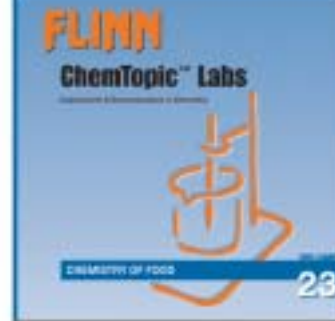


Chemistry of Food— Demonstration Summaries and Concepts



The Power of Cheese—Cheese-making Demonstration

Cheese is a food product made from milk. There are many varieties and flavors of cheese, but all cheese-making starts out the same way—with an enzyme that curdles milk. The enzyme responsible for the curdling process, called chymosin, can be produced in large quantities using biotechnology. It was one of the first “bio-engineered” products to be approved by the Food and Drug Administration. Use the power of cheese to demonstrate the power of enzymes!

Microbial Madness in Milk—Food Safety Demonstration

Every time we buy a container of milk, we honor one of the most important scientists of the 19th century. Pasteurization, the process of heating milk to destroy bacteria, is named after Louis Pasteur, who discovered that bacteria cause diseases. The importance of pasteurization is illustrated in this demonstration using a redox indicator to monitor the oxygen depletion that occurs when bacteria are allowed to grow in milk.

Nails for Breakfast—Food Additive Demonstration

Most people know that breakfast cereals are fortified with iron and other essential minerals and vitamins. What they don't know is that in some cases the iron is actually added in the form of metallic, elemental iron—nails for breakfast! In this demonstration, iron is extracted from cereal using a magnetic stirring bar and the amount of iron is compared with the nutritional label information. Reaction with hydrochloric acid and qualitative tests for dissolved iron simulate what happens when the iron dissolves in the acidic contents of the stomach.

Iodized Salt—Food Additive Demonstration

Are food additives healthy or unhealthy? This is a controversial topic in society today. Iodine, in the form of potassium iodide, was the first additive approved by the federal government for use in foods. It is added to salt to prevent thyroid diseases caused by a lack of iodine in the diet. The presence of potassium iodide in iodized salt can be detected using the classic starch test for the iodine produced when iodide ions are oxidized.

Everyone Scream for Ice Cream—Food Demonstration

Everyone loves ice cream! Take an in-school field trip to the cafeteria, gym or even outside, and discover the scientific principles that are important in making our favorite summertime dessert. The activity calls for food-grade materials from home and household zipper-lock bags. When the freezing point depression demonstration is over, it's time to eat!

Concepts

- Curds and whey
- Enzyme activity
- Cheese
- Biotechnology
- Oxidation–reduction
- Indicators
- Microbiology

- Food additives
- Iron
- Oxidation

- Food additives
- Iodine
- Thyroid hormone

- Freezing point depression
- Colloids