

## T6 Gravity Filtration

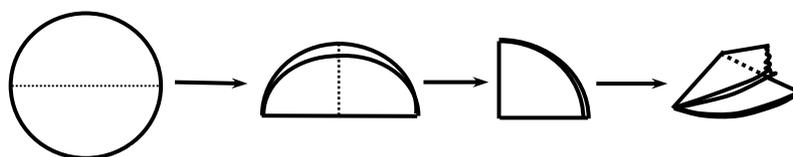


Figure T6-1 Folding a filter cone

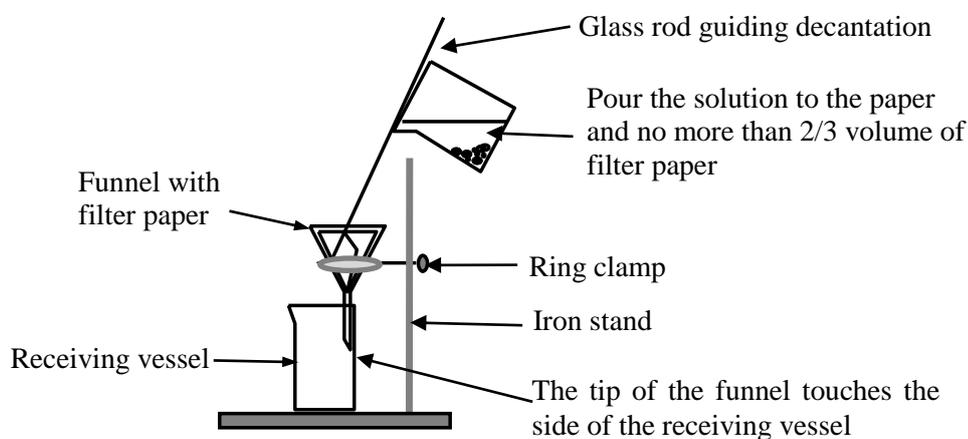


Figure T6-2 Setup of gravity filtration

In the laboratory, filtration is generally used to separate solid from a liquid to collect a solid substance from the solution from which it was precipitated or recrystallized. There are two general methods of filtration: gravity and vacuum (or suction). During gravity filtration the filtrate passes through the filter medium under the combined forces of gravity and capillary attraction between the liquid and the funnel stem. Its filtration speed is slower than that of vacuum filtration, but it is highly favored for gravimetric analysis and less rupturing of the paper.

### Operation

1. Choose a filter paper with proper size and grades, i.e. qualitative grades or ashless quantitative grades.
2. Fold the filter paper to cone shape as Fig. T6-1 shown. Tear off a small piece at corner to stick better to the funnel. Properly position the paper in the funnel, and the filter paper should not over the edge of funnel (Fig. T6-2).

3. Use a ring clamp to support the glass funnel. The tip of the funnel should touch the side of the vessel which receives the filtrate. This procedure aids the filtration and minimizes any loss of filtrate that might be caused by splashing.
4. Use a glass rod to guide liquid, and pour the liquid onto the paper not on the glass.
5. Pour the solution into the filter until the paper cone is no more than two-thirds filled. Never fill the cone completely. This precaution prevents loss of precipitate from both creep and overflow.
6. In gravimetric analysis, use a stream of wash liquid from a wash bottle to collect the solid precipitate. The last traces of precipitate are removed from the walls of the beaker by scrubbing the surfaces with a glass rod or rubber policeman.
7. After filtration, use tweezers to clip the filter paper; do not use your hand.

### 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. Pavia, D. L.; Lampman, G. M.; Kriz, G. S. *Introduction to Organic Laboratory Techniques: a Contemporary Approach*; Saunders College Publishing: New York, 1976.