Lab Technique - Making Mash

Safety: Burn hazard; Heating glass - Goggles

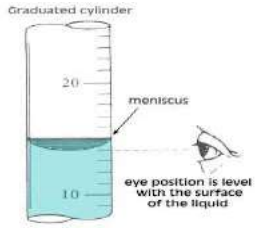
Materials:

500 ml Beaker	250 ml Beaker	large graduated cylinder	Bunsen burner	Hot mitts
stirring rod	Craft Stick	striker	wire-gauze	liquid glue
Digital Scale	funnel	White paper	Cookie cutter	
ring-stand	ring	Goggles	Aluminum Foil	

Procedure:

1. Use a **digital scale** to mass 11 g of paper. Once measured, tear up the paper into tiny shreds.

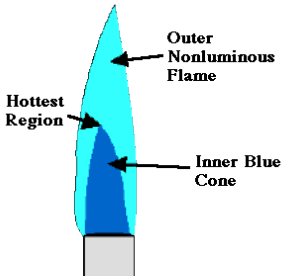
2. To use a **graduated cylinder** the volume is always read at the bottom of the meniscus with your eye at the same level as the liquid surface. The meniscus is the curbed surface of the water when the water contacts the cylinder walls.



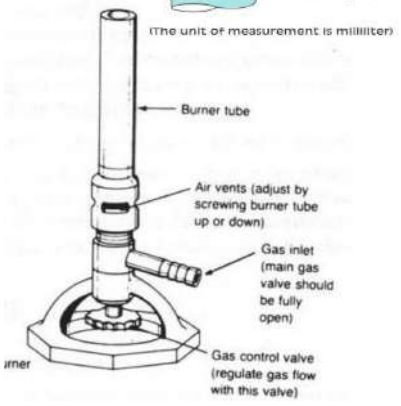
Using a graduated cylinder add 400 mL of water to a **500 ml beaker**. Add the paper shreds.

3. You will use a **Bunsen burner**. To light the burner, connect the burner to the gas outlet using tubing. Turn the gas on at the outlet by making the handle parallel to the tubing. Hold the **striker** above the burner and click it.

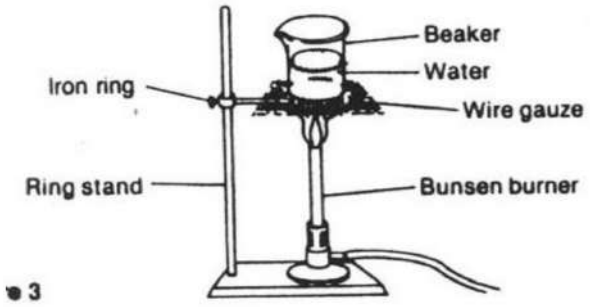
4. You adjust the height of the flame by adjusting the amount of gas that is flowing into the burner. Each Bunsen burner has a vertical tube that rotates and an adjustable valve located on the base. The ideal flame is blue in color and has a double cone.



The hottest part of the flame is at the top of the inner cone.

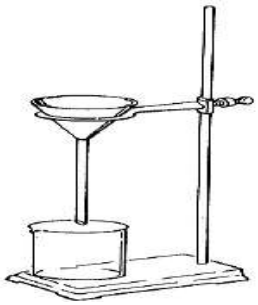


5. To boil the mash set up a **ring stand** with **ring** and **wire gauze**. The beaker goes on top of the wire gauze and the burner goes under. The top of the inner cone should be touching the bottom of the wire gauze. If you have it higher or lower you are not being efficient and it will take a longer time for the mash to boil. Wear **Goggles**!



Boil the paper until the paper is soft (5 minutes). Use a **stirring rod** to stir the mash while it's heating. After 5 minutes, use **hot mitts** to remove the mash and set it far away from the faucet. If water splashes on the beaker, it might shatter due to the heat. Turn off the burner. Using hot mitts, remove the iron ring. Place it in the sink under running water to cool it off quickly. Place the wire gauze under running water to cool it. Put the iron ring back onto the ring stand bar.

6. Set a **funnel** in the metal ring. Put the **250 ml beaker** under the funnel.
Slowly pour the mash liquid into the funnel. It will be hot! Use hot mitts.
Do not completely fill the funnel with
the liquid or it will overflow. Drain all the water out of the paper mash.
Use a stirring rod to keep the paper from falling out of the beaker.
Push the **craft stick** on the paper mash and attempt to squeeze out all liquid.
Finally, with your hand, squeeze the paper gently until it is a dry lump.
The liquid was the hot part so the solid should not be that hot.



7. Put the paper back into the beaker. Add about 20 mL of glue. Using the craft stick, stir well.

8. Put the paper and glue mixture into a cookie cutter. Lay the cookie cutter on a piece of aluminum foil for it to dry.

9. Clean out the beaker and put all your equipment away.

Conclusions:

1. What is the meniscus?

2. How do you adjust the flame of a Bunsen burner?

3. Where is the hottest part of a Bunsen burner flame?

4. Why is it safer to use a hot plate instead of a Bunsen burner when possible?

5. Why did you have to wear goggles for this experiment?