



Connecticut Department of Public Health

Testimony Presented Before the Public Health Committee

February 20, 2015

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Senate Bill 111: An Act Concerning Sushi Rice

The Department of Public Health (DPH) provides the following information in regard to Senate Bill 111. Historically, foodservice establishments have been allowed to use time in lieu of temperature controls when preparing sushi rice. This approach has provided establishments a 4-hour window to prepare, sell, and consume the rice in a safe manner and complies with current regulatory language. The use of acidification to render a food product non-potentially hazardous is a very complex process that involves multiple controls, extensive record retention, as well as a depth of knowledge regarding this process on behalf of the establishment operator.

There is a current national standard regarding the acidification of sushi rice that has been adopted in many states, including but not limited to, Ohio, Minnesota, Kentucky and Massachusetts. This standard has been developed with guidance from the federal Food and Drug Administration and has been provided below for your reference. Acidification of sushi rice must only be allowed under the auspices of this national standard, as the failure to do so would increase the risk for foodborne disease.

Passage of Senate Bill 111 would require changes in current regulatory language found in the Public Health Code, extensive training of the 400+ Certified Food Inspectors within Connecticut regarding Hazard Analysis and Critical Control Point (HACCP) review and approval, as well as the proper use and regulatory oversight of pH meters, and the review of records.

The DPH would oppose any bill regarding the acidification of sushi rice that did not adhere to the existing national standard, and could not be implemented with available appropriations. The Department would be happy to work with the proponents of the bill to achieve mutually acceptable language that would reflect the best practices as outlined by the federal Food and Drug Administration.

Evaluation Tool for Acidified Rice HACCP Plans

(This guidance document is provided by the Connecticut Department of Public Health and is adapted from guidelines provided by the Massachusetts Department of Public Health, the Minnesota Department of Public Health, and the FDA)

Background: A HACCP plan is required for the acidification of rice as specified in §8-103.10 and §8-103.11 of the FDA Model Food Code when acidification is intended to “preserve food rather than to enhance flavor”. If the acidification of rice is for the purpose of *flavor enhancement only*, and the product is held at refrigeration temperatures (45°F or below), then a HACCP plan is NOT required. The acidified rice handles best, however, at temperatures between 70° and 80°F which is a favorable temperature range for pathogen growth.

Hazard: The hazard analysis for any sushi products must recognize the potential for the growth of *Bacillus cereus*, and related toxin formation, in cooked rice products.

About pH: A change of one unit represents a change of 10 fold in acidity. That is, a pH of 4.0 is 10 times more acidic than a pH of 5.0. Therefore, a pH of 4.3 (minimum required to control *B. cereus*) is 3 times more acidic than a 4.6 (required to control *C. botulinum*, for example). Each change in pH of **.1** is, therefore, very significant.

The FDA’s “Guide to Inspection of Acidified Food Manufacturers” 114.80 (a)(2) makes the following recommendations:

- Formulation control would have to include consideration of such things as raw material pH variability, buffering capacity of raw materials, and other variables which could affect the pH of the finished product.
- If the finished equilibrium pH of a food is above 4.0, the measurement of the finished equilibrium pH **must** be made by a potentiometric method (i.e. a pH meter). If the finished pH is 4.0 or below, any suitable method of measuring acidity may be used (i.e. pH paper is acceptable).

SOP (Standard Operating Procedures) for pH Measurement: It is imperative that one knows the accuracy of the pH meter (+/- **.1**, for example). Temperature has an effect on pH and the accuracy of pH measurement. Some pH meters do an automatic adjustment for temperature, others require a manual adjustment. There is also often a specific time required for the pH meter to be held in solution or “until the reading stabilizes” prior to taking the pH reading. The specific procedures required for the proper operation of the pH meter must, therefore, be followed in testing for pH. These factors must be addressed in the HACCP plan if an accurate **finished** pH measurement is to be obtained.

- Manufacturer instructions and specifications for pH testing and calibration must be included as part of the HACCP plan.
- A 4.0 Buffer solution, which has not passed the expiration date, must be used for calibration unless otherwise specified by the manufacturer.

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Recipe/Formulation Must Be Provided:

- Strength of the vinegar must be identified (% by volume).
- Product preparation steps must be identified.
- Ingredients, materials, and equipment used in the preparation of rice must be provided.
- Critical control points must be identified and critical limits provided.

SOP And Process Flow Diagram Must Be Provided:

- Ingredients, materials, and equipment used in product preparation must be identified in the SOP's.
- A Flow Diagram that identifies critical control points must be provided **and critical limits** must be provided on the flow diagram.

Hazard Analysis Must Be Included and Critical Limits Must Be Identified:

- Growth of *Bacillus cereus* and production of related toxins must be identified.
- Critical limit for the *finished* pH of acidified rice **must not exceed 4.3**
- Achievement of an equilibrium pH must be demonstrated through trial/laboratory testing procedures. Appropriate documentation must be provided (testing must be specific to product and processes used, i.e. ingredients and processes specific to this operation).
- The target pH must be adjusted to allow for the accuracy of the pH meter.
- The target pH must be adjusted to allow for any change in pH over time (as may be demonstrated through the above testing for an equilibrium pH).

Monitoring Procedures Must Be Identified:

- The pH of the acidified rice must be tested for each batch prior to use.
- Procedures for calibration of the pH meter and pH testing **must be provided in the SOP's**. These SOPs **must be consistent with the manufacturer's instructions** for operation of the pH meter.
- Trained person(s) should be identified for testing the pH of rice.
- Procedures for recording pH results must be identified and a pH log must be provided.

Corrective Actions and Documentation Procedures Must Be Identified:

- If the rice is not tested for pH, it must not be used until tested.
- If rice is above the critical limit, proper rework procedures must be provided.
- Processes and procedures which are "out-of-control", and must result in destruction of the product, must be identified.

Verification:

- Monitoring/process records should be reviewed daily or as needed by the Qualified Food Operator (QFO).
- The pH meter should be calibrated daily (or per manufacture recommendations) and pH log/records reviewed.
- The HACCP plan should be signed and dated and should be reviewed at least annually by QFO/ HACCP team members or when the HACCP plan is modified.

Records To Be Maintained Must Be Identified:

- The pH log for acidified rice must be maintained and suggested to be held on file for at least 90 days.
- Corrective actions must be recorded in an appropriate log.
- A calibration log must be maintained for the pH meter.
- It is suggested that any on-going laboratory test results are maintained for at least one year.

Employee Training Plan should contain the following:

- Employee health and hygiene practices.
- Cleaning and sanitizing procedures.
- Cross-contamination prevention procedures.
- Monitoring procedures for acidified rice.
- The use of the pH meter and proper testing and calibration procedures.
- Corrective actions and related appropriate procedures.
- Record keeping requirements.