

## HS 3001 Static Loading Test

### 1. Purpose

This test method is designed to test the static loading resistance of containers. A defined loading will be evenly applied to the bottom of the up-side-down container. The deformation in height after loading is used to evaluate the static loading resistance of the container.

### 2. Terminology

#### 2.1 Disposable food /drink container

Containers of any shape are being used for temporary storage of food or beverage and disposed of after use.

### 3. Apparatus

#### 3.1 Glass plate of size 200 mm × 200 mm × 7 mm.

#### 3.2 Set of weights.

#### 3.3 Steel Rule, with an accuracy of 0.5 mm.

#### 3.4 Analytical balance, capable to measure a maximum of 2 kg with tolerance of 0.1 g.

### 4. Procedures

4.1 Perform the test in an environment of  $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  and  $50\% \pm 5\%$  relative humidity.

4.2 Determine the equivalent weight,  $W_v$ , of a test specimen container by filling the container full with water and measure the weight of that volume of water.

4.3 Place an up-side-down test specimen container (without the lid) on a working table with flat rigid surface.

4.4 Place a glass plate onto the bottom of the test specimen container.

4.5 Measure the height between surface of the table and bottom surface of the glass plate and record it as  $H_o$ , as shown in Fig 1(a).

4.6 Place a weight equal to 5 times of  $W_v$  at the top central part of the glass plate.

4.7 Measure the height between surface of the table and bottom surface of the glass plate immediately after 1 minute of time and record as  $H$ , as shown in Fig 1(b).

4.8 Calculate the % of deformation as:

$$D_h = \frac{H_o - H}{H_o} \times 100\% \quad (1)$$

4.9 Repeat the test for another two test specimens and obtain the average % of deformation,  $\bar{D}_h$ .

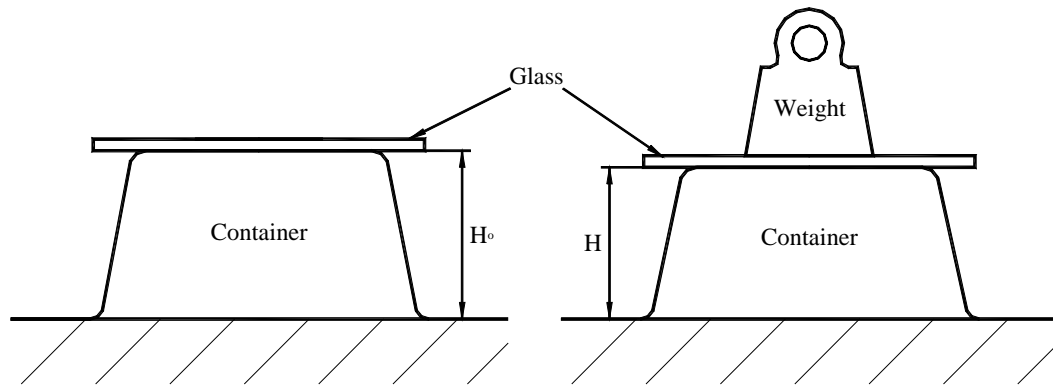


Fig 1(a) Schematic diagram of setup  
before loading.

Fig 1(b) Schematic diagram of setup  
after loading.

## 5. Results

The average % of deformation,  $\bar{D}_h$  is determined by calculating the mean of % of deformation of the three test specimens being obtained in procedure 4.7:

$$\bar{D}_h = \frac{D_{h1} + D_{h2} + D_{h3}}{3} \quad (2)$$

where  $D_{h1}$  = % of deformation of 1<sup>st</sup> test specimen,  
 $D_{h2}$  = % of deformation of 2<sup>nd</sup> test specimen,  
 $D_{h3}$  = % of deformation of 3<sup>rd</sup> test specimen

## 6. References

1. JIS S2029, Plastic Table Wares, Japanese Industrial Standards, Japanese Standards Association.
2. GB 18006.1-1999, General Specification for Single Use and Degradable Lunch Container and Drinking Set, China National Standards, China State Bureau of Quality and Technical Supervision (CSBTS).