Guide to: Glassware

When ordering glassware for your department, it's easy to fall into a trap of thinking your purchase should be guided by price only... a test tube is a test tube after all, isn't it? Unfortunately glass isn't quite that simple, but hopefully our glassware buying guide will help you to select the correct type of glass to ensure safety, durability and experimental accuracy.

Types of Laboratory Glass

3.3 Borosilicate Glass
Borosilicate glass is known for having excellent thermal resistance and chemical durability. The '3.3' in it's name refers to it's low coefficient for thermal expansion – this means it is highly resistant to thermal shock, ensuring it won't crack or shatter under rapid temperature changes. 3.3 borosilicate is suitable for all types of experiments, but due to the higher cost, you might only choose to use it for heating or pressure experiments.

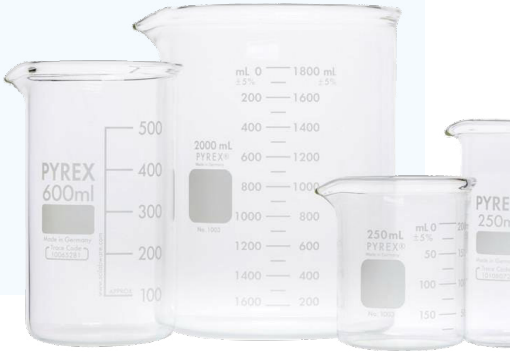
Neutral Glass
Neutral glass provides moderate chemical resistance, but has less thermal stability than 3.3 borosilicate. It can be safely used when there are gradual thermal changes e.g. gentle warming in a water bath, but should be avoided in any experiment where rapid heating or cooling is required.

Soda/Soda-Lime Glass
Soda glass is the least expensive type of laboratory glass and is widely available. It is less resistant to both heat and chemicals, when compared to other types of glass.

Think About Thickness

Glass with a thicker wall is more resistant to mechanical stress – this makes it perfect for use with vacuums or experiments which cause pressure changes.

A common misconception is that thick (or heavy) walled glass would be best for heating experiments – the thicker the wall, the more heat it must be able to handle, right? Unfortunately, not! Thicker walled glass not only leads to slower heat exchange, it can also cause some areas to have heat spikes, which may result in cracking.



SLS Select education

For more information on the wide range of glassware offered at SLS Select Education – contact your local Territory Sales Manager. Find yours at www.science2education.co.uk/team

Confused by Test Tubes?

Guide to:

Standard Tube Sizing

Type of Glass – Quick Guide:

	Advantages	Disadvantages	Best for...
3.3 Borosilicate	Can withstand high temperatures (up to approx. 500°C) High chemical resistance High durability making some suitable for pressure/vacuum experiments	Higher cost, compared to neutral and soda-lime alternatives	Heating experiments Handling and storage of corrosive substances
Neutral	Resistant to a wide range of acids, alkalis and solvents Cost effective, when compared to 3.3 borosilicate Moderate durability, making it suitable for frequent use	Lower thermal shock resistance than 3.3 borosilicate Less durable than borosilicate, making it more prone to breakage due to mechanical stress	Storage of some minimally or non-corrosive chemicals Basic experiments, which do not require rapid or extreme heating or cooling
Soda-Lime	Lowest cost and widely available	Prone to thermal shock and chemical etching Limited durability, making it unsuitable for frequent use	Disposable or single use Low-risk activities, such as mixing of non-corrosive chemicals

Full range of glassware is available on our website: **www.science2education.co.uk**