Distillation of Wood

Subject(s): Science

Grade Level: Junior High

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Time Required: 2 class periods

To let the students find out what materials are found in wood.

Materials Needed:

Bunsen burner, two test tubes, glass elbow, rubber tubing, bucket of water, safety glasses, wood splints, peg board, test tube clamp, one hole stopper

Lesson Objectives:

Overview: Heat wood without air until it breaks down into solids, liquids, and gases.

Procedure:

Day One

1. Place as many wood splints as you possibly can in one of the test tubes.
2. Place test tube in test tube clamp on peg board, horizontal to table.
3. Put one hole stopper into test tube with glass elbow and rubber tubing inserted into one hole stopper.
4. Fill the bucket half full of water.
5. Place the spare test tube in the bucket of water and fill it with water, making sure no air bubbles are present.
6. Keeping the mouth of the test tube under water, invert the test tube with the mouth pointing down.
7. Place the rubber tubing end into the mouth of the inverted test tube.
8. With your safety glasses on, begin heating the wood. Heat it for the rest of the class period.

Day Two

1. Continue to heat the wood for forty minutes.
2. After forty minutes take out the rubber tubing from the catch tube and water.
3. Extinguish the flame and let test tube cool.
4. Place solid stopper into catch test tube while still inverted and mouth of test tube is below water level. Place test tube into test tube rack.
5. Light a wood splint on fire and quickly insert it into catch test tube after removing stopper. What happens?
6. When wood test tube is cool enough, place a solid stopper in it and put it into test tube rack.
7. Observe all of the different liquids and solids collected.

Discussion:

1. What kind of gas did you collect in test tube?
2. Is there any liquid? If so, are they different kinds?
3. Will the wood from the test tube burn in open air? How would you find out?