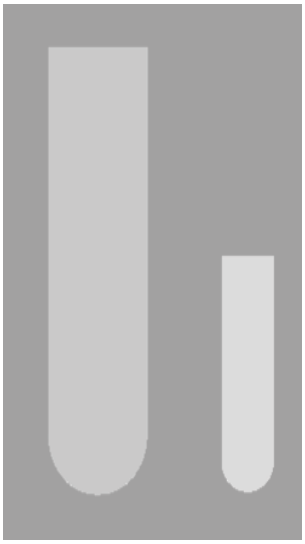
Accu-Glass

Breakable Glass Ampoules

USP Type I and III breakable glass ampoules seal critical pharmaceuticals and specialized fluids



APPLICATIONS

- Pharmaceutical packaging for emergency or home-use applications
- Mixing of multiple disparate substances
- Test kits, inhalants, or deodorizers
- Mixing reagents, fixatives, or solvents
- Cosmetics and health product packaging

FEATURES

- Long-term stability and environmental protection of contents
- Available in a wide range of custom sizes with lengths up to 100 mm
- Use of USP type I or III glass

BENEFITS

- Known, controlled quantity of fluid
- Maximizes product shelf life
- Naturally chemically inert, clean and clear
- Economical and disposable

Choosing Crushable Ampoules

Glass Types

Our ampoules are available in both USP Type I borosilicate glass and Type III soda lime. Type I is ideal for injected pharmaceuticals and acidic chemicals. Type III is economical for use in high pH liquids.

Outer Diameter and Wall Thickness

We produce product with outer diameters of 6.5 to 7.0 mm. The wall thickness is tightly controlled at 0.2 mm for strength during handling and easy crushing when needed.

Custom lengths of 40 to 100 mm are available, enabling fill volumes from 1 to 4 mL.

Finished End Quality

We flame polish the open end while closely monitoring the inner diameter. The ampoule base is controlled during flame sealing for both strength and uniform shape. These controls ensure compatibility with your filling equipment.

AG20201030-01A

AR-GLAS®

Technical Data

Glass Type/Application	soda-lime glass Pharmaceutical primary packaging, general technical application		
Physical Data (approx. value)	Coefficient of mean linear thermal expansion		
	α(20°C; 300°C) acc. to ISO 7991	9.1 · $10^{-6}K^{-1}$	
	Transformation Temperature T_g	525	°C
	Glass temperature at viscosity η in dPa · s		
	10^{13} (annealing point).....	530	°C
	$10^{7.6}$ (softening point)	720	°C
	10^{4} (working point)	1040	°C
	Density ρ at 25°C	2.50	g · cm^{-3}
Chemical Data	Hydrolytic resistance		
	acc. to ISO 719	Class	HGB 3
	acc. to Ph. Eur.	Type	III
	acc. to USP.....	Type	III
	Acid resistance (DIN 12116)	Class	S 1
	Alkali resistance (ISO 695)	Class	A 2
	ASTM E 438	Type	II

Chemical Composition
(main components in approx. weight %)

SiO_2	B_2O_3	Al_2O_3	Na_2O	K_2O	BaO	CaO	MgO
69	1	4	13	3	2	5	3

The heavy metal content for the elements lead, cadmium, mercury and hexavalent chromium is below 100 ppm.

Corning® 51-A Tubing

CORNING

Chemical and Physical Characteristics for Corning® 51-A Amber Borosilicate Glass Tubing

Table 1: Glass Composition (approximate oxide weight [%])

Oxide Component	Symbol	Corning® 51-A Tubing
Silicon Dioxide	SiO_2	70.2
Boron Oxide	B_2O_3	10.5
Aluminium Oxide	Al_2O_3	5.8
Calcium & Magnesium Oxide	CaO + MgO	1.0
Sodium Oxide	Na_2O	5.8
Potassium Oxide	K_2O	1.3
Iron Oxide	Fe_2O_3	1.0
Barium Oxide	BaO	1.4
Titanium Dioxide	TiO_2	3.0

Table 2: Chemical Resistance Classifications

Hydrolytic Resistance (Glass Grain)	EP (3.2.1B) / USP <660>	Type 1
Hydrolytic Resistance (Glass Grain)	ISO 720	HGA1
Soluble Alkali Test	JP 7.01	Complies
Acid Resistance Class	DIN 12116	Class S1
Alkali Resistance Class	ISO 695	Class A2
ASTM Laboratory Glass Class	ASTM E 438	—

Table 3: Physical Properties

Name	Unit	Corning® 51-A Tubing
Average Linear T.E.C.	10^{-7} K^{-1}	52
Density	g cm^{-3}	2.36
Relative Refractive Index	(number) *	1.50

* λ at 587.6nm