



## PRODUCT PERFORMANCE CONTAINER TESTING

It is important that containers comply with specification and general industry guidelines in order to withstand the normal stresses and mechanical abuse right through until the end user has finished using it.

GTS uses standard glass industry equipment to test for compliance to relevant guidelines or specifications whether strength, performance or dimensional conformity. When substandard performance is recorded, failure analysis techniques are used to determine why, so that suitable remedial action can be carried out. Typical tests include but are not limited to:



### VERTICAL LOAD

Forces of this nature might be produced during capping or through stacking products on top of each other. To help ensure glass containers have adequate vertical load strength, we test to BS EN ISO 8113-2004 using a Universal Testing Machine.

### IMPACT TESTING

To help ensure glass containers have an adequate impact resistance, we can test to standard manufacturing codes of practice using an industry standard AGR Pendulum Impact Tester.



### THERMAL SHOCK

Hot-fill or heat-treated glassware can be tested for thermal shock resistance to ensure the product is fit for the intended purpose. Testing can be carried out to ASTM C149 and BS EN ISO 7459 either as pass/fail test typically at 42°C downshock or progressive testing to complete sample failure.



### COATING PERFORMANCE

Assessment of surface protection can be carried out by use of slip tables and AGR hot end coating technology. The longevity of the coating performance can be assessed using our AGR line simulator, whereby bottle to bottle abrasion damage which may be expected to occur on a filling line can be replicated and the subsequent damage of the container tested. This is of particular use for returnable glassware.

### INTERNAL PRESSURE RESISTANCE

Carbonated beverage bottles need to be able to withstand without failure the pressure produced by their contents over long periods. To help establish if the bottles comply with standards such as *TEC7 (Strength and Performance Standards for the Manufacture and Use of Carbonated Beverage Bottles)*, GTS determines the burst pressures of bottles using an industry standard AGR Ramp Pressure Tester in accordance with ASTM C147.



### RESIDUAL STRAIN

Measurement of annealing stresses/residual strain to ASTM C148; GTS can also supply Standard Strain Discs.

### OTHER SERVICES

GTS carries a large range of dimensional measurement equipment, most of which is UKAS accredited, for the accurate determination of dimensional conformity, including capacity and glass thickness measurement.

Heavy metal content measurement and heavy metal release testing can be arranged for compliance with food contact standards.

*Whilst the above tests can be used to determine whether containers meet specifications, the equipment can also be used in the process of identifying the causes of problems such as poor performance, leakage, on-line breakages, line jamming, label adhesion problems, capping problems, etc.*

**If you would like further information please contact the Product Performance Department.**

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