

Description:

The new alkaline-earth aluminosilicate glass AF37 is characterized by a number of exceptional physical and chemical properties. The specialty glass from Schott is alkali and arsenic free in synthesis, and has a high chemical durability. AF37 offers a high heat resistivity, resulting from the low coefficient of thermal expansion. It features a low shrinkage which is of great importance to many electronics and display applications. AF37 thin glass material is made by using advanced float glass technology. It profits from all advantages of this manufacturing process. Therefore even the natural surfaces of AF 37 show a good flatness and low micro roughness. Often the material can be utilized without an additional mechanical polishing step required, resulting in significant cost savings to the user. AF37 glass has a low thickness tolerance, a good TTV (total thickness variation) and is available even at large dimensions. As a result of its low density, AF37 is relatively light weight, which is an important advantage exceedingly in display applications.

Properties:

Refractive Index: $n_d(\lambda=587\text{nm})$ 1.52

Birefringence Constant (588nm, 21°C) $3.18 \cdot 10^{-6} \text{ mm}^2/\text{N}$

Thermal:

Thermal Coefficient of Expansion (20-300°C) $3.77 \cdot 10^{-6} /\text{K}$

Strain Point ($10^{14.5} \text{ dPa}$) 684°C

Annealing Point (10^{13} dPa) 722°C

Chemical:

Solution	5% NaOH	NH ₄ F:HF	HCl	DI H ₂ O
Temp (°C)	95	23	95	95
Reaction Time (hr)	6	.33	24	24
Loss of Weight (mg/cm ²)	1.30	0.68	0.44	<0.01

Mechanical:

Density 2.48 g/cm³

Young's Modulus 78 kN/mm²

Poisson Ratio 0.24

Vickers Hardness (2N, 25sec) 640

Electrical:

Dielectric Constant (1MHz, 25°C) 5.5

Loss Tangent (1MHz, 25°C) 0.19%

Volume Resistivity (250°C) $10^{12.4} \Omega\text{cm}$

Applications:

AF37 with its specific properties is exceptionally well suited for a number of display technologies and thin film coating applications, especially for liquid crystal displays such as Active Matrix LCD.

Flatness, parallelism, cutting tolerances, roughness, cosmetic defects and visual inspection all conform to the specifications to be agreed upon by Precision Glass & Optics and the customer.

