

THE SEPARATORY FUNNEL



Theodore will show you how to use a separatory funnel.

Scroll down for him to guide you through the extraction technique.

SEP FUNNEL STEP #1



Put the funnel in a ring. Make sure the stopcock is closed!

Take the precaution of putting a flask underneath in case you forget to close the stopcock later, or it leaks, or there is another mishap.

SEP FUNNEL STEP #2



There are several variations of the extraction technique that all use a separatory funnel.

This presentation shows the extraction of an orange substance from an aqueous solution into ether.

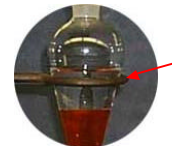
First pour the solution into the funnel.

SEP FUNNEL STEP #3



Pour in the ether. It will form a separate layer. Because ether is colorless, it is hard to see in this picture. The top of the ether layer is shown by the arrow in the detail below.

A helpful guideline: Use about equal volumes of the two liquids (here the water solution and the ether). The total volume of liquid should be about half to 3/4 the capacity of the funnel.



SEP FUNNEL STEP #4



Close the funnel with a tightly-fitting stopper. Grasp the stopper firmly in place, invert the funnel, and immediately vent by opening the stopcock.

There will be a rush of vapor and maybe a spray of liquid out of the funnel stem. For this reason, be sure not to point the stem at anyone in the lab, yourself included.

SEP FUNNEL STEP #5



Shake once or twice and vent again.



Shake a few more times and vent again.



Shake more vigorously and vent less frequently as you proceed.

SEP FUNNEL STEP #6



Put the separatory funnel back into the ring, remove the stopper, and let the layers settle.

Here you can see that most of the orange solute has been extracted into the ether, leaving behind a trace in the lower aqueous layer. (Most organic materials are colorless, and so both layers will also be colorless.)

SEP FUNNEL STEP #7



Drain off the lower layer, taking care to make as clean a separation as possible. Pour the upper layer out of the top into another container.

To obtain a higher yield of the orange substance, you can put the aqueous layer back into the funnel and do a second extraction with fresh ether.