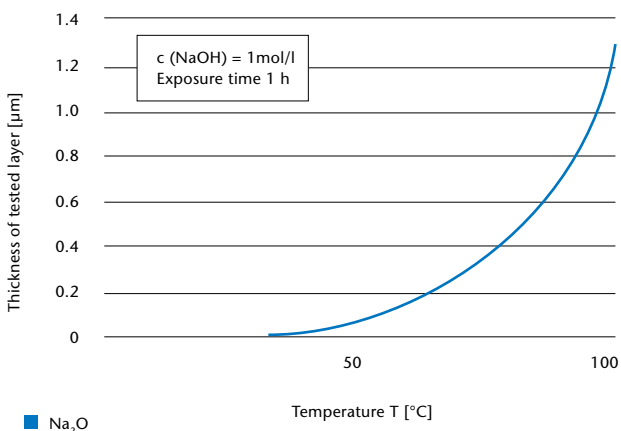
- High hydrolytic resistance
- Excellent resistance to acids
- High resistance to alkalis
- Low alkali diffusion

## Resistance to acids



Acid resistance BOROFLOAT® 33, as a function of temperature (very low loss of mass).

## Alkali resistance



Alkali resistance of BOROFLOAT® 33 as a function of temperature (moderate loss of mass).

Home Tech  
 SCHOTT North America, Inc.  
 5530 Shepherdsville Road  
 Louisville, KY 40228  
 USA  
 Phone: +1 (502) 657-4417  
 Fax: +1 (502) 966-4976  
 Email: borofloat@us.schott.com  
 www.us.schott.com/borofloat

**SCHOTT**  
 glass made of ideas