

T11 Graduated Cylinder

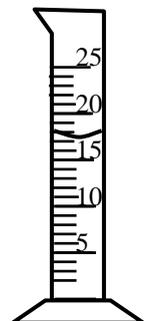


Figure T11-1 Graduated cylinder

A graduated cylinder has a narrow cylindrical shape with marked lines, which is used to measure the volume of a liquid. When a liquid is confined in a narrow tube, the surface is found to exhibit a marked curvature, called a meniscus. The eye should be level with the bottom of the meniscus. In general, the graduated cylinder is a volumetric apparatus calibrated to contain a specified volume. Graduated cylinders have no calibration lines at the section closest to the base because when the body is fused onto the base, the overall shape of the tube is distorted and accurate calibration on a production basis is not possible. Graduated cylinders are generally not used for high-quality volumetric work. **As a general rule, the heating of calibrated glass equipment, such as graduated cylinder, pipet, volumetric flask etc. should be avoided. Too rapid cooling can permanently distort the glass and cause a change in volume.**

Operation

1. Clean the graduated cylinder and rinse twice with small amount of the liquid to be taken.
2. Carefully place the liquid to be measured into the graduated cylinder with a steady stream against a wall near the calibration line, being careful not to splash.
3. When the level is just below the calibration line, stop for a few minutes to let the liquid drain from the walls of the container.
4. Use a dropper to add the liquid to the calibration line, or to draw out excess fluid.
5. Slowly incline the cylinder to provide a steady stream of liquid from the spout to transfer the liquid to another container. Be careful not to splash.

6. Continue inclining the cylinder until it is vertical and hold for about several seconds.
7. Touch the drop at the tip of the spout to the wall of the receiving container.
8. Wash and brush the graduated cylinder after use.

References

1. Shugar, G. J.; Shugar, R. A.; Bauman, L.; Bauman, R. S. *Chemical Technicians' Ready Reference Handbook*; 2nd ed.; McGraw-Hill Book Co.: New York, 1981.
2. Coyne, G. S. *The Laboratory Handbook of Materials, Equipment, & Technique*; Wiley: New York, 1992.
3. Skoog, D. A.; West, D. M.; Holler, F. J.; Crouch, S. R. *Analytical Chemistry*; 7th ed.; Saunders College Publishing: New York, 2000.