The digital hand-held refractometers use the refractive index to measure the brix, or sugar content, in foods. This test is based on the light bending properties of sugars.
The color is important to the aesthetic quality of a food. The Hunter Colorimeter is used to measure the color of products such as honey. It gives a number value for the color it detects.
CONSISTENCY

This test ensures that products such as applesauce and salsa are not too thick or too runny. It measures how far the product flows in a certain amount of time, normally 30 seconds.

Bostwick Consistometer
This instrument sits at a specific angle to increase the test reliability.

Adams Consistometer
The measurement is an average of the four values the product flows to.
The product is examined to ensure that there are no defects or undesirable objects in the can such as insects, seeds, stems, blemishes, or other extraneous material.
In order to make sure the correct amount of product is in the can, the liquid is drained and only the solid product is weighed.
After all other tests have been performed, the food is tasted to ensure that the flavor is normal.
Headspace is the distance between the product or liquid surface and the top of the can, jar, or bottle. It relates to the vacuum.
A hermetic seal is the airtight seal found on products such as peanut butter, syrup and catsup. The seal helps to preserve the freshness of the product and keep out microorganisms.
Maturity tests are performed on some vegetables to make sure the harvested product is not too old. The test shown here is for peas. The peas are too mature if too many sink in the salt solution.
In order to determine the weight of the food inside the can, the scale is zeroed with the given container weight. This test is to ensure that the product has the amount listed on the label.
The Chloride Analyzer is used to measure the percent salt.
The pH meter measures the acidity of products such as tomato soup or applesauce. If the food is not acidic enough, microorganisms may grow which will spoil the food or make it dangerous to eat. The target microorganism is *Clostridium botulinum* which cannot grow below pH 4.6.
The vacuum gauge punctures the can or bottle lid and measures the vacuum inside.

A vacuum is created when a can filled with hot product is sealed and the steam inside condenses. A vacuum is important because it indicates the product has been properly processed.
Each part of the can is important in order to maintain a safe and impermeable seal. If any part of the seam does not meet specifications, the entire product may be unsafe. For example, if the seam is too thick, it may indicate that there is a tightness problem.
SEAM INSPECTION

Slots are cut in the cans with a saw to create a cross section of the seam that can be examined.

The seam dimensions are measured with the computer program Seammate.
The can seam is taken off with a seam stripper so that the inside of the seam can be examined. Tightness is a measure of how well the cover hook is ironed onto the can. Tightness ratings range from 0-100% based on how deep the wrinkles are.

Good Seam: 95%

Bad Seam: 60%
A false seam occurs when the cover hook and the body hook are pressed together but are not interlocking. This defect will not be visible by looking at the can from the outside.
Knocked Down Flange

The flange is located on the top portion of the can before it is sealed. It becomes the body hook after the seam is formed. If the flange is bent before the can is sealed, it may be pushed downward, leaving a portion of the seam entirely “unhooked.”
V’s and Droops

V’s are sharp breaks and droops are rounded. If either one extends more than 50% on the seam, the can safety may be compromised.

Fractured Seam

An irregularity or defect in the metal may not be capable of withstanding the stresses involved in seam formation. This will lead to cracking of metal in the seam, which is a major defect.