

Percent Moisture in Wood

Subject(s): Chemistry

Grade Level: 11th - 12th

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Time Required: About 1/2 hour total, half in each of two class periods

Lesson Objectives:

Students will calculate the percentage of moisture in a sample of wood from

experimental data.

Materials Needed:

Wood chips, triple-beam balance, drying tray, drying oven.

Overview

Students will weigh a sample of wood chips, dry in an oven overnight, and reweigh to find the amount of water lost. The data will be used to calculate the percentage of water in a sample of wood.

Procedure:

Day One Students should:

1. Describe the wood chips and record your observations, including the species of tree the wood came from.
2. Find the mass of a handful of wood chips by weighing on the triple beam balance to the 0.01g. Remember to subtract the mass of the weighing paper. Record the mass of the wood.
3. Label your drying tray so that you can identify it tomorrow, and place the tray, with your chips, in the drying oven to dry overnight.

Day Two Students should:

1. Take the tray of chips out of the oven and allow them to cool until the tray can be handled without a hot pad.
2. Reweigh the chips and record the mass.
3. Calculate the percentage of water in the chips. (Divide the mass of the water by the mass of wet chips.)

Discussion:

1. Compare your answer to those of your classmates. Are they similar or different? Explain your findings.
2. How would you find the percentage of dry wood in a sample of chips?
3. Why must the sample be allowed to cool before weighing? Why is the sample not allowed to cool completely?