1.0 PURPOSE
To provide information on proper brine makeup, storage and maintenance for use in brined cheese production.

2.0 SCOPE
Cheeses that require salt during production can be salted in multiple ways:

- Dry salting cheese curd prior to pressing
- Rubbing cheese wheel with dry salt after pressing
- Brining cheese wheel after pressing

Creating a brine that is properly balanced for the cheese, and well maintained to avoid quality or environmental contamination is important. This SOP applies to any cheeses produced at ________________ that require brining.

3.0 SAFETY & ENVIRONMENTAL CONSIDERATIONS
Use care with the salt and Calcium Chloride needed to create brine. Use appropriate personal protection (i.e., gloves) to avoid coming into contact with harsh brine water or chemicals. If the brine is created in a moveable container, use extreme caution when moving the brine container, so it doesn’t spill. Provide cover for brine container and utilize when brine is not in active use.

4.0 FREQUENCY
Cleaning and maintaining brine should be done after each batch of cheese is removed from the brine, and anytime it is deemed necessary. Salinity testing should be performed monthly to ensure salt content is consistent. Brine should be measured when it is at a temperature of 60°F/16°C. Brine can be sampled for microbiological makeup twice per year or whenever a problem is suspected.
5.0 RESPONSIBILITY

- **TASK**
  Making brine, maintaining and sampling for testing are performed by the cheesemaker responsible for the brined cheese.

- **VERIFICATION**
  Assistance will be provided by the _________ Manager/Head Cheese maker to ensure brine is of proper salinity and cleanliness.

- **PAPERWORK REVIEW**
  Records will be kept of brine testing and any corrective actions necessary. For review when required by regulatory agencies, or for quality purposes as needed.

6.0 SUPPLIES AND EQUIPMENT

6.1 Supplies
- 6.1.1 Warm, clean water
- 6.1.2 Non-iodized, food grade salt
- 6.1.3 Calcium Chloride
- 6.1.4 Vinegar or citric acid solution

6.2 Equipment
- 6.2.1 A clean, sanitized, non-porous, food grade container to hold the brine
- 6.2.2 Sanitized stirring tool
- 6.2.3 Measuring equipment: pH meter; salinity measurement tool (salometer); calibrated thermometer

7.0 PROCEDURE

7.1 Brine Creation
Making a new brine requires adding the right amount of salt to hot water to dissolve the salt, as well as adding Calcium Chloride and acid to properly balance the pH.

**Brine Recipe**

L hot water (up to the fill line of container), kg salt, gal 33% solution of CaCl₂, diluted citric acid or vinegar to balance the pH of cheese at brining.

Slowly dissolve salt into hot water, stirring constantly. Add CaCl₂. Measure pH, then add citric acid or vinegar to bring pH of the brine to 4.9-5.1

Cool brine to the same temperature as cheese at brining before use. Check salinity before first use.

7.2 Brine Storage
Store brine in a cool room, ideally under 13C/55F. Usually brine is stored in __________. Crystals of salt on the bottom at this temperature is a good indication of good saturation.
7.3 Brine Use/Cleaning

7.3.1 Bring the temperature of the brine to the temperature of the cheese.
7.3.2 Stir brine before use.
7.3.3 Once cheese is placed in brine, sprinkle exposed surfaces with salt.
7.3.4 When ready to remove cheese, dip the cheese below the surface of the brine, to allow excess dry salt to dissolve back into the brine. This helps replace the salt that is taken up by the cheese.
7.3.5 After use, use a colander and small pail to strain out any pieces of curd that were left behind after brining.
7.3.6 Use a clean cloth or scrubber with a small container of sanitizer. Wipe down the exposed sides and top lip of the brine container with sanitized cloth or scrubber. When finished, the brine should be clear and there should be no pieces of curd or soil on the walls or top of the brine container.
7.3.7 Periodically filter the brine (several layers of cheese cloth) to remove accumulated cheese particles.

7.4 Brine replacement

7.4.1 Brine that is clean and well-maintained can be used for a long period of time. It is properly balanced for pH/minerals and shouldn’t be discarded unless a problem is seen.
7.4.2 It is possible to pasteurize or treat brine with UV in order to clean and continue using old brine.
7.4.3 If brine is found to contain pathogens or is excessively dirty, and pasteurization or other treatment is not possible, the brine should be discarded and replaced with new brine. Smell is an important indicator of brine condition.
7.4.4 Ensure the new brine is carefully pH balanced so that the cheese entering the brine is the same pH as the brine itself. Rind problems will occur if pH isn’t balanced.

8.0 ATTACHMENT/DOCUMENTATION

Document when brine was made, and when it was filtered or replaced
Document monthly saturation /salinity test results
Document brine sampling results when tested for contaminants

9.0 SIGNATURES AND APPROVALS

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