

Microwave Cooking

Abstract

Tomatoes are rapidly heated in a microwave oven to inactivate enzymes. After heating, the tomatoes are cooled then pulped and finished. Juice maybe used for Brix, color, pH, TA, and Bostwick

Equipment:

Microwave oven, (Litton Model No. FS-14evp, 1400-watt output or equivalent oven.

This is a commercial model and is no longer available)

Microwaveable dish, Pyrex 3 qt.

Balance, 3 kg capacity, accurate to 0.1 gram.

Pulper-finisher, 0.033 in. screen, Food Processing Equipment Co., Kalamazoo, MI. (also no longer available)

Pan for ice bath 12x16x4 in.

Procedure:

Approximately 3 gallons of clean, dry whole tomatoes are required for testing. Place 1300 grams of tomatoes cut in half in the Pyrex dish. Weigh dish and tomatoes and record this number. Cover dish with saran wrap and place in center of the microwave oven. Cook the tomatoes 6 minutes on high setting, then cook an additional 6 minutes on medium setting. After cooking, the tomatoes should be soft and the skin loose.

Remove covered dish from microwave and place in a pan containing approximately 2 in. crushed ice, or ice water. The ice level should be kept 1/2-1 in. below the rim of the dish to prevent water overflow into the samples. Cool until it's easy to handle. Alternately just place the cooked tomatoes in a refrigerator overnight and finish the next morning.

Calibration:

Before the season starts, the microwaves should be calibrated to insure that they are working properly and up to full power.

- 1) One liter of water in a glass 2 liter beaker, between 17 to 27 degrees C
- 2) Cook on high for 2 minutes
- 3) Power in watts = $35 \times (T_{\text{final}} - T_{\text{initial}})$. T in degrees C. Microwaves should not vary more than 10%