**4024 Determination of Capacity for Glass Containers**

The capacity of glass containers includes standard capacity and overflow capacity. Standard capacity refers to the volume of water in the container when the liquid level of the filling water is flush with the scale, also known as the nominal capacity; overflow capacity refers to the volume of water in the container when the liquid level of the filling water is flush with the top of the bottle mouth.

Test environment: Both the sample and water shall be placed ~~under~~ at room temperature (22℃±5℃) for more than 30 minutes.

**Method I. Indirect method**

This method is used to determine the capacity of glass containers. By measuring the weight difference between glass containers before and after filling, the capacity of glass containers can be calculated.

**Instruments:** Analytical balance with a sensitivity of 0.1 g. (When the weight is greater than 10 g, the sensitivity should not be more than 0.25 g. When the weight is greater than 250 g, the sensitivity should not be more than 0.5 g. When the weight is greater than 1000 g, the sensitivity should not be greater than 0.125% of the weight).

**Determination** Take the clean and dry sample. Weigh the sample on the balance. Record the weight *m1* (g) and then put the test sample on a horizontal workbench. Add water to the scale (when determining the standard capacity, add water until the concave meniscus is flush with the line. When determining the overflow capacity, add water until the concave meniscus is flush with the bottle mouth of the sample). Pay attention to keep the outer wall of the sample dry. Then put the above sample filled with water on the balance to weigh, record the weight *m2* (g).

**Result Calculation** The capacity of the sample (standard capacity or overflow capacity), *V*, is calculated as follows.

*V*=(*m2*-*m1*)/*ρ*

Where, *V* is standard capacity or overflow capacity, in ml;

*m1* is the weight of the sample, in g;

*m2* is the weight of the sample with water, in g;

*ρ* is the density of water (1 g/ml ~~under~~ at room temperature).

**Method II. Direct method**

**Determination:** Take the clean and dry sample and add water to the scale (when determining the standard capacity, add water until the liquid level is flush with the line. When determining the overflow capacity, add water until the liquid level is flush with the bottle mouth of the sample.), transfer the water to a pre-standardized dry measuring cylinder (the measuring tool shall be sized such that the volume to be measured accounts for at least 40% of its rated volume), and drain as much as possible. Read out the volume of water in each sample, that is, the standard capacity or overflow capacity of each sample.

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