

Properties of Glass

Vials and inserts are manufactured from the highest-quality borosilicate glass, selected for its purity and dimensional stability

Clear glass type 33 expansion products are manufactured from 33 expansion borosilicate glass, have a low coefficient of expansion and very high resistance to chemical attack. It has low alkali content and is free of elements from the calcium, magnesium, and zinc group of heavy metals. The total of combined oxides of arsenic and antimony is less than 0.005%. 33 expansion borosilicate glass meets the requirements for Type I Class A glass of ASTM E438.

Chromacol GOLD glass is a low expansion high purity glass with an extremely low concentration of active sites. This gives a low activity surface with high recovery of basic and polar samples that may show adsorption on more typical glass surfaces.

Clear and Amber glass products manufactured from N-51A borosilicate glass, have a relatively low coefficient of expansion and high chemical durability. N-51A borosilicate glass meets the requirements for Type I Class B glass of ASTM E438.

Unless otherwise stated, all autosampler vials offered through this catalog (clear and amber glass) are classified as Type I in accordance with the U.S.Ph. 33th ed. and the European Ph. 7th ed, as well as other Pharmacopoeias or E.P. definitions of type 1 Hydrolytic Class Glass including e.g. the Japanese, Italian and DAB Pharmacopoeias.

Approximate Chemical Composition for Borosilicate Glass

	33 expansion and Chromacol GOLD Grade Glass	N-51 Clear Glass	N-51 Amber Glass
Silicon Dioxide (SiO ₂)	80%	75%	72%
Boron Oxide (B ₂ O ₃)	13%	11%	12%
Aluminum Oxide (Al ₂ O ₃)	3%	5%	7%
Calcium Oxide (CaO)	0.1%	2%	1%
Magnesium Oxide (MgO)	Not Detected	Not Detected	Not Detected
Sodium Oxide (Na ₂ O)	4%	7%	6%
Potassium Oxide (K ₂ O)	0.1%	Not Detected	2%
Barium Oxide (BaO)	<0.1%	1%	<0.1%

Optical Properties of Glass

