



Density Cup (Weight per Gallon Cup)

1. To check the actual capacity of your cup, proceed as follows:
 - Weigh the empty cup and cover or tare the balance
 - Condition the cup and distilled water to $25 \pm .5^{\circ}\text{C}$ (77°F)
 - Fill the cup within 2mm of rim with the distilled water. Carefully place the cover on the cup, seal it with a rotary motion and wipe off excess water that exudes through the hole in the cover and around the rim.
 - Re-weigh the filled cup (subtract empty cup weight from full cup weight) to find the net weight.
2. The cup factor is now calculated by dividing the net weight value from 1.0 above into 83.205.

Example: If the cup actually holds only 83.000 grams, divide 83.205 by 83.000, which equals 1.0025. Multiply all cup readings by this factor of 1.0025. In the same manner, if the cup holds 83.400 grams, divide 83.205 by 83.400, which equals 0.9977. Multiply all readings by this factor of .9977.
3. The cup is now ready to use in ASTM methods of test, e.g.: ASTM D244.
4. The HP-1108 is also a weight per gallon cup, useful to quickly and accurately determine the weight per gallon and the specific gravity of paints, lacquers, pastes, semi-pastes and other liquid or semi-liquid materials.
5. The following relationships apply to the weight per gallon cup:
 - Pounds per U.S. Gallon = Gram weight of cup contents (from 2. above) \times 0.1000.
 - Specific Gravity = Gram weight of cup contents (from 2. above) \times 0.01202.
 - Measurements are normally made at temperature of 77.0°F (25°C)
6. For compliance with ASTM D1475, calculate the container volume, mL, as the net weight from 1. above divided by the density .997072 g/mL at 77°F (25°C). Refer to the calibration procedures in that standard.