

SCHOTT AS 87 eco

SCHOTT AS 87 eco is an aluminosilicate glass composition suited for chemical strengthening (via an ion exchange treatment) that offers a high level of mechanical impact resistance and bending strength, as well as high resistance to scratches.

Applications

- Display cover glass
- CIS (Camera imaging)
- FPS (Fingerprint sensor)
- Touch panel glass
- Automotive interior

Technical Properties

Formats in mm x mm ¹⁾	500 x 400 440 x 360
Thickness in μm	70, 100, 145, 175, 210, 250, 300, 330, 350
Thickness tolerance in μm	± 10
TTV ²⁾ in μm	≤ 10
Warp ²⁾ in μm	$\leq 100 - \leq 1000$
Roughness in nm	< 0.5

Thermal Properties

CTE (Coefficient of thermal expansion) α in $10^{-6} \cdot \text{K}^{-1}$ (20°C; 300°C)	8.7
Mean specific heat capacity cp in $\text{J}/(\text{g} \cdot \text{K})$ (20°C to 100°C)	0.84
Transformation temperature Tg in °C	621

Viscosity lg η in dPas Temperature in °C

Strain point 14.5	594
Annealing point 13.0	633
Softening point 7.6	872

Electrical Properties

Dielectric constant ϵ_r (at $\vartheta = 25^\circ\text{C}$)	at 1 MHz	7.7
	at 1 GHz	7.3
	at 5 GHz	7.2
Dissipation factor $\tan \delta$ (at $\vartheta = 25^\circ\text{C}$)	at 1 MHz	$138 \cdot 10^{-4}$
	at 1 GHz	$133 \cdot 10^{-4}$
	at 5 GHz	$172 \cdot 10^{-4}$
Conductivity (at $\vartheta = 25^\circ\text{C}$, direct current)	in S/cm	$5.6 \cdot 10^{-12}$

¹⁾ other formats upon request

²⁾ depending on thicknesses

³⁾ strengthening parameters depend on applications and glass thicknesses; for more professional advices, please consult SCHOTT

⁴⁾ hardness measured at chemical strengthened condition

Chemical Strengthening³⁾

Capability of Compressive Stresses (CS) in MPa	> 850
Capability of Depth of Layer (DoL) in μm	> 50

Chemical Properties

Hydrolytic resistance class	HGB 2
Acid resistance class	S 4
Alkali resistance class	A 1

Mechanical Properties

Density ρ in g/cm^3 (annealed at 40°C/h)	2.46
Young's modulus E in kN/mm^2	73.3
Torsion G modulus in kN/mm^2	30.1
Poisson's ratio μ	0.216
Knoop hardness HK 0.1/20	500 (560 ⁴⁾)
Vickers hardness HV 0.2/25	550 (630 ⁴⁾)
Photoelastic constant C in $(\text{nm}/\text{cm})/\text{MPa}$	29.2

Optical Properties

Refractive index (as drawn) n_D	1.5040 ± 0.0015
Abbe value v_e	59.5

Transmittance values $\tau(\lambda)$ in %, thickness 0.175 mm

254 nm	46.3
380 nm	91.5
632.8 nm	92.1
1064 nm	92.2

Spectral Transmittance ($\lambda = 200 \text{ nm} - 3200 \text{ nm}$)

