**Conference for Food Protection**

**2014 Issue Form**

**Internal Number: 004**

**Issue: 2014 III-021**

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| **Council Recommendation:** | Accepted as  Submitted |  | Accepted as Amended |  | No Action |  |
| **Delegate Action:** | Accepted |  | Rejected |  |  |  |

*All information above the line is for conference use only.*

**Title:**

Reduced Minimum Temperature for Microwave Steam Cooking of Seafood

**Issue you would like the Conference to consider:**

This is a resubmission of the issue presented at the 2012 biennial meeting of the Conference for Food Protection with the addition of supporting research to answer the questions posed by Council III members. Section 3-401.12 of the 2013 edition of the FDA Food Code requires that raw animal foods, including seafood, heated via microwave energy must attain an internal temperature of at least 165°F. However, traditional steam heating of seafood products need only attain an internal temperature of 145°F. A paper was recently published that summarized the results of a study that was conducted to evaluate the effectiveness of steam heat processing of seafood within a covered pan containing water with the energy generated via microwaves [see attachment 1]. The study demonstrated that when water was added in a ratio of 30ml per pound of seafood product and placed within a covered container in a microwave oven, microwave energy effectively converted the water to steam and thoroughly cooked the product within 4 minutes (2 minutes cooking time plus 2 minutes holding time). Internal product temperatures in excess of 145°F were consistently recorded at each of seven sites along the products. The study showed that there was no appreciable difference between the cooking of seafood in a conventional steam oven and that of cooking seafood in a covered pan containing a measured quantity of water with microwaves used as the steam generating energy source.

Additional research was conducted in 2013 (publication pending in Journal of Food Protection) utilizing microwave ovens of different energy levels to evaluate the steam cooking effectiveness of each [see attachment 2]. Four microwave ovens were utilized in the evaluation including a 3200 watt commercial unit and three non-commercial units generating 1100 to 1200 watts of energy. The seafood was steam cooked for time periods of .5 to 5 minutes in each of the four microwave ovens. The results demonstrated that seafood placed within a covered container with sufficient water added to cover the bottom of the pan could be effectively and consistently steam cooked to temperatures of 145°F (without a post cook hold time). Steam cooking time was dependent upon the energy rating of the microwave oven and the amount of product placed within the covered container.

**Public Health Significance:**

The FDA Food Code permits seafood products to be safely cooked in a conventional steamer to an internal temperature of 145°F. The study referenced above demonstrated that heat transfer within seafood products via microwave generated steam in a covered pan with water added was comparable to the heat transfer within a convention steamer.

**Recommended Solution: The Conference recommends...:**

that a letter be sent to FDA requesting that the 2013 Food Code be amended as follows to address the steam cooking of seafood using microwaves as the energy source (new language underlined):

Section 3-401.15 Alternative Procedure for the Microwave Cooking of Seafood

Raw seafood steam cooked in a microwave oven shall be:

(A) Placed within a microwave safe covered container with the addition of a sufficient amount of water to cover the bottom of the pan and maintain a saturated steam environment; and

(B) Steam heated to a temperature of at least 62.8°C (145°F) in all parts of the food.

**Submitter Information:**

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**Attachments:**

* "Utilization of Steam Heat Generated via Microwave Energy"

It is the policy of the Conference for Food Protection to not accept Issues that would endorse a brand name or a commercial proprietary process.