Ash Content

Method

1. A sample of flour or ground wheat (3 to 5 grams) is weighed and placed in an ash cup.
2. The sample is heated at 585 degrees Celsius in an ash oven until its weight is stable (usually overnight).
3. The residue is cooled to room temperature and then weighed.

Results

- Ash content is determined by high temperature incineration in an electric muffle furnace.
- When a sample is incinerated in an ash oven, the high temperature drives out the moisture and burns away all the organic materials (starch, protein, and oil), leaving only the ash. The residue (ash) is composed of the non-combustible, inorganic minerals that are concentrated in the bran layer.
- Ash content results for wheat or flour ash are expressed as a percentage of the initial sample weight; for example, wheat ash of 1.58 percent or flour ash of 0.52 percent. Wheat or flour ash is usually expressed on a common moisture basis of 14 percent.

Why is this important?

The ash content in wheat and flour has significance for milling. Millers need to know the overall mineral content of the wheat to achieve desired or specified ash levels in flour. Since ash is primarily concentrated in the bran, ash content in flour is an indication of the yield that can be expected during milling. Ash content also indicates milling performance by indirectly revealing the amount of bran contamination in flour. Ash in flour can affect color, imparting a darker color to finished products. Some specialty products requiring particularly white flour call for low ash content while other products, such as whole wheat flour, have a high ash content.

Ash crucibles and furnace.

Adapted from Method 08-01, Approved Methods of the American Association of Cereal Chemists, *10th Edition. 2000. St. Paul, MN.*

- **High temperature incineration**
- **Measures mineral (ash) content**