VALENCIA COLLEGE

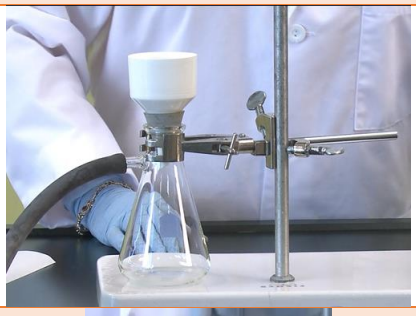
Chemistry

Lab Technique 17: Filtration by Vacuum

Filtration is a physical method of separating a suspended solid from a solution or liquid by passing the solution or liquid through a porous barrier, called a filter. Vacuum filtration uses suction to pull the solution or liquid through the paper.

Filtration by Vacuum Video link: https://www.youtube.com/watch?v=va66IrldzrU

Set Up:

Fasten the side-arm flask to the stand using the utility clamp. Connect one end of the hose to the side-arm of the flask, and the other end to the vacuum valve on the bench. Twist the hose or reposition the stand so that the flask is stable.	
Place the neoprene or rubber adapter on the top of the side-arm flask. Place the Büchner funnel through the neoprene or rubber adapter.	
Place the filter paper inside of the funnel. Inspect it to make sure that it sits flat inside the funnel, and covers all the holes in the base of the funnel.	
Wet the filter paper and turn the vacuum on by rotating the handle until it is parallel to the nozzle. Leave the water in the flask unless the experimental procedure states otherwise.	

Filtering:	
Pour the aqueous portion of the mixture, called the supernatant, into the funnel using a glass rod to direct the flow. Touch the tip of the glass rod to the inner wall of the funnel to reduce splattering. Fill it about ¾ fill. Do not let it overflow. Continue to pour solution before it completely filters through the funnel.	
Once transferred, rinse the glass rod, and use the rubber policeman to sweep the solid onto the filter paper. You can also use the water bottle to help transfer small solid particles.	 
Once the aqueous portion has filtered, rinse the solid with your wash bottle. Try to move the solid toward the center of the filter paper when rinsing it. Allow the liquid to drain. Then rinse one or two more times, allowing the liquid to drain between rinses.	
Removing Residue and Filter Paper:	
Once all the liquid has gone through, close the vacuum, and remove the hose from the flask by carefully applying pressure on the hose until the internal pressure in the flask equilibrates with the external pressure.	
Using a spatula, lift a corner of the filter paper, and then carefully remove it using your gloved hand.	 
The solid on the filter paper is called the residue. The aqueous portion is now called the filtrate. Follow the experiment's instructions regarding the residue and the filtrate.