

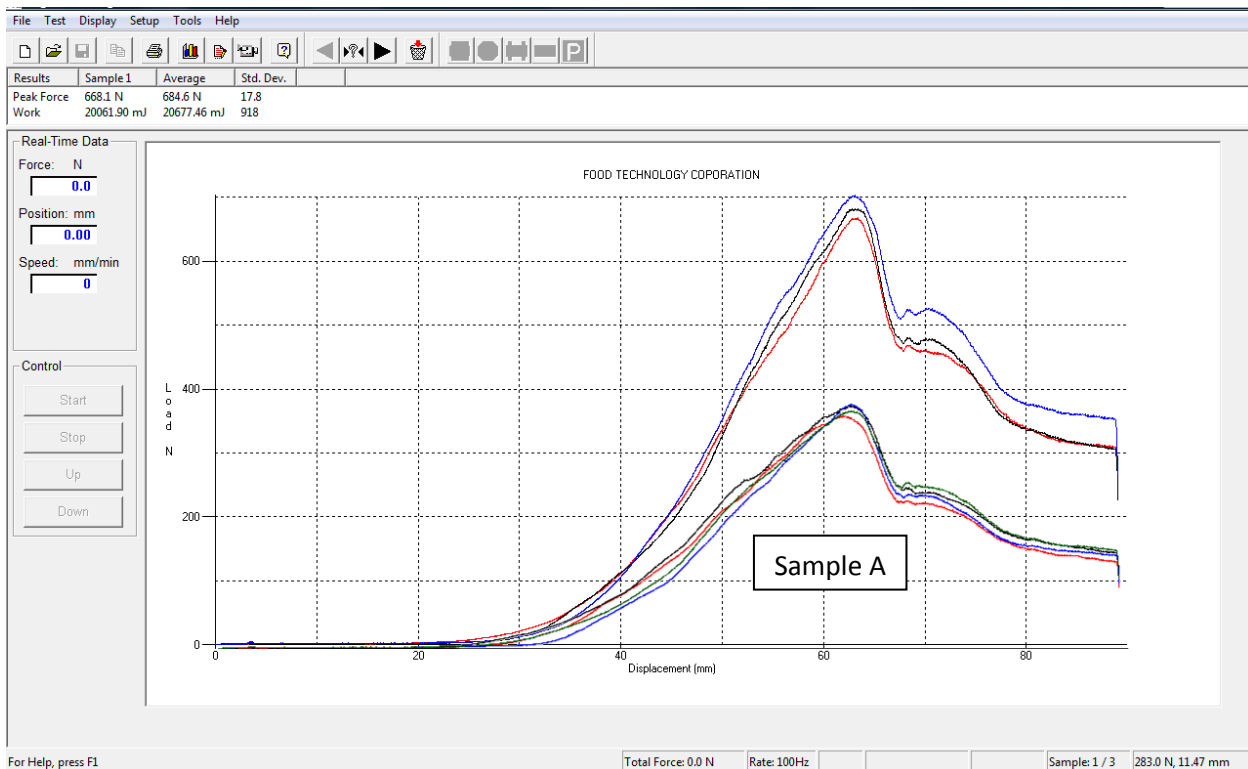
Texture Measurement of Canned Potatoes in Soup

Introduction

The texture of potatoes is especially important when producing a canned product. Firmness of the potato is an indication of how the processing affected the physical characteristics. A potato that is cooked to long will be very soft while undercooking will have the opposite effect. Being able to control this is essential due to the starchy nature of potatoes. Over processing will cause the starch to “leak” out of the potatoes and into the product. The extra starch in the product can have a detrimental effect on the product as a whole, not just the individual ingredient. The ability to consistently and objectively measure texture and relate it to sensorial characteristics is a valuable capability in controlling the process.

Test Parameters

Two samples of canned potatoes in soup were submitted for testing marked “A” and “B”. Both Sample A and Sample B were prepared for testing in exactly the same way. This was done by first pouring the product into a sieve and then rinsing the product. After being rinsed, the samples were allowed to stabilize at room temperature, (73 deg. F). For each sample test, 100g was weighed out and the evenly placed in the test cell. The tests were performed using the FTC Model TMS-Pro Texture System, equipped with an FX-2500 Newton load cell and the Model CS-1 Standard Shear Compression (Kramer) Cell. The testing speed was set to 178 millimeters per minute (7 in./min.) and the travel distance to a displacement of 89mm (3.5 in.).



	Sample A	Sample B
	Peak Force	Peak Force
Units	N	N
Sample 1	365	668
Sample 2	380	682
Sample 3	383	703
Sample 4	372	*
Average	375	685
Std. Dev.	8 (2.1%)	18 (2.6%)

Conclusions

Peak force is viewed as one of the most important values when measuring food texture. This is an indication of the firmness of the food product. One can see from simply looking at the results above that there was a significant difference between the two products. The graph illustrates this quite well. Sample A was soft while Sample B was much more firm. This could be from varying cook times, cook temperature, or even the raw incoming product.

The test data show that there was a significant and repeatable difference in the texture of the two products. The two different samples had a standard deviation that was within 10% of the average. The standard deviation is an indicator of the variability within the individual product. While these two products were very different from each other, the variability within each product was very low.

While being able to objectively measure these characteristics is important, the capability to repeat the results is equally important. This is crucial in controlling inherent variability that comes with measuring a biological product like food. The level of standard deviation between test replications of the same product, indicate that this test methodology is a valid and repeatable texture evaluation for this type of product.

While these tests were all performed with the TMS-Pro Texture System, similar results could be produced by using any the FTC Texture Systems as long as the same test cell and test speed are used.