Your Global Testing,
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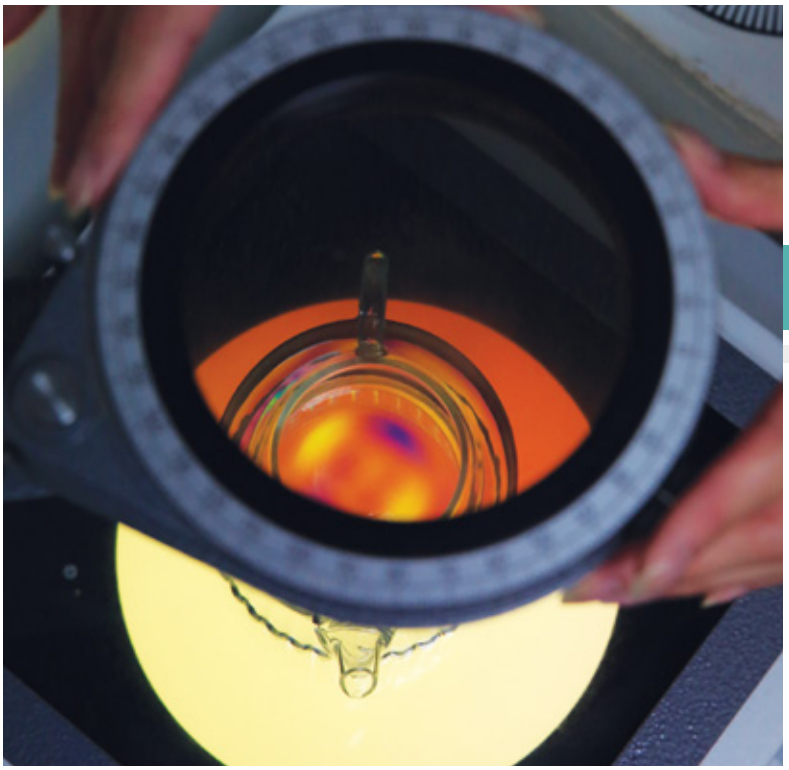
GLASSWARE TESTING

ANNEALING & THERMAL SHOCK



Produced by fusing a mixture of silica, soda and lime at high temperature, glass has been widely used in many aspects of life. Such hard yet brittle material is ubiquitous in our cooking and dining utensils, drinking vessels, ovenware, placemats, etc. To ensure high level of safety and fitness for purpose, a series of tests is deployed for the assessment of glassware.

Annealing — Relief of Internal Stresses

When shaping a molten glass into its desired form, internally built up stresses have to be relieved via a process named "annealing". Glassware that is insufficiently annealed would be liable to crack or shatter when it is in contact with a hard and abrasive object or extreme external temperature.

Pursuant to ASTM C148 Standard Test Methods for Polariscopic Examination of Glass Containers, polariscope could be used to assess the degree of stress. By passing a stream of polarized light to the glass specimen, the occurrence of yellowish or white color indicates the presence of stress. Furthermore, the glass item fails when its Real Temper Number, calculated from the degree measured by the polariscope, is greater than 2.

Thermal Shock Resistance

Thermal shock resistance is the ability of a glass-made product to endure a sudden and significant change in temperature. In accordance with BS EN1183 Method B Materials and articles in contact with foodstuffs – Test methods for thermal shock and thermal shock endurance, 10 specimens are initially immersed into a 20°C water bath, followed by incubation in a 60°C oven.

The cycle repeats with the specimens put back into the 20°C water bath and the oven at a higher temperature after each round. The test is continued until half of the specimens crack; the temperature at which exactly half of the specimens (50%) are found ruptured is recorded.

PAS 54 Specification for domestic ceramicware and glassware – Articles intended for contact with foodstuffs, and vases stipulates that no cracking shall be observed on 50% of glass items at required temperatures.

STC offers tailored testing solutions to manufacturers, distributors and retailers of glassware to ensure the products meet relevant quality and safety standards.

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