

Corning Valor® Glass is a chemically strengthened glass with a low coefficient of friction external coating.

Table 1: Aluminosilicate Bulk Glass Composition and Characteristic Temperatures

Oxide Component	Approx. Oxide Weight [%] or ppm ¹	Viscosity (Poise)	Approx. °C
Silicon Dioxide (SiO ₂)	72–75	Working Point (10 ⁻⁴)	1310
Boron Oxide (B ₂ O ₃)	0	Softening Point (10 ^{-7.6})	900
Aluminium Oxide (Al ₂ O ₃)	9–12	Annealing Point (10 ⁻¹³)	630
Sodium & Potassium Oxide (Na ₂ O/K ₂ O)	10–13	Strain Point (10 ^{-14.5})	580
Calcium & Magnesium Oxide (CaO/MgO)	3–4.5		
Tin Oxide (SnO ₂)	0.1–1		
Iron Oxide (Fe ₂ O ₃)	<400 ppm		

¹ Glass is a substance of variable composition which, by convention, is expressed in terms of oxides.

Table 2: Glass Chemical Characteristics and Physical Properties²

Hydrolytic Resistance (ISO 719)	Meets HGB1 Criteria	Average Linear C.T.E. (10 ⁻⁷ K ⁻¹)	68
Hydrolytic Resistance ³	Meets Type I Criteria	Density (g cm ⁻³)	2.38
Soluble Alkali Test (JP 7.01)	Meets Criteria	Relative Refractive Index (at λ 589nm)	1.49
Acid Resistance Class (DIN 12116)	Class S1		
Alkali Resistance Class (ISO 695)	Class A2		

² ICH Q3D Elemental Impurities and extractables profile available upon request.

³ (Ph. Eur. (3.2.1) / USP <660>)

Table 3: Coating Chemical Characteristics and Physical Properties

Biological Reactivity / Toxicity ⁴	Meets Class V for Plastics	Appearance	Visibly Transparent, Colorless
Solubility – Aqueous or Organic Solvents	Insoluble (<0.1 µg/g)	Thickness	< 100 nm as single layer
Volatile Organic Compounds	Below MDQ (<0.5 µg/g)	Coefficient of Friction under 30N load	<0.5

⁴ (USP <87> & <88>)

Table 4: Heavy Metals / Arsenic / Antimony

Heavy Metals

Contents of Pb, Cd, Hg, Cr(VI) are below the 100 ppm limit value stated by the CONEG US Toxics in Packaging Clearinghouse (TPCH) and European Parliament and Council Directive Article 11 of 94/62/EC of 10.Dec.1994 on packaging and packaging waste with latest update (EU) 2015/720.

Arsenic and Antimony

Corning does not introduce any arsenic nor antimony in the batch composition of Corning Valor Glass. Tests performed as per U.S. and European Pharmacopoeia prescriptions on Corning Valor Glass containers give the following results:

As = Not Detectable; Sb = Not Detectable