Food Safety Plan for

Clemson Ice Cream

**Prepared by**: Kathryn Worley

**Reviewed by**: **Date**:

**Print Name**: **Title**:

**Table of Contents**

[Company Overview 3](#_TOC_250024)

[Food Safety Team 3](#_TOC_250023)

[Product Description 4](#_TOC_250022)

[Ingredients 5](#_TOC_250021)

[Flow Diagram 7](#_TOC_250020)

[Process Narrative 8](#_TOC_250019)

[Good Manufacturing Practices and Standard Operating Procedures 10](#_TOC_250018)

[Hazard Analysis 11](#_TOC_250017)

[Preventive Controls 22](#_TOC_250016)

[Process Preventive Controls 22](#_TOC_250015)

[Allergen Preventive Controls 23](#_TOC_250014)

[Sanitation Preventive Controls 25](#_TOC_250013)

[Supply-Chain Preventive Control Program 27](#_TOC_250012)

[Recall Plan 28](#_TOC_250011)

[Recall Team 28](#_TOC_250010)

[Other Important Contacts 29](#_TOC_250009)

[Recall Steps 31](#_TOC_250008)

[FDA Communication 32](#_TOC_250007)

[Draft Recall Notice 36](#_TOC_250006)

[Implementation Records and Forms 37](#_TOC_250005)

[Daily Production GMP Monitoring Records 38](#_TOC_250004)

[Ingredient Codes 39](#_TOC_250003)

[Employee Training 40](#_TOC_250002)

[Incident Report/ Corrective Action Form 41](#_TOC_250001)

Daily Sanitation Control Records 42

Semester Creamery Sanitation Tasks 43

Receiving Sheet 44

[Food Safety Plan Reanalysis Checklist 45](#_TOC_250000)

# Company Overview

‘55 Exchange is a very-small (~20 employees, less that $1 million in sales), student run facility that makes a variety of ice creams that are intended to be ready-to-eat. Some ice cream flavors include:

|  |  |  |  |
| --- | --- | --- | --- |
| Vanilla | Butter Pecan | Peach | Black Cherry |
| Chocolate | Strawberry | Lemon Custard | Coffee |
| Cookies and Cream | Orange Passion | Golden Tiger | Caramel Cookie Dough |
| Mint Chocolate Chip | Dark Chocolate Chip | Greek Vanilla Frozen Yogurt | Additional flavors available as created by students |

Product is made 1-2 days a week in a single 5-8 hour production shift. Ice cream production starts with washing, assembling, and sanitizing the machine and surrounding area, followed by production (freezing only) of the ice cream, and ends with disassembly and washing of the production space and machine.The ice cream is sold only in ‘55 Exchange as scoops or prepackaged tubs directly to the consumer. It is not sold elsewhere in any form.

### Food Safety Team

|  |  |  |
| --- | --- | --- |
| **Name** | **Position** | **Training** |
| Dr. John U. McGregor | Faculty Advisor |  |
| Sara Stancil Cothran\* | Faculty Advisor | FSPCA class |
| Kinsey MacDonald | Director of Manufacturing Operations |  |

\*Preventive controls qualified individual

### Product Description

|  |  |
| --- | --- |
| **Product Name(s)** | Clemson Ice Cream (Variety of Flavors) |
| **Product Description, including important food safety characteristics** | Clemson Ice Cream is a frozen, ready-to-eat dessert that is packaged in 3-gallon food-grade cardboard boxes and covered with a cardboard lid. Prepackaged 58 oz tubs are also hand-filled. The frozen ice cream is placed in a deep freezer, then moved to a storage freezer, and distributed to the ‘55 Exchange on campus. |
| **Ingredients** | Mix (Milk, cream, sugar, nonfat dry milk, whey, ranger stabilizer blend), and other ingredients found in tables 1-3 |
| **Packaging Used** | 3-gallon ready-to-assemble boxes with a cardboard lid or 58 oz. tub with a plastic lid. |
| **Intended Use** | Ready-to-Eat |
| **Intended Consumers** | Customers of ‘55 Exchange- Retail |
| **Shelf Life** | 1-2 years, frozen |
| **Labeling Instructions** | Keep Frozen, Label Allergens on Pre-packaged tubs (Vanilla- Contains milk)(Chocolate- Contains Milk. May Contain eggs, wheat, soy. Made in a facility that also uses peanuts and tree nuts). |
| **Storage and Distribution** | Frozen storage and retail serving directly to consumer |
| **Approved:**Print Name: | **Signature:****Date:** |

### Ingredients

***Table 1***: Shelf-Stable Ingredients used in Clemson Ice Cream

|  |  |  |
| --- | --- | --- |
| **Shelf-Stable Ingredients** | **Supplier** | **Packaging** |
| Apple strudel Base | Dippin' Flavors | 25 lb. bag in box |
| Bordeaux Cherries | Dippin' Flavors | 3 gallon pail, 25 lbs |
| Butter Pecan Syrup | Dippin' Flavors | 25 lb. bag in box |
| Butterfinger | US Foods | 3 lb. bag in box |
| Cheesecake Base | Dippin' Flavors | 25 lb. bag in box |
| Chocolate Liquid Chip | Dippin' Flavors | 25 lb. bag in box |
| Chocolate Variegate | Dippin' Flavors | 20 lb. plastic pail |
| Dutch Chocolate | Dippin' Flavors | 25 lb. bag in box |
| Emerald Green Color | Dippin' Flavors | 1 qt. HDPE plastic |
| Espresso Base | Dippin' Flavors | 25 lb. bag in box |
| Four Berry 100% Crushed Smoothie | Dr. Smoothie | 6- 46 oz plastic bottles |
| Frosted Animal Cookies | US Foods |  |
| Heath Bar | US Foods | 3 lb. bag in box |
| Nutella | Grocery Store | 13 oz plastic jar |
| Orange Extract | Dippin' Flavors | 1 gal. plastic jug |
| Oreos | US Foods | 2.5 lb. bag in box |
| Pecans | Golden Kernel |  |
| Pineapple Orange Bits | Dippin' Flavors | 25 lb. bag in box |
| Pistachio Flavor | Dippin' Flavors | 1 qt. HDPE plastic |
| Pretzels | US Foods | 7 lb. bag in box |
| Pumpkin Pie Base | Dippin' Flavors | 25 lb. bag in box |
| Reese's Peanut Butter Cups | US Foods | 5 lb. bag in box |
| Salty Caramel Variegate | Dippin' Flavors | 1 gal. plastic pail |
| Strawberry Puree | Dippin' Flavors | 25 lb. bag in box |
| Strawberry Solid Pack | Dippin' Flavors | 3 gallon pail, 25 lbs |
| Twix | US Foods | 5 lb. bag in box |
| Vanilla Extract | Lochhead | 1 gal. plastic jug |

|  |  |  |
| --- | --- | --- |
| Vanilla Wafers | US Foods | 13.3 oz. bag in box |
| White Chocolate Sauce | Dippin' Flavors | 62 oz. plastic jar |

***Table 2***: Frozen Ingredients used in Clemson Ice Cream

|  |  |  |
| --- | --- | --- |
| **Frozen Ingredients** | **Supplier** | **Packaging** |
| Cheesecake Bites | Dippin' Flavors | 20 lb. bag in box |
| Cookie Dough | US Foods | 10 lb. bag in box |
| Flav-R-Flakes | Dippin' Flavors | 35 lb. bag in box |
| Fudge Pieces | Dippin' Flavors | 25 lb. bag in box |
| Welch’s Grape Juice Concentrate | Grocery Store | 11.5 oz. can |
| Liquid Ice Cream Mix | Hunter Farms | 1 gal. plastic jugs |
| PB Truffles/Cups | Dippin' Flavors | 30 lb. bag in box |

***Table 3***: Refrigerated Ingredients used in Clemson Ice Cream

|  |  |  |
| --- | --- | --- |
| **Refrigerated Ingredients** | **Supplier** | **Packaging** |
| Banana Cream Pie Base | Dippin' Flavors | 5 gal. bag in pail, 50 lb. |
| Buttermint Background | Dippin' Flavors | 1 gal. plastic jug |
| Cappuccino Chip Blend | Dippin' Flavors | 25 lb. bag in pail |
| Caramel Variegate, Heavy | Dippin' Flavors | 50 lb. plastic pail |
| Chopped M&M | US Foods | 8 lb. bag in box |
| Graham Crunch | Dippin' Flavors | 40 lb. bag in box |
| Greek Vanilla Yogurt | Grocery Store | 32 oz. plastic jar |
| Lemon Custard Base | Dippin' Flavors | 25 lb. bag in box |
| Orange Sunset | Dippin' Flavors | 1 gal. plastic jug |
| Peach Fresh Flavor | Dippin' Flavors | 1 gal. plastic jug |
| Peaches (diced, stabilized) | Dippin' Flavors | 45 lb. bag in box |
| Snickers | US Foods | 5 lb. bag in box |

### Flow Diagram



###### Verified by: Signature: Date:

### Process Narrative

Receiving Ingredients and Packaging

Ingredients and raw materials are purchased from a broker that offers products only from verified suppliers. Ingredients are stored appropriately according to manufacturer’s requirements.

* **Receiving Packaging**: Unlabelled 3-gallon boxes and unlabelled lids are received in bulk. Unlabelled 58-oz. tubs and plastic lids are also received in bulk. Specifications require food grade material compatible for frozen foods. Visual inspection of boxes for damage upon arrival.
* Receiving Shelf-Stable Ingredients:
	+ **Dippin’ Flavors**: Ingredients shown in table 1 from Dippin’ Flavors are delivered via an unrefrigerated FedEx truck.
	+ **US Foods**: Ingredients shown in table 1 from US Foods are delivered via a refrigerated US Foods truck.
	+ **Lochhead**: Ingredients delivered via an unrefrigerated truck.
* Receiving Frozen Ingredients:
	+ **Ice Cream Mix**: Received frozen in boxes of four 1-gallon jugs of liquid ice cream mix from Hunter Farms, NC. Specifications require the pre-pasteurization of the mix for microbial reduction for vegetative pathogens. Truck must be below freezing temperatures.
	+ **US Foods**: Ingredients shown in table 2 from US Foods are delivered via a refrigerated US Foods truck. The front section of the truck has a freezer.
	+ **Dippin’ Flavors**: Ingredients shown in table 2 from Dippin’ Flavors are delivered via FedEx on dry ice.
* Receiving Refrigerated Ingredients:
	+ **Dippin’ Flavors**: Ingredients shown in table 3 from Dippin’ Flavors are delivered via an unrefrigerated FedEx truck. Unopened ingredients are ok to be shipped unrefrigerated according to Sensient Flavors QA (email attached).
	+ **US Foods**: Ingredients shown in table 3 from US Foods are delivered via a refrigerated US Foods truck.

Storing Ingredients and Packaging

* **Packaging Storage**: Unlabelled 3-gallon boxes, cardboard lids, 58-oz tubs and plastic lids are stored in the dry storage room in the production area. Packaging is used First-In-First-Out and partially used cases are taped to close during storage.
* **Shelf-Stable Ingredients**: Ingredients seen in table 1 under ingredients, are stored at room temperature (~70F). Ingredients are used First-In-First-Out and partially used cases are taped to close during storage. Dutch chocolate blend, chocolate liquid chip, apple strudel base, bordeaux cherries, butter pecan syrup, butterfinger, cheesecake base, chocolate variegate, emerald green color, espresso base, heath bar, orange extract, pineapple orange bits, pistachio flavor, pumpkin pie base, Reese’s peanut butter cups, salty caramel variegate, strawberry solid pack, strawberry puree, twix, and white chocolate sauce are refrigerated after opening. Pecans are stored in the freezer for extended shelf-life.
* **Frozen Ingredients**: Ingredients seen in table 2 under ingredients, are store in the freezer (-11F). Ingredients are used First-In-First-Out and partially used cases are taped to close during storage. Pecans and other allergens are stored on the bottom shelf in the freezer to reduce the risk of cross contamination.
* **Refrigerated Ingredients**: Ingredients seen in table 3 under ingredients, are store in the refrigerator (~35F). Ingredients are used First-In-First-Out and partially used cases are taped to close during storage. Graham crunch is stored in the freezer for extended shelf life. Nuts (peanuts and tree nuts) are stored on the bottom shelf in the cooler to reduce the risk of cross contamination.

**Thawing Mix**: Mix is moved from the freezer (-11F) to the refrigerator (35F) 5 days prior to production for thawing.

**Washing and Assembling Machine**: The unassembled machine is washed using hot, soapy water (EcoLab General Cleaner 2171 at a rate of 1 oz. per 3 gallons of water) the day of production. The water for both the sink and the hose are run for 1 minute prior to filling containers or spraying the machine. The machine pieces are then rinsed and assembled on a sanitized surface. The inside of the machine is also cleaned using a scrub brush and hot soapy water, followed by a rinse. Small pieces of the machine (such as the o-rings) are sanitized in 100 ppm solution for 2 minutes. The machine is then assembled and closed.

**Sanitize machine and other equipment**: A bucket of 100 ppm (23mL EcoLab XY-12 sanitizer in 5 gallons water) is created. The 100 ppm sanitizer is poured into the ice cream machine and the machine is turned on to high speed, pulsing for 2 minutes. The sanitizer is then empty as much as possible from the machine into another bucket. Due to the slope of the machine, water is the poured into the machine and pulsed to dilute the sanitizer residue remaining in the barrel of the machine. The remaining sanitizer water is used to sanitize all other equipment (i.e. measuring cups, spatulas, etc.).

**Assemble Boxes and Label**: Boxes are assembled and lid placed on top. The boxes are then labeled with the code date (code of mix and date of production) on the front side of the box. The flavor is then written on both the front side of the box and on the top of the lid.

Measure Ingredients:

Ingredients are transported from their storage location using a push cooler in small batches.

* **Shelf-Stable**: Ingredients are opened and measured one run before use. Ingredients used for mixing in at the end are separated from the ingredients that are included into the machine.
* **Frozen**: Ingredients are opened and measured one run before use. Ingredients used for mixing in at the end are separated from the ingredients that are included into the machine. The ingredients are then returned to the cooler until the next run.
* **Refrigerated**: Ingredients are opened and measured one run before use. Ingredients used for mixing in at the end are separated from the ingredients that are included into the machine. The ingredients are then returned to the cooler until the next run.

After use, ingredients are returned to their proper storage location.

**Sanitize, Shake, and Open Mix Jugs**: A bucket of 200 ppm (46 mL EcoLab XY-12 Sanitizer in 5 gallon water) is created. Mix jugs are shaken by hand and submerged in the sanitizer solution for a minimum of 30 seconds. The mix jugs are then opened, paying special attention to keeping the top and tamper evident sealing band attached and out of the machine.

**Add Thawed Mix and Other Measuring Ingredients to Ice Cream Freezer**: Pour mix into the machine. After mix is added, crush gallon jugs and return the tamper evident band and lid to the top of the jug to make sure all pieces are accounted for. Add the measured ingredients for the beginning of the batch.

**Freeze Ice Cream**: Turn the motor and compressor switch on. Add additional ingredients as necessary when stated on the recipe (chocolate liquid chip ~5 minutes, chocolate flav-R-flakes ~6 minutes, etc.). Allow ice cream to freeze on low speed (165 rpm) for about 6 minutes, and then increase speed (200 rpm) for the remaining 2-3 minutes, or until correct consistency. Turn the compressor switch off once correct consistency is achieved.

**Pull Ice Cream and Fill Labeled Boxes**: The ice cream is pulled from the machine into the properly labeled boxes.

**Hand Mix-In Additional Ingredients**: Additional ingredients are mixed-in by hand using a spatula.

**Deep Freezing**: Filled ice cream boxes are promptly (within 5 minutes) placed in the -40F freezer for hardening.

**Freezer Storage**: Ice cream is moved from the hardening freezers to the -11F freezer, where the frozen ingredients are stored. Ice cream with peanuts or tree nuts are stored on the lower shelves.

**Distribution**: Students distribute the ice cream by moving the ice cream from the storage freezer to the retail center using the push cooler.

### Good Manufacturing Practices and Standard Operating Procedures

See Production Training Manual

\*Note: The machine is not washed or sanitized before the next run of ice cream

# Hazard Analysis

Hazard identification (column 2) considers those that may be present in the food because the hazard occurs naturally, the hazard may be unintentionally introduced, or the hazard may be intentionally introduced for economic gain.

B = Biological hazards, including bacteria, viruses, parasites, and environmental pathogens

C = Chemical hazards, including radiological hazards, food allergens, substances such as pesticides and drug residues, natural toxins, decomposition, and unapproved food or color additives

P = Physical hazards, including potentially harmful extraneous matter that may cause choking, injury, or other adverse health effects

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **(1) Ingredient/ Processing Step** | **(2) Identify potential food safety hazards****introduced, controlled, or enhanced at this step** | **(3) Do any potential food****safety hazards require a preventative control** | **(4) Justify your decision for column 3** | **(5) What preventive control measure(s) can be****applied to significantly minimize or prevent the food safety hazard?** | **(6) Is the preventive****control applied at this step?** |
| **Yes** | **No** | **Yes** | **No** |
| Receiving Packaging | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Oreos, vanilla wafers, pretzels, frosted animal crackers] | B | None |  |  |  |  |  |  |
| C | Allergen- Wheat | X |  | Wheat is an allergen that must be labeled to inform consumers. Allergen cross- contact is an issue as flavors are made one after another. | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain wheat |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Dutch Chocolate] | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Chocolate Liquid Chip] | B | None |  |  |  |  |  |  |
| C | Allergen- Soy | X |  | Soy is an allergen that must be labeled to inform consumers. Allergen cross- contact is an issue as flavors are made one after another. | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain soy |  | X |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients- [Nutella] | B | None |  |  |  |  |  |  |
| C | Allergen- Tree Nut (Hazelnut) | X |  | Tree Nuts are an allergen that must be labeled to inform consumers. Allergen cross-contact is an issue as flavors are made one after another. | Allergen Control- Flavors containing Tree Nuts and/or peanuts are made after other flavors to reduce the likelihood that there will be cross-contamination. Proper labeling and informing consumers that all flavors (except vanilla) may contain Tree Nuts. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Vanilla Extract] | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Apple Strudel Base, Bordeaux Cherries, Espresso Base Dark Roast, Pineapple Orange Bits, Strawberry Solid Pack, Strawberry Puree] | B | None |  |  | High acid foods |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients- [Reese's Peanut Butter Cup, and Butterfinger] | B | Vegetative pathogens such as Salmonella and E. coli | X |  | Pathogens listed are known to be found in peanuts/peanut butter.These hazards must be controlled by the supplier | Supply-Chain Control- 3rd party audit | X |  |
| C | Allergen- Peanuts Allergen- Milk Allergen- Soy | X |  | Peanuts, soy, and milk are allergens that must be labeled to inform consumers. Allergen cross-contact of peanuts and soy is an issue as flavors are made one after another. Allergen cross- contact of milk is not an issue as all flavors contain milk | Allergen Control- Flavors containing Tree Nuts and/or peanuts are made after other flavors to reduce the likelihood that there will be cross-contamination. Proper labeling and informing consumers that all flavors (except vanilla) may contain soy and peanuts. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- | B | None |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Stable Ingredients [Emerald Green Color] | C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receive Shelf- Stable Ingredient Four Berry 100% Crushed Smoothie | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Twix] | B | None |  |  |  |  |  |  |
| C | Allergen- Wheat Allergen- Milk Allergen- Soy | X |  | Wheat, soy, and milk are allergens that must be labeled to inform consumers. Allergen cross-contact of wheat and soy is an issue as flavors are made one after another. Allergen cross- contact of milk is not an issue as all flavors contain milk | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain wheat and soy |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Orange Extract, Pistachio Flavor] | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Salty Caramel Variegate] | B | None |  |  |  |  |  |  |
| C | Allergen- Milk | X |  | Milk is an allergen that must be labeled to inform consumers. Allergen cross- contact of milk is not an issue as all products contain milk. | Allergen Control- Proper labeling and informing consumers that all flavors contain milk. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Cheesecake Base] | B | None |  |  | High acid food (pH ~2.5-3.1) |  |  |  |
| C | Allergen- Milk | X |  | Milk is an allergen that must be labeled to inform consumers. Allergen cross- contact of milk is not an issue as all products contain milk. | Allergen Control- Proper labeling and informing consumers that all flavors contain milk. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- | B | None |  |  | High acid food (pH 3.0-3.6) |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Stable Ingredients [Butter Pecan Syrup] | C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Heath Bar] | B | None |  |  |  |  |  |  |
| C | Allergen- Tree Nuts (almonds) Allergen- Milk Allergen- Soy | X |  | Tree Nuts, soy, and milk are allergens that must be labeled to inform consumers. Allergen cross-contact of Tree Nuts and soy is an issue as flavors are made one after another. Allergen cross-contact of milk is not an issue as all flavors contain milk | Allergen Control- Flavors containing Tree Nuts and/or peanuts are made after other flavors to reduce the likelihood that there will be cross-contamination. Proper labeling and informing consumers that all flavors (except vanilla) may contain soy and Tree Nuts. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Shelf Stable Ingredients [White Chocolate Sauce] | B | None |  |  |  |  |  |  |
| C | Allergen- Soy Allergen- Milk | X |  | Soy and milk are allergens that must be labeled to inform consumers. Allergen cross-contact of soy is an issue as flavors are made one after another. Allergen cross-contact of milk is not an issue as all flavors contain milk | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain soy. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Chocolate Variegate] | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Shelf- Stable Ingredients [Pumpkin Pie Base] | B | None |  |  | High acid food (pH 3.0-3.6) |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Frozen Ingredients [Pecans] | B | None |  |  |  |  |  |  |
| C | Allergen- Tree Nuts | X |  | Tree nuts are an allergen that must be labeled to inform consumers. Allergen cross-contact is an issue as flavors are made one after another. | Allergen Control- Flavors containing Tree Nuts and/or peanuts are made after other flavors to reduce the likelihood that there will be cross-contamination |  | X |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | P | Shells | X |  | Pecans must be shelled by supplier and fragments could remain | Supply Chain Control- Verified Supplier and 3rd Party Audit | X |  |
| Receiving Frozen Ingredients [Cheesecake Bites] | B | Vegetative pathogens such as Listeria monocytogenes | X |  | Listeria can survive in frozen temperatures. This pathogen must be controlled by the supplier | Supply Chain Control- Verified Supplier and 3rd Party Audit | X |  |
| C | Allergen- Wheat Allergen- Milk | X |  | Wheat and milk are allergens that must be labeled to inform consumers. Allergen cross-contact of wheat is an issue as flavors are made one after another. Allergen cross-contact of milk is not an issue as all products contain milk. | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain wheat and all flavors contain milk |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Frozen Ingredients [Chocolate Chip Cookie Dough] | B | Vegetative Pathogens such as Listeria monocytogenes | X |  | Cookie dough has recently been recalled due to the presence of Listeria. This pathogen must be controlled by the supplier. | Supply Chain Control- Approved Supplier and 3rd party audit | X |  |
| C | Allergen- Wheat Allergen- Soy Allergen- May contain Tree Nuts, peanuts, egg, milk | X |  | Wheat and soy are allergens that must be labeled to inform consumers. Allergen cross-contact is an issue as flavors are made one after another. | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain wheat and soy |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Frozen Ingredients [Chocolate Flav- R-Flakes] | B | None |  |  |  |  |  |  |
| C | Allergen- Soy | X |  | Soy is an allergen that must be labeled to inform consumers. Allergen cross- contact is an issue as flavors are made one after another. | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain soy |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Frozen Ingredients [Old Fashion Fudge Pieces] | B | None |  |  |  |  |  |  |
| C | Allergen- Peanuts |  |  | Peanuts are an allergen that must be labeled to inform consumers. Allergen cross- contact is an issue as flavors are made one after another. | Allergen Control- Flavors containing Tree Nuts and/or peanuts are made after other flavors to reduce the likelihood that there will be cross-contamination. Proper labeling and informing consumers that all flavors (except vanilla) may contain |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | peanuts. |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Frozen Ingredient [Grape Juice Concentrate] | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Frozen Ingredients [Peanut Butter Truffles/Cups] | B | Vegetative pathogens such as Salmonella and E. coli | X |  | Pathogens listed are known to be found in peanuts/peanut butter.These hazards must be controlled by the supplier. | Supply-Chain Control- approved supplier, 3rd party audit | X |  |
| C | Allergen- Peanuts Allergen- Soy Allergen- Milk | X |  | Peanuts, soy, and milk are allergens that must be labeled to inform consumers. Allergen cross-contact of peanuts and soy is an issue as flavors are made one after another. Allergen cross- contact of milk is not an issue as all flavors contain milk | Allergen Control- Flavors containing Tree Nuts and/or peanuts are made after other flavors to reduce the likelihood that there will be cross-contamination. Proper labeling and informing consumers that all flavors (except vanilla) may contain soy and peanuts. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Frozen Ingredients [Liquid Ice Cream Mix] | B | Vegetative pathogens such as Salmonella | X |  | Raw milk has a history of association with Salmonella. Pasteurization by the supplier can control the hazard | Supply-Chain Control- approved supplier, 3rd party audit | X |  |
| C | Allergen- Milk | X |  | Milk is an allergen that must be labeled to inform consumers. Allergen cross- contact of milk is not an issue as all products contain milk. | Allergen Control- Proper labeling and informing consumers that all flavors contain milk. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Refrigerated Ingredients [Banana Cream Pie Base] | B | None |  |  | pH=4.2 and Brix = 60 |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Refrigerated Ingredients [Snickers] | B | Vegetative pathogens such as Salmonella and E. coli | X |  | Pathogens listed are known to be found in peanuts/peanut butter and in eggs. These hazards must | Supply-Chain Control- approved supplier, 3rd party audit | X |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | be controlled by the supplier |  |  |  |
| C | Allergen- Peanuts Allergen- Milk Allergen- Soy Allergen- Egg | X |  | Peanuts, soy, and milk are allergens that must be labeled to inform consumers. Allergen cross-contact of peanuts and soy is an issue as flavors are made one after another. Allergen cross- contact of milk is not an issue as all flavors contain milk | Allergen Control- Flavors containing Tree Nuts and/or peanuts are made after other flavors to reduce the likelihood that there will be cross-contamination. Proper labeling and informing consumers that all flavors (except vanilla) may contain soy, egg, and peanuts. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Refrigerated Ingredients [Heavy Caramel Variegate Sauce] | B | None |  |  | High sugar content |  |  |  |
| C | Allergen- Milk | X |  | Milk is an allergen that must be labeled to inform consumers. Allergen cross- contact of milk is not an issue as all products contain milk. | Allergen Control- Proper labeling and informing consumers that all flavors contain milk. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Refrigerated Ingredients - [Lemon Custard Base] | B | Vegetative pathogens such as Salmonella | X |  | Salmonella is known to be found in eggs. These hazards must be controlled by the supplier | Supply-Chain Control- approved supplier, 3rd party audit | X |  |
| C | Allergen- Egg Allergen- Milk | X |  | Egg and milk are allergens that must be labeled to inform consumers. Allergen cross-contact is an issue as flavors are made one after another. Allergen cross- contact of milk is not an issue as all flavors contain milk | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain egg and all flavors contain milk. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Refrigerated Ingredients [M&M's] | B | None |  |  |  |  |  |  |
| C | Allergen- Soy Allergen- Milk | X |  | Soy and milk are allergens that must be labeled to inform consumers. Allergen cross-contact of soy is an issue as flavors are made one after another. Allergen cross-contact of milk is not an issue as all flavors contain milk | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain soy and all flavors contain milk. |  | X |
| P | None |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Receiving Refrigerated Ingredients [Sunset Orange Color] | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Refrigerated Ingredients [Peaches, Diced and Stabilized] | B | None |  |  | High Acid Food (pH=3.7) |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Refrigerated Ingredients [Buttermint Background, Peach Fresh Flavor Extract] | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Receiving Refrigerated Ingredients [Greek Vanilla Yogurt] | B | None |  |  |  |  |  |  |
| C | Allergen- Milk | X |  | Milk is an allergen that must be labeled to inform consumers. Allergen cross- contact of milk is not an issue as all products contain milk. | Allergen Control- Proper labeling and informing consumers that all flavors contain milk. |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Refrigerated Ingredients [Graham Crunch] | B | None |  |  |  |  |  |  |
| C | Allergen- Wheat | X |  | Wheat is an allergen that must be labeled to inform consumers. Allergen cross- contact is an issue as flavors are made one after another. | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain wheat |  | X |
| P | None |  |  |  |  |  |  |
| Receiving Refrigerated Ingredients [Cappuccino Chip Blend] | B | None |  |  |  |  |  |  |
| C | Allergen- Soy Allergen- Milk | X |  | Soy and milk are allergens that must be labeled to inform consumers. Allergen cross-contact of soy is an issue as flavors are made one after another. Allergen cross-contact of milk is not an issue as all flavors contain milk | Allergen Control- Proper labeling and informing consumers that all flavors (except vanilla) may contain soy. |  | X |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | P | None |  |  |  |  |  |  |
| Storing Packaging Ingredients | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Storing Shelf- Stable Ingredients | B | None |  |  |  |  |  |  |
| C | Allergen cross- contact during storage | X |  | Peanuts and tree nuts are stored on the bottom shelf in order to reduce the likelihood of cross-contact to other ingredients. Vanilla is stored in a separate location (window sill). Cross-contact of vanilla (allergen free except milk) is unlikely. | Allergen Control- Visual inspection that ingredients are stored in the proper location | X |  |
| P | None |  |  |  |  |  |  |
| Storing Frozen Ingredients | B | Vegetative pathogens | X |  | If temperature is not kept within range, possible pathogen growth | Process Control- Temperature Monitoring | X |  |
| C | Allergen cross- contact during storage | X |  | Peanuts and tree nuts are stored on the bottom shelf in order to reduce the likelihood of cross-contact to other ingredients. Vanilla is stored in a separate location (window sill). Cross-contact of vanilla (allergen free except milk) is unlikely. | Allergen Control- Visual inspection that ingredients are stored in the proper location | X |  |
| P | None |  |  |  |  |  |  |
| Storing Refrigerated Ingredients | B | Vegetative pathogens | X |  | If temperature is not kept within range, possible pathogen growth | Process Control- Temperature Monitoring | X |  |
| C | Allergen cross- contact during storage | X |  | Peanuts and tree nuts are stored on the bottom shelf in order to reduce the likelihood of cross-contact to other ingredients. Vanilla is stored in a separate location (window sill). Cross-contact of vanilla (allergen free except milk) is unlikely. | Allergen Control- Visual inspection that ingredients are stored in the proper location | X |  |
| P | None |  |  |  |  |  |  |
| Thaw Mix | B | Vegetative pathogens |  |  | If temperature is not kept within range, possible | Process Control- Temperature Monitors |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | pathogen growth |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Wash, Assemble, and Sanitize Machine | B | Environmental pathogens such asL. monocytogenes and S. aureus | X |  | Recontamination may occur if environmental control or GMPs are not followed | Sanitation Control- training on GMPs | X |  |
| C | Residual Chemicals | X |  | Rinsing residual soap from machine and allowing ample time for sanitizer to exit the machine should be sufficient | Sanitation Control- training on GMPs | X |  |
| P | None |  |  |  |  |  |  |
| Assemble and Label Boxes | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Measure Ingredients | B | Environmental pathogens such asL. monocytogenes and S. aureus | X |  | Recontamination may occur if environmental control or GMPs are not followed | Sanitation Control- training on GMPs | X |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Sanitize Jugs, remove lids | B | None |  |  |  |  | X |  |
| C | None |  |  |  |  |  |  |
| P | Plastic lids and tamper evident plastic tabs | X |  | Small pieces are easy to fall into ice cream machine | Process Control- Keep lid and tamper evident tabs attached, visual inspection | X |  |
| Add thawed mix and ingredients to batch freezer | B | Environmental pathogens such asL. monocytogenes and S. aureus | X |  | Recontamination may occur if environmental control or GMPs are not followed | Sanitation Control- training on GMPs | X |  |
| C | None |  |  |  |  |  |  |
| P | Spatulas or other equipment | X |  | Students may lose grip of spatulas when scraping all the ingredients | Process Control- Visual Inspection |  | X |
| Freeze ice cream until correct consistency | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | P | None |  |  |  |  |  |  |
| Pull ice cream into labelled boxes | B | None |  |  |  |  |  |  |
| C | Undeclared Allergens | X |  | Improper labeling of the flavor can lead to undeclared allergens | Allergen Control- Visual Inspection | X |  |
| P | None |  |  |  |  |  |  |
| Hand Mix-In Additional Ingredients | B | Environmental pathogens such asL. monocytogenes and S. aureus | X |  | Recontamination may occur if environmental control or GMPs are not followed | Sanitation Control- training on GMPs | X |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Deep Freezing | B | Growth of environmental pathogens |  | X | Product is frozen in under 1 hour and pathogens won't grow in frozen product |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Frozen Storage | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Distribution | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |

## Preventive Controls

##### Process Preventive Controls

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Process Controls** | **Hazard(s)** | **Criteria** | **Monitoring** | **Corrective Actions** | **Verification** | **Records** |
| **What** | **How** | **Frequency** | **Who** |
|  |  |  |  |  |  |  | If all lids and tabs |  |  |
|  |  |  |  |  |  |  | are not accounted |  |  |
|  |  |  |  |  |  |  | for 1) turn off |  |  |
|  |  |  |  |  |  |  | machine from the | Faculty |  |
|  |  |  |  | Recapping |  |  | main power | advisor, | Corrective |
|  |  |  |  | all mix |  |  | source. 2) empty | PCQI, or | Action |
|  |  |  |  | jugs with |  |  | machine, ensuring | production | Records, |
|  | Plastic | All lids and |  | tab and lid |  |  | plastic is removed | manager | Verification |
|  | from lids or | tabs must |  | after |  |  | 3) identify root | reviews and | Records, |
| Remove | tamper | be | Number of | emptied | Every |  | cause 4) conduct | initials | Production |
| lids from | evident | accounted | tabs and | into | production | Production | training to prevent | records | Monitor |
| mix jugs | tabs | for | lids | machine | run | Staff | recurrence | monthly. | Records |
|  |  |  |  |  |  |  | If all equipment is |  |  |
|  |  |  |  |  |  |  | not accounted for |  |  |
|  |  |  |  |  |  |  | or in good |  |  |
|  |  |  |  |  |  |  | condition 1) turn |  |  |
|  |  | All |  | Making |  |  | off machine from | Faculty |  |
|  |  | spatulas |  | sure all |  |  | the main power | advisor, | Corrective |
|  |  | and |  | equipment |  |  | source. 2) empty | PCQI, or | Action |
|  |  | equipment |  | is in good |  |  | machine, ensuring | production | Records, |
| Add thawed |  | must be |  | condition |  |  | plastic is removed | manager | Verification |
| mix and | Spatulas or | accounted |  | (spatulas |  |  | 3) identify root | reviews and | Records, |
| ingredients | other | for and in |  | not | Every |  | cause 4) conduct | initials | Production |
| to batch | physical | good | Pieces of | missing a | production | Production | training to prevent | records | Monitor |
| freezer | hazards | condition | equipment | piece) | run | Staff | recurrence | monthly. | Records |
|  |  |  |  |  |  |  |  | Weekly |  |
|  |  |  |  |  |  |  |  | review of |  |
|  |  |  |  |  |  |  |  | temperature | Thermomete |
|  |  |  |  |  |  |  | If temperature is | monitor log by | r calibration |
|  |  |  |  |  |  |  | not within range 1) | faculty | records, |
|  |  |  |  |  |  |  | check actual | advisor, | verification |
|  |  |  |  |  |  |  | thermometer | PCQI, or | records, |
|  |  |  |  | Continuou |  |  | reading 2) identify | production | corrective |
| Storing |  | Temperatu |  | s |  |  | root cause 3) | manager. | action |
| Refrigerate |  | re must be | Temperatur | temperatur |  | Temperatu | calibrate | Yearly | records, |
| d | Growth of | between | e of walk-in | e |  | re monitor | thermometers as | thermometer | temperature |
| Ingredients | pathogens | 33-41F | cooler | monitoring | Continuous | system | necessary | calibration | log (online) |
|  |  |  |  |  |  |  |  | Weekly |  |
|  |  |  |  |  |  |  |  | review of |  |
|  |  |  |  |  |  |  |  | temperature | Thermomete |
|  |  |  |  |  |  |  | If temperature is | monitor log by | r calibration |
|  |  |  |  |  |  |  | not within range 1) | faculty | records, |
|  |  |  |  |  |  |  | check actual | advisor, | verification |
|  |  |  |  |  |  |  | thermometer | PCQI, or | records, |
|  |  |  |  | Continuou |  |  | reading 2) identify | production | corrective |
|  |  |  |  | s |  |  | root cause 3) | manager. | action |
| Storing |  | Temperatu | Temperatur | temperatur |  | Temperatu | calibrate | Yearly | records, |
| Frozen | Growth of | re must be | e of walk-in | e |  | re monitor | thermometers as | thermometer | temperature |
| Ingredients | pathogens | below 20F | freezer | monitoring | Continuous | system | necessary | calibration | log (online) |

#### Allergen Preventive Controls

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Allergen Controls** | **Hazard(s)** | **Criteria** | **Monitoring** | **Corrective Actions** | **Verification** | **Records** |
| **What** | **How** | **Frequency** | **Who** |
| Storing Shelf- Stable, Refrigerated, and Frozen Ingredients | Cross-contact of ingredients without allergens | Nut (tree nut and peanuts) are stored on bottom shelf | Proper storage location of nut allergen ingredients | Visual inspection that ingredients are stored on bottom shelf | Each Production | Production Manager or designee | If allergen product is stored in the wrong place: 1) move ingredient to proper location2) retrain employee on proper storage | Faculty advisor, PCQI, orproduction manager reviews and initials records monthly. | Corrective Action Records, Verification Records, Production Monitor Records |
| If cross-contact occurs: 1)isolate the ingredient. 2) label any products that include the ingredient that the allergen is present. |
|  |  |  |  |  |  |  | If label is |  |  |
|  |  |  |  |  |  |  | incorrect |  |  |
|  |  |  |  |  |  |  | 1)segregate |  |  |
|  |  |  |  | Visual |  |  | product, inspect |  |  |
|  |  |  |  | inspection |  |  | back to last good | Faculty |  |
|  |  |  |  | of all |  |  | check, relabel | advisor, | Corrective |
|  |  |  |  | finished |  |  | the boxes with | PCQI, or | Action |
|  |  |  |  | product |  |  | proper flavor. 2) | production | Records, |
|  |  |  |  | boxes to |  |  | identify root | manager | Verification |
|  |  | Correct |  | ensure |  |  | cause. 3) | reviews and | Records, |
| Pull ice cream |  | flavor | Label | proper | Each |  | conduct | initials | Production |
| into labeled | Undeclared | printed | matches | flavor | Production | Production | retraining as | records | Monitor |
| boxes | allergens | on box | product | labeling | Run | Staff | necessary | monthly. | Records |

Allergen Declaration

* Vanilla- Contains milk.
* All other flavors (not containing nuts)- Contains milk. May contain soy, egg, or wheat. Processed in a facility with peanuts and tree nuts.
* All other flavors (containing nuts)- Contains milk. May contain soy, egg, wheat, peanuts, and/or tree nuts.

A sign is posted in the store to inform customers of the allergens. The label on the 58 oz. tubs declares the allergens as listed above.

Allergen Scheduling and Cleaning Implications

|  |  |
| --- | --- |
| **Flavor** | **Intentional Allergens** |
| **Egg** | **Milk** | **Soy** | **Wheat** | **Tree Nuts** | **Peanuts** | **Fish** | **Shellfish** |
| Vanilla |  | X |  |  |  |  |  |  |
| Chocolate |  | X |  |  |  |  |  |  |
| Dark Chocolate Chip |  | X | X |  |  |  |  |  |
| Cookies & Cream |  | X |  | X |  |  |  |  |
| Mint Chocolate Chip |  | X | X |  |  |  |  |  |
| Lemon Custard | X | X |  |  |  |  |  |  |
| Orange Passion |  | X |  |  |  |  |  |  |
| Butter Pecan |  | X |  |  | X |  |  |  |
| Strawberry |  | X |  |  |  |  |  |  |
| Black Cherry |  | X |  |  |  |  |  |  |
| Coffee |  | X |  |  |  |  |  |  |
| Golden Tiger |  | X |  |  |  |  |  |  |
| Greek Vanilla Fro-Yo |  | X |  |  |  |  |  |  |
| Cheesecake |  | X |  | X |  |  |  |  |
| Banana Pudding |  | X |  | X |  |  |  |  |
| Caramel Cookie Dough |  | X | X | X |  |  |  |  |
| English Toffee Heath |  | X | X |  | X |  |  |  |
| Hot Apple Pie |  | X |  | X |  |  |  |  |
| Chocolate Fudge Brownie |  | X |  |  |  | X |  |  |

\*More flavors available. Allergens are listed in the hazard analysis for each individual ingredient. Because of the large variety of flavors and allergens, we focus on eliminating the cross-contact of peanuts and tree nuts, and all other flavors may contain wheat, soy, and/or eggs. Milk is present in all flavors so is not a concern.

Scheduling Implications:

Standard practice is to run vanilla first to reduce the potential for cross-contact of all allergens (other than milk). Flavors not containing peanuts and/or tree nuts are run following the vanilla to reduce the potential for allergen cross-contact of nuts. Finally, flavors containing peanuts and/or tree nuts are run last.

Allergen Cleaning Implications:

A full allergen cleaning and sanitation is **required** AFTER the production of flavors containing peanuts and/or tree nuts because they contain the unique allergen of peanuts and/or tree nuts.

#### Sanitation Preventive Controls

**Objective:** To address 1) cleanliness of food contact surfaces and 2) prevention of allergen cross-contact and cross-contamination.

Ice Cream Freezing Machine (barrel and other parts)

* **Purpose**: Cleaning and sanitizing of the ice cream freezing machine is important to remove potential allergens and reduce microbial cross-contamination or recontamination with environmental pathogens that may impact product safety.
* **Frequency**: Machine and pieces are cleaned and sanitized before beginning production. All equipment is recleaned after production the same day.
* **Who**: Production staff member(s)
* **Procedure**: Cleaning
	1. Remove gross soil by spraying with water
	2. Wipe surface of barrel with a white bristle cleaning brush, dipped in EcoLab 2171 General Cleaner (1 oz. per 3 gallon water).
	3. Wash pieces of unassembled machine with a white bristle cleaning brush, dipped in EcoLab 2171 General Cleaner (1 oz. per 3 gallon water).
	4. Rinse barrel and pieces of unassembled machine with clean hot water. Detergent remaining on the surface can inactivate the sanitizer.

Sanitizing

1. Sanitize pieces of unassembled machine by dipping in 100 ppm EcoLab XY-12 Sanitizer (hypochlorite) for 2 minutes.
2. Sanitize barrel of machine by pouring 100 ppm EcoLab XY-12 Sanitizer (hypochlorite) into the assembled machine and pulsing the dasher for 2 minutes.
* **Monitoring**: Inspect the pieces of machine and the barrel for residual soil and cleanliness. Record on Daily Sanitation sheet.
* **Corrections**: If residual soil is observed on the machine or pieces, reclean and sanitize.
* **Records**: Daily sanitation Sheet
* **Verification**: Supervisor reviews and signs Daily Sanitation Sheet within 10 working days.

Ingredient Preparation Table Sanitation

* **Purpose**: Cleaning and sanitizing of the ingredient preparation table is important to remove potential allergens and reduce microbial cross-contamination or recontamination with environmental pathogens that may impact product safety.
* **Frequency**: Table is cleaned and sanitized the before beginning and at the end of daily production.
* **Who**: Production staff member
* **Procedure**: Cleaning
	1. Remove gross soil with a cloth.
	2. Wipe surface of table with a yellow bristle cleaning brush, dipped in EcoLab 2171 General Cleaner (1 oz. per 3 gallon water).
	3. Rinse table with clean hot water. Detergent remaining on the surface can inactivate the sanitizer.

Sanitizing

1. Sanitize table by spraying with 200 ppm EcoLab XY-12 Sanitizer (hypochlorite) and let sit.
2. Allow to air dry.
* **Monitoring**: Inspect the table for residual soil and cleanliness. Record on Daily Sanitation sheet.
* **Corrections**: If residual soil is observed on the table, reclean and sanitize.
* **Records**: Daily sanitation Sheet
* **Verification**: Supervisor reviews and signs Daily Sanitation Sheet within 10 working days.

Environmental Sanitation

* **Purpose**: Cleaning the floors is important to reduce microbial cross-contamination or recontamination with environmental pathogens that may impact product safety.
* **Frequency**: Daily, after production
* **Who**: Production staff member
* Procedure:

Note: Separate tools are used for floors because of the potential for higher levels of contamination. All floor cleaning supplies are red.

Cleaning

1. Remove gross soil with squeegee
2. Scrub floor using a red bristle brush, or mop with a disposable mop head and EcoLab General Cleaner 2717 and hot water. Change mop head as necessary.
3. Rinse floor with clean, hot water.
4. Squeegee floors until dry.
* **Monitoring**: Inspect the floor and surrounding area for residual soil and cleanliness. Record on Daily Sanitation sheet.
* **Corrections**: If residual soil is observed on the floor or walls, reclean and sanitize.
* **Records**: Daily sanitation Sheet
* **Verification**: Supervisor reviews and signs Daily Sanitation Sheet within 10 working days.

#### Supply-Chain Preventive Control Program

Approved Suppliers for Ingredients Requiring a Supply-chain-applied Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Ingredient (requiring supply- chain- applied control)** | **Approved Supplier** | **Hazard(s) requiring supply- chain-applied control** | **Date of Approval** | **Verification Method** | **Verification Records** |
| Reese's Peanut Butter Cup, Snickers and Butterfingers | US Foods | Pathogens such as Salmonella and E. coli are known to be found in peanuts/peanut butter. |  |  |  |
| Peanut Butter Truffles/Cups | Dippin' Flavors | Pathogens such as Salmonella and E. coli are known to be found in peanuts/peanut butter. | 11/17/2016 | 3rd Party Audit | Audit Certification in Records |
| Liquid Ice Cream Mix | Hunter Farms | Vegetative pathogens such as Salmonella | 12/8/2016 | 3rd Party Audit | Audit Certification in Records |
| Lemon Custard Base | Dippin’ Flavors | Pathogens such as Salmonella | 11/17/2016 | 3rd Party Audit | Audit Certification in Records |

Receiving Procedure for Ingredients Requiring a Supply-chain-applied Control

* **Purpose**: Ensure that all ingredients requiring a supply-chain-applied preventive control are received from approved suppliers with appropriate preventive controls in place.
* **Frequency**: Each delivery
* **Who**: Stocker
* Procedure:
	1. Verify that each load of ingredients was produced by the approved supplier by checking the bill and manufacturer's name on the cases received.
	2. Write the ingredients received, how many, and the ingredient codes.
	3. Document on receiving sheet.
* **Corrections**: Any product requiring supply chain control that is not from a verified supplier must be sent back or verified by testing that ingredients are ok.
* **Records**: Receiving sheet
* **Verification**: Within 5 working days after receiving the order by Manager, PCQI, or Faculty Advisor.

Other Supply Chain-Verification

* A copy of each ingredient specification must be kept on file.
* DHEC Plant Reports must be kept on file.
* Reports include the following:
	+ Date Sample was collected by DHEC
	+ Date Sample was plated
	+ Temperature of sample at both collection and receival
	+ Ice cream flavor
	+ Ice cream code
	+ Standard Plate Count/mL (must be less than 250 estimated)
	+ Coliform Count (must be less than 1 estimated)
	+ Phosphatase (must be less than 1 ug/mL if tested)

# Recall Plan

#### Recall Team

Dr. Johnny McGregor

*Faculty Advisor and Senior Operations Manager*

johnny@clemson.edu Mobile: (864) 650-0817

Office: (864) 656-3397

Fax: (864) 656-0331

Sara Stancil Cothran

*Faculty Advisor and Senior Sales Manager, PCQI*

sstanci@clemson.edu Mobile: (864) 508-0875

Kinsey MacDonald

*Student Director of Operations* kinseym@g.clemson.edu Mobile: (803) 807-6835

Theresa Pometto

*Student Director of Sales* tcpometto@g.clemson.edu Mobile: (515) 298-0878

Bruce Rushton

*South Carolina Department of Health and Environmental Control (DHEC)*

rushtobw@dhec.sc.gov

Bonita Chester

*FDA Recall Coordinator- Resident in Charge*

300 Executive Center Dr., Suite 200 B, Greenville, SC 29615 Office: (864) 234-9966

Fax: (864) 234-0806

Updated information of the local FDA recall coordinator: ([http://www.fda.gov/downloads/ICECI/Inspections/IOM/UCM123522.pdf)](http://www.fda.gov/downloads/ICECI/Inspections/IOM/UCM123522.pdf%29)

#### Other Important Contacts

Retail Center- ‘55 Exchange

Hendrix Student Center- 720 McMillan Rd, Clemson, SC 29634 (864) 656-2155

Suppliers

See tables 1-3 in the background section for information on ingredient and supplier relationships.

* *Dippin’ Flavors*

Mary McCole- mary@lilar.com

1820 South 3rd Street, St. Louis, MO 63104 1-800-886-DIPN (3476)

* *Hunter Farms*

Dwight Moore, Director- dmoore@harristeeter.com 1900 North Main Street, High Point, NC 27262 336-889-1363

* *US Foods*

Billy Hilger- william.hilger@usfoods.com 800 Food Service Drive, Fort Mill, SC 29715 1-800-624-5244

* *Lochhead Vanilla*

Darian Rottmann- darian@lochheadvanilla.com 527 Axminster Drive, Fenton, Missouri 63026

Office: 618-524-4398 Cell: 618-645-2770

* *Golden Kernel Pecan Company*

David Summers or Bill Summers

5244 Cameron Road, Cameron, SC 29030

(803) 823-2311

Deciding if a Recall Action is Necessary Flowchart

#### Recall Steps:

Once it has been determined that a recall is necessary, follow these steps:

Step 1: Assign Responsibilities

Assemble the recall team to determine who will be responsible for each task.

Step 2: Gather Evidence

Gather lab test results (if applicable) and customer complaints.

Step 3: Analyze Evidence

Determine the root cause of the recall.

Step 4: Remove recalled ice cream from ‘55 Exchange Retail Center.

Bring recalled ice cream back to a designated recall spot (top loading freezer) in the production space **IF** it will not put other products at risk. If it will put other products at risk, carefully note how many 3- gallon boxes and 58-oz. tubs of each flavor were removed from the store, with their product codes and flavors. Take pictures as evidence as to what recalled products were removed.

Step 5: Inform FDA

Communicate with the FDA about the recall. Form templates are following.

Step 6: Contact Suppliers (if applicable)

If the root cause was due to a contaminated ingredient, inform the supplier of the recall via email or fax. Supplier information is listed under “Other Important Contacts” above. A draft letter to be sent to the suppliers follows.

Step 7: Inform Customers

Public contact listed in the recall team will Inform customers if there is a possibility that their ice cream tub is contaminated. Let the customer know the code date (located on the bottom of the tub) and flavor. Customers will be informed via the ‘55 Exchange Website ([www.clemson.edu/icecream).](http://www.clemson.edu/icecream%29) Also inform all customers via the website that if they were affected by the product (had the effects of the recall after consuming the product) to call Dr. Johnny McGregor.

Step 8: Monitor the recall

Determine how many of the 58-oz tubs were sold and how many 3-gallon boxes of ice cream were produced, sold, and still remaining in inventory. Maintain a log of all decisions made throughout the recall. This can be done by looking at the production run sheet to see how much ice cream was made. The difference between the amount made and amount still in inventory is how much was sold.

Step 9: Dispose of the product

After determining that all of the recalled product has been removed from the store, dispose of by following the procedure under “Product Destruction” in FDA Communication.

Step 10: Apply for termination of the recall

Speak to the FDA Recall Coordinator (information above) to get proper documentation.

Step 11: Debrief

Set up a meeting with the recall team to discuss the recall and how things went. Discuss how to improve on the recall plan.

Step 12: Prepare for Legal Issues

Contact an attorney for any legal issues that may arise.

Step 13: Reanalysis of Food Safety Plan is Required

Corrective action to ensure that the same recall does not happen again involves analyzing the food safety plan. The plan may need modification, and/or employees may need to be retrained to enhance the implementation effectiveness.

Product Destruction/Reconditioning

* Method of Destruction
	+ Bag ice cream into black plastic trash bags. Throw ice cream into landfill.
* Contact the local FDA District recall Coordinator (found under “other important contacts”) prior to product destruction. FDA will review the proposed method of destruction and may choose to witness the destruction.
* Keep documentation, such as photos, of product destruction (and whether the destruction was witness by FDA investigator).

#### FDA Communication

Fill in the following pages. Send the following information to the local FDA District Recall Coordinator (found above in Recall Team).

Recalling Firm

‘55 Exchange Creamery (Manufacturing) Newman Hall, Clemson, SC 29634 Manufacturer, Own-Label Distributor

‘55 Exchange is a student run enterprise. It services the university campus through serving homemade ice cream to customers of ‘55 Exchange Retail Operation. The ice cream is frozen on campus and brought to the retail center using a large push cooler and sold only to customers of ‘55 Exchange Retail Center. The ice cream is never shipped by ‘55 Exchange or sold/distributed off campus. Customers may buy tubs of ice cream in the retail center on campus to take home.

55 Exchange Contacts

|  |  |  |
| --- | --- | --- |
| **Position** | **Name, Title** | **Contact Information** |
| Recall Coordinator and Public Contact | Dr. John U. McGregor Faculty Advisor | Mobile: (864) 650-0817Office: (864) 656-3397 |
|  |  | Fax: (864) 656-0331 |
|  |  | Email: johnny@clemson.edu |

Recalled Product Information

|  |  |
| --- | --- |
| **Product Name(s) / Flavor(s)** | Clemson Ice Cream - **Flavors** |
| **Product Description, including important food safety characteristics** | Clemson Ice Cream is a frozen, ready-to-eat dessert that is packaged in **3-gallon cardboard boxes and covered with a cardboard lid.****Prepackaged 58 oz tubs are also** hand-filled. The frozen ice cream is placed in a deep freezer, then moved to a storage freezer, and distributed to the retail store on campus. |
| **Ingredients** | Liquid Ice Cream Mix (Milk, cream, sugar, nonfat dry milk, whey, ranger stabilizer blend), **and other ingredients found in tables 1-3** |
| **Packaging Used** | **3-gallon ready-to-assemble boxes with a cardboard lid or 58 oz. tub with a plastic lid.** |
| **Intended Use** | Ready-to-Eat |
| **Intended Consumers** | Customers of ‘55 Exchange- Retail |
| **Expected Shelf Life** | 1-2 years, frozen |
| **Labeling Instructions** | Keep Frozen |
| **Storage and Distribution** | Frozen storage and retail serving directly to consumer |
| **Product Number(s) Involved** *Ice Cream Mix Code* followed by the Date (MM/DD/YY)Ex. *07516*071916 |  |
| **Approved:**Print Name: | **Signature:****Date:** |

\*Bolded Text=Add necessary information for the recall. Include:

* Individual package label: (**2** pictures of the labeled 3-gallon box and/or 58 oz. tubs). The pictures should include a picture of the packaging with the code (and where to find it) and the flavor.

Reason for the Recall

|  |  |
| --- | --- |
| Explain in detail how product is defective or in violation |  |
| Explain how the defect affects the performance and/or safety of the product. Include an assessment of the health risk associated with the deficiency, if any. |  |
| If recall is due to a foreign object (physical hazard), describe the object's’ size, composition, hardness, and sharpness. |  |
| If the recall is due to a contaminant (cleaning fluid, etc.) explain the level of contaminant in the product. Provide the MSDS for the contaminat. |  |
| If the recall is due to failure of the product to meet product specifications, provide the specifications and report all test results. Include copies of sample analysis, if applicable. |  |
| If the recall is due to a label/ingredient issue, provide and identify the correct and incorrect label(s), descriptions(s), and formulation(s). |  |
| Explain how the problem occurred and the date it occurred. (e.g. mishandling, |  |
| Explain if the problem/defect affects ALL units subject to recall, or just a portion of the units in the production run. (e.g. all flavors after ). |  |
| Explain why this problem affects only those products subject to recall. (e.g. flavor was made after other flavors) |  |
| Provide detailed information on complaints associated with the product/problem:* Date of complaint
* Description of complaint (including injury or illness)
* Product Number Involved
 |  |
| Health Hazard associated with the product |  |
| If South Carolina DHEC is involved in this recall, identify contact. |  |

Volume of Recalled Product

|  |  |
| --- | --- |
| Total quantity produced |  |
| Date(s) produced |  |
| Quantity Distributed to ‘55 Exchange |  |
| Date(s) distributed (approx.) |  |
| Quantity on Hold |  |
| Indicate how the product is being quarantined |  |
| Estimate amount remaining in the marketplace (if all 3-gallon boxes have been removed from the store, estimate 0 3-gallon boxes. If tubs are effected, determine the amount of tubs sold after the recalled tubs had been brought to the store). |  |
| Provide the disposition of the marketed product (e.g. destroy). |  |

**Distribution Pattern**: ‘55 Exchange only distributes to the 1 retail location in Hendrix Student Center on Clemson University Campus. Clemson’s Ice Cream is not sold under Government Contract or to a school lunch program.

Consignee List

*Retail Center- ‘55 Exchange*

Address: Hendrix Student Center- 720 McMillan Rd, Clemson, SC 29634 Contact Name: Sara Stancil Cothran or Student Director of Sales

Retail Center Phone: (864) 656-2155

Recalled Product was Delivered? Recalled Product was Sold?

Effectiveness Check

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Consignee** | **Recall Contact (name and contact info)** | **Date Contacted** | **Method of contact (phone, email, fax, letter, website)** | **Date of response** | **Number of products returned** |
| ‘55 Exchange Retail Center | N/A (within house) |  | Face-to-Face |  |  |
| ‘55 Exchange Customers | N/A |  | Website | Keep a list (name, date, response) of all customers |  |

Recall effectiveness = 100 x (# product recovered/ total product distributed)

#### Draft Recall Notice

**‘55 Exchange Voluntarily Recalls Clemson [Flavors] Ice Cream Representing [X] Quantity**

[No Other Product Affected]

Contact [Name] [Phone/Email]

**FOR IMMEDIATE RELEASE**- [date] - ‘55 Exchange is voluntarily recalling [quantity] of [boxes/tubs] of [Flavor, specific description] ice cream with product code [code]. [Insert reason for recall].

This action relates only to ‘55 Exchange products with any of these flavors and codes printed on the package:

* [Insert code date]
* [Flavors]

Only these specific codes are impacted. Retail is asked to remove all product with codes listed below out of sales immediately. Customers should dispose of the product by [how] and call the number listed above. Anyone with questions may call the number listed or visit our website for further instructions.

‘55 Exchange is conducting this voluntary recall because [product name(s)] [reason for recall]. [Modify as necessary. We have not received any reports of illness associated with this product, but we are voluntarily recalling this product out of caution.]

‘55 Exchange promotes itself on it’s high quality, and safe ice cream. [Insert more]

For more information or assistance, please contact us at [phone] (Monday to Friday, 9:00 a.m. to 5:00 p.m. EST) or via email at [email].

# Implementation Records and Forms

Implementation records and forms used for Preventive controls include the follow:

* Monitoring records for preventive controls
	+ Personal Practices
	+ Ingredient Codes
	+ Employee Training
	+ Daily Sanitation Control Records
* Incident Report/ Corrective action records
* Supply-chain program records
	+ Ingredient Specifications from Supplier (updated as new specs arise or new ingredients are added)
	+ DHEC Test Results
	+ 3rd Party Audit Certifications
* Training records for the qualified individuals
* Food Safety Plan Reanalysis Report

#### Daily Production GMP Monitoring Records

Instructions:

**Monitoring procedure**: During every production, the production manager monitors to ensure each requirement is met. Put a check in the box if OK. Put an X in the box if something is WRONG.

**Corrective actions**: If requirements are not met, the monitor takes corrective action (ex. verbal warning, retrain, etc.) and records on this sheet.

|  |  |  |
| --- | --- | --- |
| **#** | **Requirement** | **Date** |
|  |  |  |  |
| 1 | Employees come to work clean and follow good personal hygienic practices during work |  |  |  |  |
| 2 | Employees follow hand washing procedure and wash hands frequently |  |  |  |  |
| 3 | Employees wear designated clothing in good repair and follow clothing, headwear, and footwear procedures |  |  |  |  |
| 4 | Employees report to management any injury occurred during work and cover it to prevent cross contamination |  |  |  |  |
| 5 | Employees with a transmittable disease do not handle food or work in production area |  |  |  |  |
| 6 | Visitor access to facility is controlled |  |  |  |  |
| 7 | Visitors follow personnel practices policy |  |  |  |  |
| 8 | All lids and tamper evident tabs off mix jugs are accounted for |  |  |  |  |
| 9 | Boxes are properly labeled with the correct flavor |  |  |  |  |
| 10 | Ingredients are stored in proper location (nut allergens) |  |  |  |  |
|  | **Initials** |  |  |  |  |
| **Corrective Actions** |
| **Date** | **Deviation** | **Corrective Action** | **Corrected By:** |
|  |  |  |  |

Reviewed by: Date:

#### Ingredient Codes

|  |
| --- |
| **Daily Production Ingredient Codes** |
| **Directions:** Fill in any lot #, manufacture/expiration date that you can find on the ingredient package.Please note: unknown symbols should not be used on this sheet. If unsure, write a note. |
| **Mix Code:** |  |
| **Ice Cream Flavor** | **Ingredient** | **Code** | **Manufacture/ Expiration Date** |
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#### Employee Training

Training Description:

Date of Training:

By signing below, I acknowledge that I am responsible for knowing and understanding all information provided during this training session. I will ask if I have any further questions to clarify.

|  |  |  |  |
| --- | --- | --- | --- |
| **Print Trainee Name** | **Trainee Signature** | **Trainer Initials** | **Date** |
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| Verification Reviewer Signature: | Date of Review: |  |

### Incident Report/ Corrective Action Form

This includes personal injury/safety, food quality and/or safety.

\*Personal injury must also complete University Form.

Completed by:

**NOTE:** When an incident occurs, management must be notified immediately. Follow up by filling in this form and giving it to management.

###### Information on the incident

###### Date:

###### Time of incident:

###### Nature of incident:

###### Location of incident:

###### Employee name:

###### Description of the incident:

(Complete this section only if the incident affected food safety.)

###### Supervisor’s name:

###### Shift:

###### Product affected:

###### Code Date:

###### Action taken:

###### Additional comments:

###### Supervisor’s signature:

###### Reviewers Signature: Date:

|  |
| --- |
| **Daily Sanitation Control Records** |
|  |
| **Sanitation Area and Goal** | **Pre-Op Time:** | **Start Time:** | **Post-Op Time:** | **Comments and Corrections** | **Operator Initials** |
|  |  |  |
| Condition of Equipment (Is all equipment working properly and intact?) (S/U) |  |  |  |  |  |
| Equipment is cleaned and sanitized (no visible residue, not slimy to touch, etc.) (S/U) |  |  |  |  |  |
| Prevention of allergen cross contact (clean after nuts) (S/U/NA) |  |  |  |  |  |
| Tables cleaned and sanitized (S/U) |  |  |  |  |  |
| Floors and wall splash zones cleaned and sanitized (S/U) |  |  |  |  |
| S= Satisfactory |
| U= Unsatisfactory (write correction to make satisfactory) |
| NA= Not applicable because nut allergens are run after other products |
| Verification Signature: | Date: |

|  |
| --- |
| Semester Creamery Sanitation Tasks |
| **Directions**: Place a check in the "Completed" Column once task is complete. Person who completed the task initials in the next column. |
|  |
| **Task #** | **Task** | **Completed** | **Initials** |
| 1 | Clean rain boots (use red brush) |  |  |
| 2 | Clean drying rack (scrub and reorganize) |  |  |
| 3 | Clean defrosted -40F freezers (inside and out) |  |  |
| 4 | Wipe down sinks, splashguard, under sinks and all surrounding area |  |  |
| 5 | Wipe down dry storage shelves and reorganize in creamery |  |  |
| 6 | Wipe down dry storage shelves and reorganize in Newman 114 |  |  |
| 7 | Clean and sanitize tub and lid containers (white storage containers) |  |  |
| 8 | Clean and sanitize all buckets |  |  |
| 9 | Scrub trash can |  |  |
| 10 | Mop dry storage area of creamery |  |  |
| 11 | Pressure wash/scrub floors/grout (hose and red brush) |  |  |
| 12 | Scrub floor trimming (red brush) |  |  |
| 13 | Clean all walls (yellow brush) |  |  |
| 14 | Clean hose and nozzle |  |  |
| 15 | Wipe down all doors and door handles |  |  |
| 16 | Clean windows |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Verified by:** |  | **Date:** |  |

|  |
| --- |
| **Receiving Sheet** |
| **Supplier Name:** |  |
| **Quantity** | **Product Name** | **Lot #** | **Storage Location (Refrigerator, Freezer, Dry Storage)** |
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Inventory Taken By:

Signature Verified by: Signature:

### Food Safety Plan Reanalysis Checklist

The food safety plan must be reviewed at least every 3 years. If the FDA determines it is necessary to respond to new hazards, a significant change that creates the potential for new hazards, new information surfaces about potential hazards associated with the product, after a food safety problem, or when a preventive control is ineffective, the food safety plan must be analyzed prior to the 3 year requirement.

|  |
| --- |
| **Food Safety Plan Reanalysis Checklist** |
| **Reason for Reanalysis:** |
| **Task** | **Date Reviewed and Initials** | **Is Update Needed? (yes/no)** | **Date Task Completed** | **Signature of Person Completing the Task** |
| List of Food Safety Team with individual responsibilities |  |  |  |  |
| Product Flow Diagram |  |  |  |  |
| Hazard Analysis |  |  |  |  |
| Process Preventive Controls |  |  |  |  |
| Food Allergen Preventive Controls |  |  |  |  |
| Sanitation Preventive Controls |  |  |  |  |
| Supply-Chain Program |  |  |  |  |
| Recall Plan |  |  |  |  |
| Updated Food Safety Plan Implemented |  |  |  |  |
| Updated Food Safety Plan signed by faculty advisor |  |  |  |  |
| Reviewer Signature: | Date Reviewed: |