

Michigan Department of Agriculture and Rural Development

Sushi Rice Acidification Retail Variance Application

A. General Information

Establishment Name			
Operator Name			
Address			
City, State, ZIP			
Phone		Email	
License Number		Date Submitted	

B. Statement of Proposed Variance

Our retail firm plans to vary from the Michigan Modified Food Code (MMFC) §3-501.16: *Potentially hazardous food (Time/Temperature Control for Safety Food), Hot and Cold Holding* by acidifying rice manufactured onsite to render the food so that it is not potentially hazardous (Time/Temperature Control of Safety Food).

This Variance Application is submitted in accordance with MMFC §3-502.11: *A food establishment shall obtain a variance from the regulatory authority as specified in § 8-103.10 and under § 8-103.11 before: (C)Using food additives or adding components such as vinegar: (2) To render a food so that it is not potentially hazardous (Time/Temperature Control of Safety Food).*

Thus, allowing the food to be stored at a temperature between 41°F and 135°F (5° and 57°C) for more than 4 hours.

Recipe: *Attach the recipe for your sushi rice to this document. Each batch must be tested on-site with a calibrated pH meter and records maintained. Attach additional recipes for each different sushi rice recipe.*

Identify the equipment needed to ensure safe food production:

- _____ pH meter with 0.1 pH accuracy (brand and model: _____)
- _____ pH 4.0 or 7.0 calibration buffer
- _____ vinegar

C. Flow Diagram for Sushi Rice Preparation

1. Receiving of ingredients, packaging materials, and labels	2. Storage of ingredients in approved areas. Label containers, as necessary.	3. Prepare ingredients. If rice is soaked in water for >2 hours, soaking must occur under refrigeration (41F or below)
4. Cook rice	5. Prepare vinegar solution, which may include vinegar, sugar, and/or salt.	6. Prepare rice for acidification. Rice may not be held for longer than 2 hours before adding vinegar.
7. Break up rice in container	8. Add vinegar solution and mix thoroughly. (CCP)	9. Check pH with pH meter, document on Sushi Rice Acidification Log.
10. If pH is 4.2 or greater, add more vinegar and check pH. Document corrective action on CA Log.	11. If pH cannot be lowered to less than 4.2, discard rice. Document corrective action on CA Log.	12. If pH is less than 4.2, rice may be held without temperature control.

Step Number 8 is the Critical Control Point for the acidification of rice.

C.1. Hazard

The main hazard in sushi rice held at room temperature is the presence of and potential growth of *Bacillus cereus* (*B. cereus*). *B. cereus* can cause vomiting and diarrhea if permitted to grow in the rice. *B. cereus* is considered a hazard in sushi rice for several reasons: 1) It is a spore forming foodborne illness bacteria; 2) Spores are often found in rice and grains; 3) Spores survive the rice cooking step; 4) After cooling, the spores can become growing bacteria and produce toxins that cause illness; 5) Sushi rice is typically kept warm in the temperature danger zone of 41°-135°F (5° - 57°C); 6) Outbreaks of *B. cereus* foodborne illness have occurred in sushi rice.

C.2. Control

The main control that prevents the growth of *B. cereus* is acidification. *B. cereus* does not grow at pH levels of 4.3 or below*. Therefore, vinegar is typically mixed well into sushi rice to reduce the pH of the rice to 4.19 or below. This control is effective only when the pH of the rice is correctly monitored by using a pH meter. Proper execution of the pH measurement as well as verification that the pH meter is accurate or calibrated ensures this control measure is effective and the sushi rice is safe.

* Reference: FDA Fish and Fishery Products Hazards and Controls Guidance 4th Edition Appendix 4. Page 420. March 2020 www.fda.gov

D. CCP Summary

D.1. Critical Limit

The rice must be acidified by adding vinegar to reach a pH of less than 4.2.

D.2. Monitoring

Each batch of acidified rice must be measured for pH using the SOPs described in Section F. Documentation of the pH measurement must be recorded on the Sushi Rice Acidification Log. If the pH is at or above 4.2, take corrective action. If pH is below 4.2, proceed with processing.

D.3. Corrective Action

If the pH measurement is greater than or equal to 4.2; repeat the measurement with a new sample. If pH is still greater than or equal to 4.2, add more vinegar to the primary container of acidified rice. Mix well and repeat the pH measurement. Repeat this corrective action until the pH is below 4.2. Record the corrective actions applied in the Corrective Action Log. If the pH cannot be lowered below 4.2, the rice must be discarded, and action recorded in Corrective Action Log.

D.4. Verification

The Person-in-Charge (PIC)*is responsible for reviewing and signing the pH Monitoring Log, the pH Meter Calibration Log and Corrective Action Log weekly. The PIC should also observe employees performing the pH measurement and recording required data periodically. Make those observation notes on the pH log.

*Record review can also be conducted by other assigned individuals

D.5. Validation

not required

D.6. Record

Records required include pH Monitoring Log, pH Meter Calibration Log, Corrective Action Log and Training Documentation Log.

An inclusive Sushi Rice Acidification Log is included with this application. If you choose not to utilize this template, you must provide the blank monitoring, verification, and corrective action logs you intend to use. A record of pH meter calibration, pH measurements, corrective actions, and PIC verifications may be kept on a single form.

Note: Once records are created, they MUST be kept for a minimum 6 months and maintained on-site.

E. Training

Each employee is required to receive training such that they understand the hazards and controls and that they may perform their role in the application of this Single Hazard Special Process Variance Application and HACCP Plan. The PIC must review sections C and D with employees and complete a hands-on training for sections D and F. Provide documentation of training for each employee as an attachment to this application. Training sessions must be recorded and shall include date, employees present, and instructor. Maintain onsite for a minimum of 6 months.

F. Standard Operating Procedures

Measuring the Acidity (pH) of Sushi Rice by Using a pH Meter

- Prepare the rice according to the approved directions, mixing thoroughly.
- Follow manufacturer instructions for calibration and maintenance of the pH meter.
- Record the calibration of the pH meter in the log.
- Measure the acidity (pH) of your sushi rice within 30 minutes after acidification by removing 100 grams (1/2 cup) of sushi rice to a clean, non-reactive food grade container and adding 900ml distilled water (tap water is not suitable); thoroughly combine for one minute and insert the calibrated pH meter probe into the slurry for the manufacturer's recommended length of time.
- Record the pH on the pH Monitoring Log.
- If pH is at or above 4.2, repeat the measurement with a new sample. If still greater than or equal to 4.2, add more vinegar to the primary container of sushi rice and repeat test until pH is measured below 4.2. Record this activity on the Corrective Action Log.
- When pH measurement is less than 4.2, sushi rice is safe to store without temperature control.
- Clean/rinse the pH probe as recommended by the manufacture before further use or storage.

_____ (*print name*), as the person in charge of _____
(*establishment name*), do certify that the above Single Hazard Special Process Variance Application
will be fully implemented as written above. This application serves as my HACCP plan.

_____ Signature _____ Date

___ = operator fill in places.

Sushi Rice Acidification Log

Name of Business:

Weekly Review by:

Date:

(signature)

Every batch must be monitored for pH and records maintained for 6 months.

Date	Time	Batch #	pH 4 Buffer	pH 7 Buffer	Rice pH	Corrective Action (If applicable)	Initials

Training Log for Sushi Rice Acidification

I, _____(name), reviewed the requirements of the Single Hazard Special Process Variance Application and subsequent HACCP Plan to be implemented at this location with the individuals listed below. Specifically, I have reviewed the critical limit for the acidification step, monitoring procedures, corrective action steps, verification processes, and record keeping requirements with the individuals listed below.

Additionally, I have completed hands-on training with the individuals listed below for the Standard Operating Procedures to be followed as described in the variance application.

List name of Employee and Date of Training

1. _____

2. _____

3. _____

4. _____

5. _____