
Büchner Funnels

Simple, slow, gravity filtration requires a piece of filter paper in a funnel. There are quicker ways to filter. The Büchner funnel is one device used for *pressure assisted* filtration. A vacuum in the flask underneath the filter allows atmospheric pressure on the liquid/solid mix to force the liquid through the filter paper. The vacuum generating device you will use is an aspirator, a simple Bernoulli-type system. The aspirators were designed to operate with water. They have been adapted to use air. When connected to the operating aspirator, the Büchner funnel has about 15 pounds per inch² pushing down on it.

To use the funnel, choose a piece of filter paper matched in size to the filter. Moisten the paper (while it's in the funnel) with the predominant solvent in the solution to be filtered (water, alcohol, mixed solvents, etc.), pouring off any excess. Place the funnel firmly into the filter flask. Turn the air on as shown in the diagram. Adjust the air flow while sampling the "pull" at the connector site on the aspirator. After adjustment is satisfactory, plug the connector from the flask to the aspirator. Always plug in *after* the air flow is

adjusted. Pour the mix to be filtered into the funnel, taking care that pouring does not physically displace the paper in the funnel. Swirl the container with the liquid/solid mix to keep solids suspended in the liquid when ready to pour. After the filtration is complete (no more liquid coming out of the bottom spout of the funnel), turn the air off.

If the filtrate is to be saved, it is ready to be poured into an appropriate container. If the precipitate is to be saved, it will usually be rinsed. The rinse is added with the connector unplugged. After the rinse is added, the connector is plugged in. After the rinse has flowed through the precipitate, the air is turned off and the precipitate is removed from the funnel. To do this with plastic funnels, pull the removable top from the body of the funnel. Sharply slapping the upside-down funnel against a piece of paper on the table will usually dislodge the precipitate and the filter paper from the funnel. Alternately, the tip of the scoopula can be used to pry the filter paper from the funnel.

