TDC Part III

Practical (Lab Work)

Department of Chemistry

L.S COLLEGE MUZAFFARPUR
B. R. A. BIHAR UNIVERSITY
Dr. Priyanka

TOPIC:- Procedural glassware

Procedural glassware

A. Round-bottom (Boiling) flasks

Round-bottom flasks, or boiling flasks, are typically found in synthesis experiments, since the round shape allows for even heating and stirring. The neck typically has a female ground-glass joint and can be attached to condensers and other pieces of glassware. To prevent spills, the solution volume should not exceed 50% of the flask volume. Sizes are available from a range of 50 mL to 20,000 mL.

B. Separatory funnel

While most common to the organic chemistry lab, the separatory funnel is used to separate liquids of different densities and solubilities (Figure 1.19). The bottom of the separatory funnel is very narrow and leads to a stopcock, allowing for precise separations of liquids, while the top is very wide for ease in shaking and mixing.

Figure 1.19 Separatory funnel

C. Filter (Büchner) flask (used for vacuum filtration)

The filter flask looks like an Erlenmeyer flask, but has a hose barb near the top to attach a vacuum hose (Figure 1.20). The flask typically has thicker walls than an Erlenmeyer due to the reduced pressure (vacuum) used with the flask. Vacuum (Büchner) funnels fit into the neck of the flask using a rubber collar or a 1-hole rubber stopper.

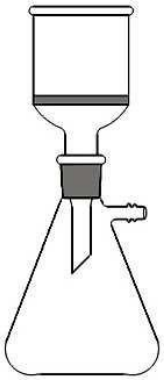

Figure 1.20 Büchner funnel

D. Funnels (used for filtering and transferring)

Traditional funnels used for gravity filtration have a wide cone-shaped body, for adding and filtering solutions, and a long narrow stem, for delivery into a flask (Figure 1.21). Filter

paper is folded into a cone shape, inserted into the funnel, and wetted with a solvent (typically water). The powder funnel has a wider stem designed for dispensing solids and viscous liquids. Filter paper is only used in conjunction with the filter funnel.

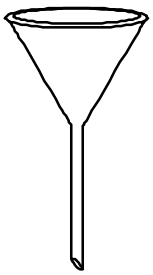

Figure 1.21 Funnel

E. Ceramics

1. Büchner funnel

The ceramic Büchner funnel fits into the filter (Büchner) flask using a rubber cone or 1- hole rubber stopper (Figure 1.22). The funnel is typically made of ceramic with pin-sized holes in the flat bottom. Filter paper is placed on top of the holes and wetted with solvent (water) to prevent solids from getting under the filter paper.

Figure 1.22 Büchner funnel

2. Crucible

A crucible is made of ceramic and holds small amounts of chemicals during heating at high temperatures (Figure 1.23). Depending on the specific type, the crucible can withstand temperatures above 1,000°C and is used in conjunction with a Bunsen burner or furnace. Common uses include heating a hydrated solid to remove water or combusting a compound to determine organic content.

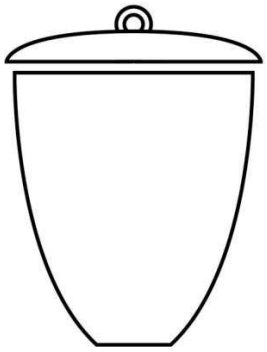

Figure 1.23 Crucible

3. Mortar and pestle

While the mortar and pestle originated in chemistry (and alchemy) laboratories, it is more common in pharmacology, biology, and culinary applications. Made of ceramic or stone, materials are placed in the bowl-shaped mortar and ground and crushed using the pestle (Figure 1.24).

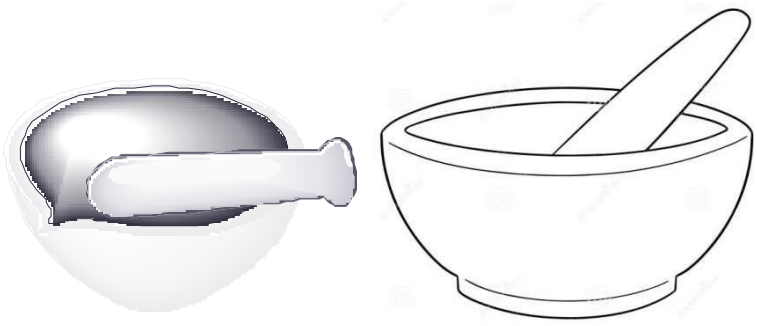

Figure 1.24 Mortar and pestle