HACCP Workbook

HACCP PLAN

PT. GREENFIELDS INDONESIA

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KELAS RE

HACCP WORKBOOK

FORM 1: HACCP TEAM

Company/PT : PT. Greenfields Indonesia

Product : Mozzarella cheese

No	Name	Department	Training that has been attended	Education	Experience	Position
1.	Fadilah Nur Ramadhani S.	-	Food halal, food safety system	Biotechnology	7 years in quality assurance department	General manager
2.	Areta Ratih Prameshwari	Quality Assurance	Food safety sanitation and hygiene and HACCP training, food halal	Biotechnology	5 years in quality assurance department	Head of department
3.	Annisa Vaya Vitramardi	Quality Control	Food safety system, food safety sanitation and hygiene and HACCP training	Biotechnology	5 years in quality control department	Head of department
4.	Ainur Rohma Zahra	Production	Production training, food halal and HACCP training	Biotechnology	5 years in production department	Head of department
5.	Fitrah Alifiah	Microbiology	Production training, food halal	Biotechnology	5 years in microbiology department	Head of department
6.	Revalina Miftahul R.	Technical	Technical/engineering training, Food safety system	Biotechnology	5 years in technical department	Head of department
7.	Debora Marpaung	Quality Control	Food safety system, food safety sanitation and hygiene and HACCP training	Biotechnology	3 years in quality control department	Staff

FORM 2:

2A. PRODUCT DESCRIPTION

Company/PT : PT. Greenfields Indonesia

Product : Mozzarella cheese

1. Product name	Mozzarella Cheese
2. Product composition	Fresh milk, culture, rennet (microbial), CaCl2, salt, citric acid
3. Important final product characteristics (ex: Aw, pH, dll)	Block-shaped with a length of 7 cm, weight 200 grams. Water content 52%-60%, fat content 3-11%, protein content 2,8%-4,8%, and pH 6,3-6,8.
4. Processing method	Pasteurization and incubated
5. Preservation method	Store at temperature -2℃ - 4℃
6. Primary packer	PET plastics
7. Packaging for transportation	Cardboard box
8. Storage conditions	Store in refrigerator at temperature -2℃ - 4℃
9. Shelf life	6 months
10. Distribution method	Distributed by land transportation
11. Special labeling instructions	-
12. Special supervision in distribution	-
13. Where will the product be sold?	Supermarket, seller, and consument
14. Instructions for use	Cut according to the measure, grated, then melted in the oven/microwave for the best melting results

Dated: 01/02/2023 Created by: Ainur Approved by: Fadilah

2B: PRODUCT COMPOSITION

Company/PT : PT. Greenfields Indonesia

Product : Mozzarella cheese

MAIN MATERIAL	Fresh milk
AUXILIARY MATERIAL	Culture
	Rennet (microbial)
	CaCl2
	Salt
	Citric acid
DRY INGREDIENT	Salt
	CaCl2
	Citric acid
PACKAGING MATERIAL	PET plastics
OTHER MATERIAL	Cardboard box

Dated: 01/02/2023 Created by: Ainur Approved by: Fadilah

FORM 3: PRODUCT USING

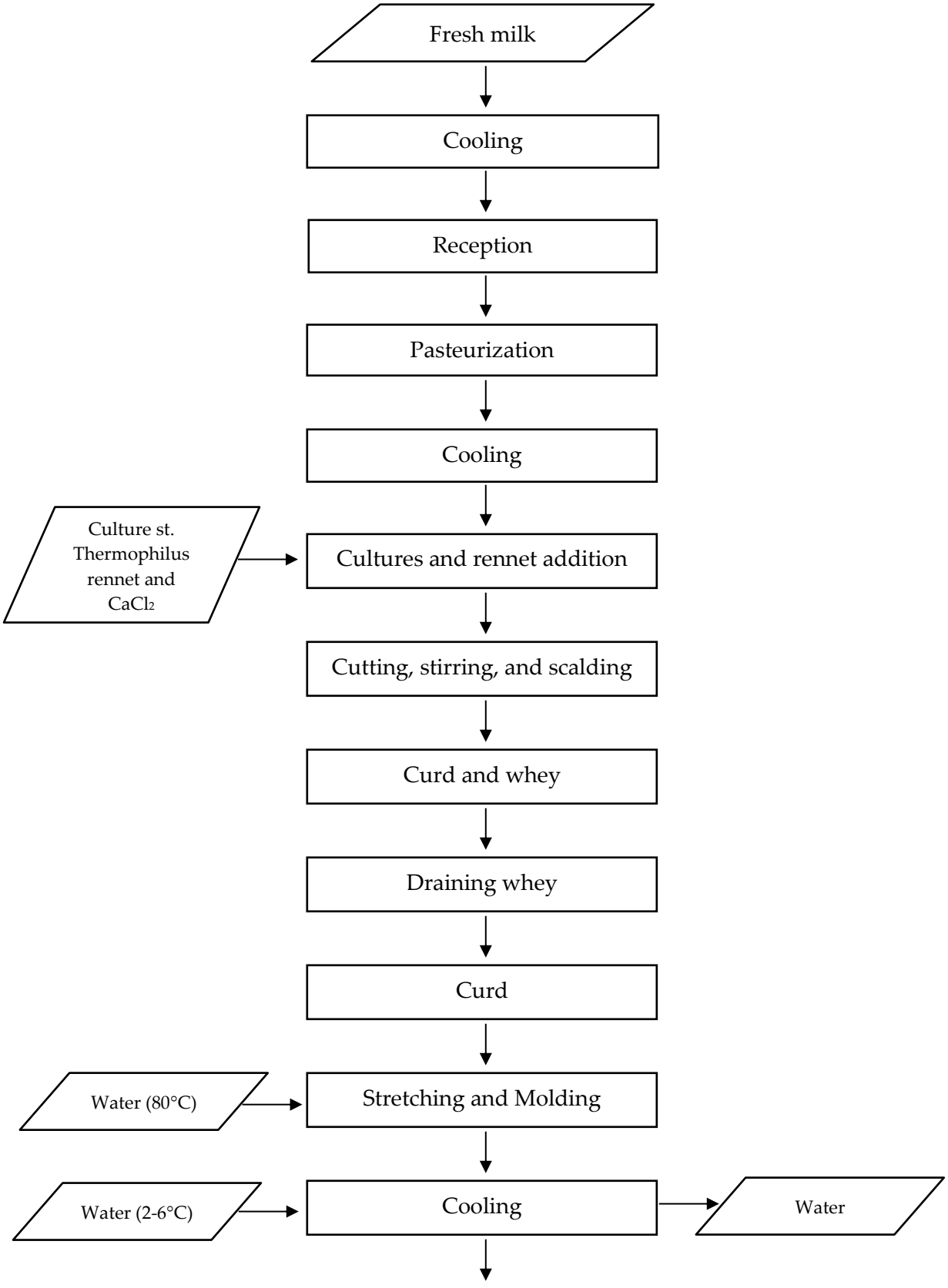
Company/PT : PT. Greenfields Indonesia

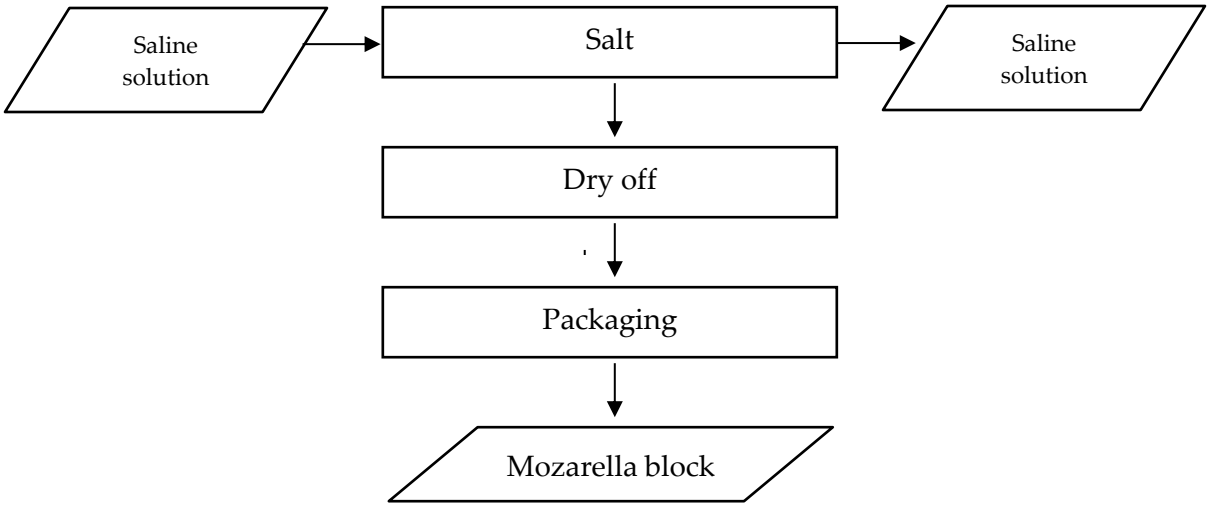
Product : Mozzarella cheese

Product name	Mozzarella Cheese
Description of how to consume	Cut according to the measure, grated, then melted in the oven/microwave for the best melting results
Product user	Can be consumed by consumers all of ages except toddlers

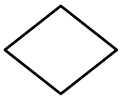
Dated: 01/03/2023 Created by: Ainur Approved by: Fadilah

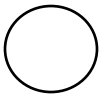
FORM 4: FLOW CHART

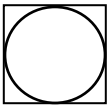


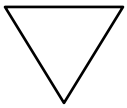


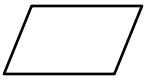

Inspection

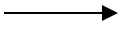

Need a decision


Process

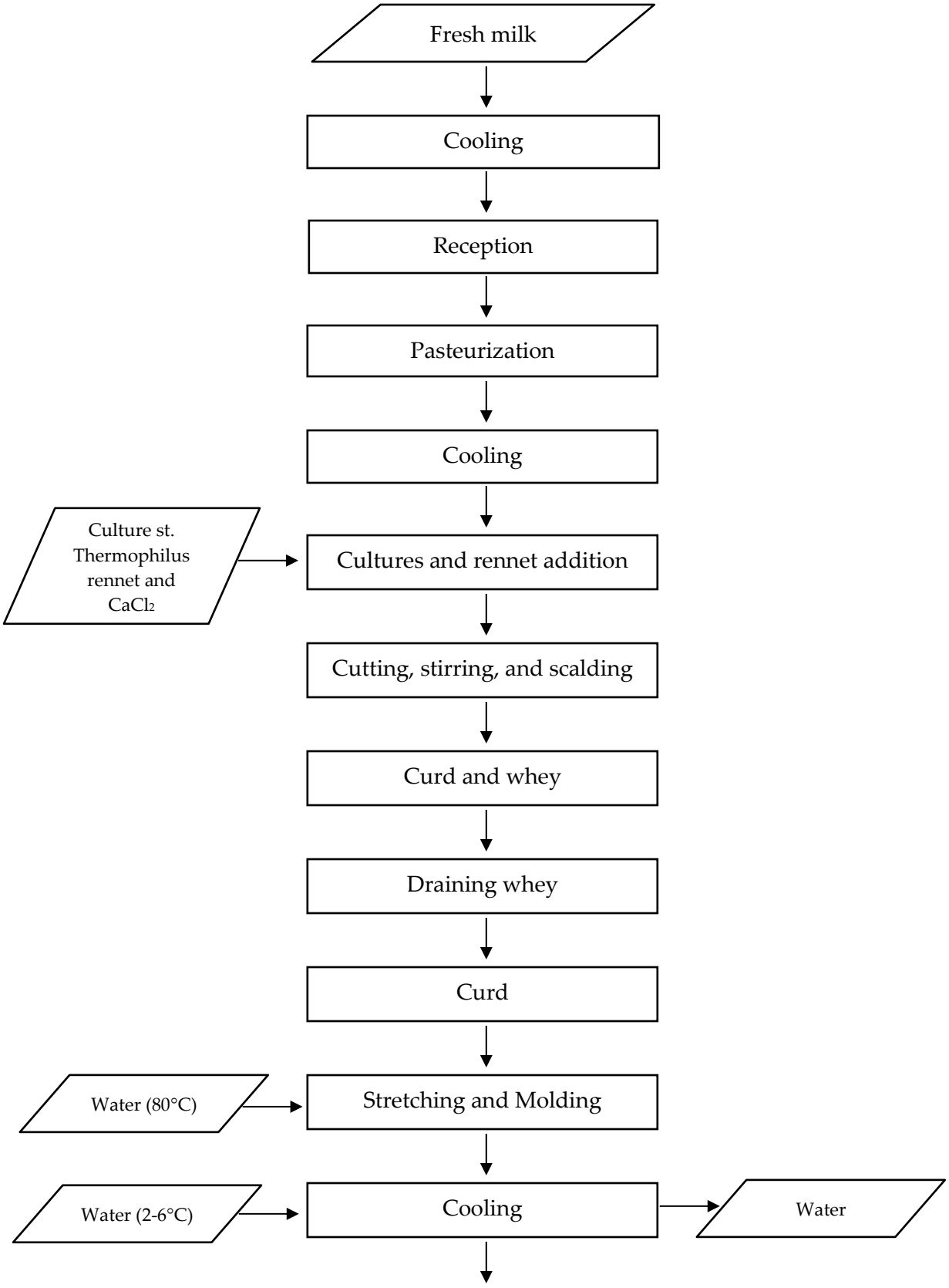

Process, Inspection

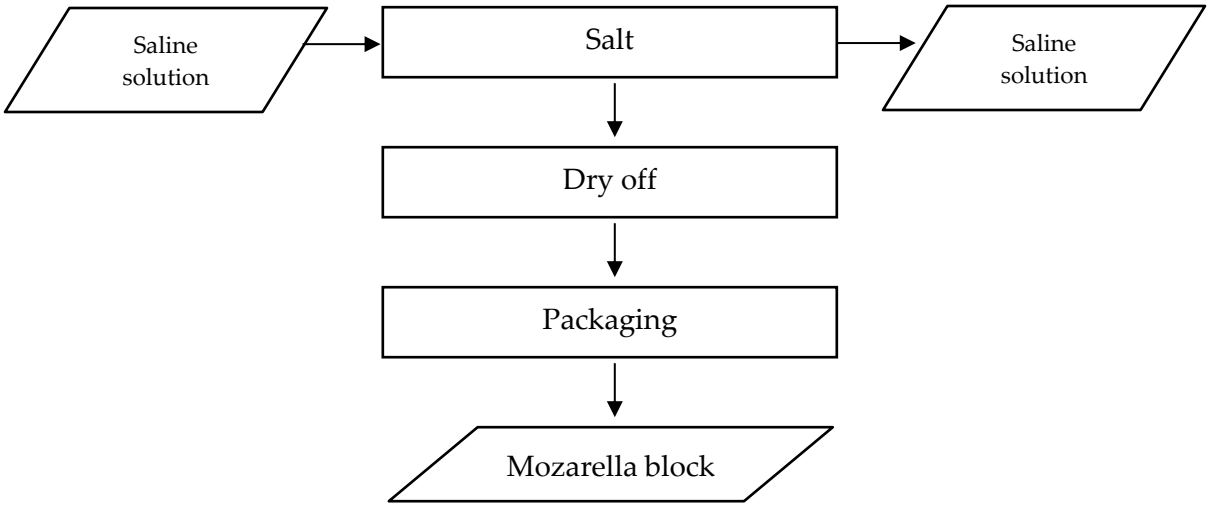

Storage


Incoming material


Transportation

FORM 5: VERIFIED FLOW CHART





This flowchart has been verified in the field by: Fadilah Dated: 07/032023

FORM 6: PRINCIPLE 1 HAZARD ANALYSIS

Worksheet 6. Identification of Hazards, Determination of Preventive Measures and Significance of Hazards (Risks)

HACCP PLAN

Company/PT : PT. Greenfields Indonesia

Product : Mozzarella cheese

Steps/Input	Hazard (M/C/P)	Hazard Type	Cause/Source/Justification of hazard	Action control/prevention	Opportunity (l/m/h)	Severity (L/M/H)	Significance
Reception of raw materials fresh milk from cows	Microbiology	M	Unhealthy animals may provide milk with pathogenic organisms such as *Listeria monocytogenes*, *Escherichia coli*, *Staphylococcus aureus*,*Salmonella sp*, *Mycobacterium*, *Brucella*, *Yersinia enterocolitica*, *Coxiella burnetii*	Good Manufacturing Practices (GMP) during milk collection and reception.	H	H	Yes
	Physical	P	Contamination from the tools used that come from the metal, pieces of glass, foreign objects	Raw materials testing, GMPs.	H	H	Yes
	Chemical	C	Mycotoxins are derived from low quality animal feed	Checking farmer and animal records	L	L	No
Milk cold storage 4ºC	Microbiology	M	Contamination of mold and yeast microorganisms, Bacillus sp, Clostridium sp, *Staphylococcus aureus*, coliform, and Salmonella sp.	It must be ensured that the storage must be at the desired temperature ≤4 ºC	M	L	Yes
	Physical	P	Unsterile equipment	Sterilization is done before putting the milk into a storage tank	L	L	No
	Chemical						
Reception of additional ingredients (5% starter culture, 2.5%	Microbiology	M	Contaminant of starter culture, contaminant of microorganisms (pathogens or spoilage psychrotrophs)	Appropriate SSOP determination and equipment sterilization must be done at all times.	H	H	Yes

Steps/Input	Hazard (M/C/P)	Hazard Type	Cause/Source/Justification of hazard	Action control/prevention	Opportunity (l/m/h)	Severity (L/M/H)	Significance
rennin enzyme, 2% salt, water)	Physical	P	Cross-contamination from workers Element residues (metal, pieces of glass, hard plastic)	Transfer the right equipment and proper personal handling	H	H	Yes
	Chemical						
Pasteurization 72-73°C for 15 seconds	Microbiology	M	Contaminant from microbial spores (such as *Bacillus cereus or Clostridium perfringens, E coli*, spores heat resistant toxins (such as *Staphylococcus aureus* enterotoxin)	Monitoring the adequacy of time and temperature, paying attention to the performance of measuring devices	H	H	Yes
	Physical	P	Contamination from equipment used from the metal, pieces of glass,dust, foreign objects.	Clean equipment must be ensured before use (no dirt in the tool) and sterilization before and after use	M	M	Yes
	Chemical						
Cooling to 4°C with 5% stater added	Microbiology	M	Mismatch of cooling time and temperature can cause other bacteria to enter (spore-forming, Bacillus sp, Clostridium sp, molds, yeast)	It must be ensured that the cooling must be at the desired temperature (in set time)	H	H	Yes
	Physical	P	Cross Contamination from workers and tools	Operators must implement SSOP that have been determined Clean equipment must be ensured before use	H	H	Yes
	Chemical						
Incubation 43C for 1-2 hours with rennet enzyme and CaCl2	Microbiology	M	Contamination of mold and yeast microorganisms, Bacillus sp, Clostridium sp, *Staphylococcus aureus*, coliform, and Salmonella sp.	It must be ensured that the incubation must be at the desired temperature (in set time)	H	H	Yes
	Physical						
	Chemical						

Steps/Input	Hazard (M/C/P)	Hazard Type	Cause/Source/Justification of hazard	Action control/prevention	Opportunity (l/m/h)	Severity (L/M/H)	Significance
Coagulation (Mixing process)	Microbiology						
	Physical	P	Contamination from equipment used from the metal, pieces of glass,dust, foreign objects.	Apply proper SSOP and sterilize equipment before use	H	H	Yes
	Chemical						
Separation of whey with curd at 40ºC	Microbiology	M	Contaminants of mold and yeast microorganisms, Bacillus sp, Clostridium sp, *Staphylococcus aureus*, coliform, and salmonella sp.	It must be ensured that the cooling must be at the desired temperature (in set time)	L	L	No
	Physical	P	Contamination of the equipment used from the metal, pieces of glass, dust, and foreign objects.	Clean equipment must be ensured before use (no dirt in the tool)	H	H	Yes
	Chemical						
Stretching and Molding by added water 1 kg (80ºC)	Microbiology	M	Contaminant of mold and yeast microorganisms, Bacillus sp, Clostridium sp, Staphylococcus aureus	It must be ensured that the cooling must be at the desired temperature (in set time)	L	L	Yes
	Physical	P	Contamination of the equipment used from the metal, pieces of glass,dust, and foreign objects. Cross Contamination from workers	Clean equipment must be ensured before use. Operators must implement SSOP that have been determined.	H	H	Yes
	Chemical						
Cooling to 4°C in 1 hours	Microbiology	M	Mismatch of cooling time can cause other bacteria to enter (spore-forming, Bacillus sp, Clostridium sp, molds, yeast)	It must be ensured that the cooling must be at the desired temperature (in set time)	H	H	Yes
	Physical	P	Cross Contamination from workers and tools	Operators must implement SSOP that have been determined	H	H	Yes
	Chemical						

Steps/Input	Hazard (M/C/P)	Hazard Type	Cause/Source/Justification of hazard	Action control/prevention	Opportunity (l/m/h)	Severity (L/M/H)	Significance
Soaking for 2 hours with salt	Microbiology						
	Physical	P	Contamination of the equipment used from the metal, pieces of glass,dust, and foreign objects. Cross Contamination from workers	Clean equipment must be ensured before use. Operators must implement SSOP that have been determined.	H	H	Yes
	Chemical	C	Adding too much sodium acetate can cause the cheese too harden and ripening process will slow	Workers supervise when entering salt levels to be precise and appropriate	L	L	No
Ripening at 17-18˚C for 5-15 days	Microbiology	M	Contaminant of mold and yeast microorganisms, Bacillus sp, Clostridium sp, Staphylococcus aureus	It must be ensured that the cooling must be at the desired temperature (in set time)	H	H	Yes
	Physical	P	Contamination of the equipment used from the metal, pieces of glass,dust, and foreign objects. Cross Contamination from workers	Clean equipment must be ensured before use. Operators must implement SSOP that have been determined.	H	H	Yes
	Chemical						
Drying at -2˚C for 48 hours	Microbiology	M	Mismatch of drying time and temperature can cause other bacteria to enter (spore-forming, Bacillus sp, Clostridium sp, molds, yeast)	It must be ensured that the cooling must be at the desired temperature (in set time) Operators must implement SSOP that have been determined	H	H	Yes
	Physical						
	Chemical						
Packaging	Microbiology	M	Microbial contamination such as Bacillus sp, Clostridium sp, Staphylococcus aureus, coliform, and salmonella sp.	The packaging used must be new and sterilized.	M	M	Yes
	Physical	P	Contamination from	Transfer the right equipment	H	H	Yes

Steps/Input	Hazard (M/C/P)	Hazard Type	Cause/Source/Justification of hazard	Action control/prevention	Opportunity (l/m/h)	Severity (L/M/H)	Significance
			equipment used from the metal, pieces of glass,dust, foreign objects. Cross Contamination from workers	and proper personal handling			
	Chemical	C	Element residue Pb from the plastic	Test the lead content of plastic packaging	L	L	No

Dated: 13/03/2023 Created by: Revalina Approved by: Fadilah

FORM 7: DETERMINATION OF CRITICA CONTROL POINT

HACCP PLAN

Company/PT: PT. Greenfields Indonesia

Product : Mozzarella Cheese

Process Stage	Hazard	Cause/Source/Justification of hazard	Opportunity (l/m/h)	Severity (L/M/H)	Action control /Prevention	Q1	Q2	Q3	Q4	CCC/CP	Decision Reasons
Receiving raw material	Microbiology, physics, chemical	Unhealthy animals	H	H	Comply with SOP. Equipment sterilization must be done at all times	Y	Y	-	-	CCP	This HACCP can be done by analyzing the CCP decision tree in the cheese making process. The raw material in identification is determined as CCP.
Quality Inspection	Chemicals	Antibiotic residues from the feed	L	L	- (before and after) Equipment used must be sterilized - Operators must implement the SOPs that have been determined	Y	Y	-	-	CCP	Based on the cheese CCP decision tree, this process stops at the second question which concludes the process as a CCP
	Microbiology	Unsterile equipment Cross-contamination from workers	M								
Weighing milk with Milk Reception Scale	Microbiology	Unsterile equipment	L	L	Sterilization of equipment before and after use	N	-	-	-	CP	Based on the cheese CCP decision tree, this process stops at the first question which concludes the process not a CCP
Shelter inside Milk Reception tank	Microbiology	Unsterile equipment	L	L	Use of sterilized equipment	N	-	-	-	CP	Based on the cheese CCP decision tree, this process stops at the second question which concludes the process not a CCP

Process Stage	Hazard	Cause/Source/Justification of hazard	Opportunity (l/m/h)	Severity (L/M/H)	Action control /Prevention	Q1	Q2	Q3	Q4	CCC/CP	Decision Reasons
Storage Tank (4 C)	Microbiology	Unsterile equipment	L	L	Use of sterilized equipment and Check the temperature regularly	Y	N	N	-	CP	Based on the cheese CCP decision tree, this process stops at the third question which concludes the process not a CCP
	Physics	Temperature fluctuation									
Pasteurize 72-73°C for 15 seconds	Microbiology	Contamination from tools used	H	H	Clean equipment must be ensured before use (no dirt in the tool)	Y	Y	-	-	CCP	Based on the cheese CCP decision tree, this process stops at the second question which concludes the process as a CCP
Cooling up to 4°C with the addition of 5% starter	Microbiology, physics	Mismatch of cooling time can cause other bacteria to enter	H	H	It must be ensured that the cooling must be at the desired temperature (in set time)	Y	Y	-	-	CCP	Based on the cheese CCP decision tree, this process stops at the second question which concludes the process as a CCP
Incubating 43°C for 1-2 hours with rennet enzyme	Microbiology, physics	Contamination of mold and yeast microorganisms due to mismatch of the temperature	H	H	The enzymes used must be known for their origin and composition and itt must be ensured that the incubation must be at the desired temperature (in set time)	Y	Y	-	-	CCP	Based on the cheese CCP decision tree, this process stops at the second question which concludes the process as a CCP
Separation of whey	Microbiology	When separation occurs contamination of the	H	H	Clean equipment must be ensured	Y	Y	-	-	CCP	Based on the cheese CCP decision tree,

Process Stage	Hazard	Cause/Source/Justification of hazard	Opportunity (l/m/h)	Severity (L/M/H)	Action control /Prevention	Q1	Q2	Q3	Q4	CCC/CP	Decision Reasons
with curd at 40°C		equipment used and also the mismatch of the temperature			before use (no dirt in the tool) and the separation done with the desire temperature						this process stops at the second question which concludes the process as a CCP
Soaking for 2 hours with salt	Chemical	Adding too much salt can cause the cheese to harden and the ripening process will slow	L	L	Salt composition must be adjusted before adding	Y	Y	-	-	CCP	Based on the cheese CCP decision tree, this process stops at the second question which concludes the process as a CCP
Packing	Microbiology, Physical, Chemical	Microbial contamination, Contamination from equipment used, Element residue Pb from the plastic	H	M	Packing according to SOP and no contamination from outside and must be done sterile	Y	Y	-	-	CCP	Based on the cheese CCP decision tree, this process stops at the second question which concludes the process as a CCP

Date: 14/03/2023 Created by: Debora Approved by: Fadilah

FORM 8: DETERMINATION OF CRITICAL LIMITS/CL

HACCP PLAN

Company/PT : PT. Greenfields Indonesia

Product : Mozzarella Cheese

Steps/Input	Hazard	Action Control / Preventive Measurement	CCP	Critical Point
Pasteurize 72-73℃ for 15 seconds	Contamination from tools used	Clean equipment must be ensured before use (no dirt in the tool) and sterilization before and after use	CCP	Clean equipment must be ensured before use (no dirt in the tool).
Cooling up to 4℃ with the addition of 5% starter	Mismatch of cooling time can cause other bacteria to enter	It must be ensured that the cooling must be at the desired temperature (in set time)	CCP	It must be ensured that the cooling must be at the desired temperature (in set time).
Incubating 43℃ for 1-2 hours with rennet enzyme	Microbial contaminant	It must be ensured that the incubation must be at the desired temperature (in set time)	CCP	The enzymes used must be known for their origin and composition
Separation of whey with curd at 40℃	When separation occurs contamination of the equipment used	Apply proper SSOP and sterilize equipment before use	CCP	Clean equipment must be ensured before use (no dirt in the tool).
Soaking for 2 hours with salt	Adding too much salt can cause the cheese to harden and the ripening process will slow	Workers supervise when entering salt levels to be precise and appropriate	CCP	Salt composition must be adjusted before adding
Packing	Microbial contaminant	The packaging used must be new and sterilized.	CCP	Packing according to SOP and no contamination from outside and must be done sterile

Date: 16/03/2023 Created by: Areta Approved by: Fadilah

FORM 9: DETERMINATION OF MONITORING PROCEDURES

HACCP PLAN

Company/PT : PT. Greenfields Indonesia

Product : Mozzarella Cheese

Steps/ Input	Hazard	Action Control	CCP	Critical Point	Monitoring Procedure				
					What	Where	How	When	Who
Pasteurize 72-73℃ for 15 seconds	Contamination from tools used	Clean equipment must be ensured before use (no dirt in the tool) and sterilization before and after use	CCP	Clean equipment must be ensured before use (no dirt in the tool).	- Tool surface - External condition of appliance	Place of pasteurization	Perform a visual inspection	Every production	Pasteurization Section
Cooling up to 4℃ with the addition of 5% starter	Mismatch of cooling time can cause other bacteria to enter	It must be ensured that the cooling must be at the desired temperature (in set time)	CCP	It must be ensured that the cooling must be at the desired temperature (in set time).	Cooling time temperature	In the cooling area	Observed the temperature of the cooling conditions	Every production	Cooling section
Incubating 43℃ for 1-2 hours with rennet enzyme	Microbiology, chemistry and physical	It must be ensured that the incubation must be at the desired temperature (in set time)	CCP	The enzymes used must be known for their origin and composition	Enzymes used	At the incubation site	Observing from the list of items that enter	Every production	Incubation section
Separation of whey with curd at 40℃	When separation occurs contamination of the equipment used	Apply proper SSOP and sterilize equipment before use	CCP	Clean equipment must be ensured before use (no dirt in the tool).	- Tool surface - External condition of appliance	Separation container	Do a visual inspection	Every production	Separation section
Soaking for 2 hours with salt	Adding too much salt can cause the cheese to harden and the ripening process will slow	Workers supervise when entering salt levels to be precise and appropriate	CCP	Salt composition must be adjusted before adding	Salt addition	Soaking process	Note the composition of the addition of salt	Every production	Immersion section
Packing	Microbial contaminant	The packaging used must be new and sterilized.	CCP	Packing according to SOP and no contamination from outside and must be done sterile	The packaging used	On the packing site	Perform a visual inspection	Every production	Packing section

Date: 23/03/2023 Created by: Areta Approved by: Fadilah

FORM 10: DETERMINATION OF CORRECTION ACTION

HACCP PLAN

Company/PT : PT. Greenfields Indonesia

Product : Mozzarella Cheese

Steps/ Input	Hazard	Action Control	CCP	Critical Point	Monitoring Procedure					Corrective Actions
					What	Where	How	When	Who	What & Who
Pasteurize 72-73℃ for 15 seconds	Contamination from tools used	Clean equipment must be ensured before use (no dirt in the tool) and sterilization before and after use	CCP	Clean equipment must be ensured before use (no dirt in the tool).	Tool surface External condition of appliance	Place of pasteurization	Perform a visual inspection	Every production	Pasteurization Section	To avoid the microorganism in pasteurization that is cleaning all of the tools every time it is used.
Cooling up to 4℃ with the addition of 5% starter	Mismatch of cooling time can cause other bacteria to enter	It must be ensured that the cooling must be at the desired temperature (in set time)	CCP	It must be ensured that the cooling must be at the desired temperature (in set time).	Cooling time temperature	In the cooling area	Observed the temperature of the cooling conditions	Every production	Cooling section	In the cooling process bacteria can enter. So the solution is re-cooking to make bacteria die.
Incubating 43℃ for 1-2 hours with rennet enzyme	Microbiology, chemistry and physical	It must be ensured that the incubation must be at the desired temperature (in set time)	CCP	The enzymes used must be known for their origin and composition	Enzymes used	At the incubation site	Observing from the list of items that enter	Every production	Incubation section	In the incubating rennet enzyme the solution to correcting is to complain to suppliers that sell the rennet enzyme and contact the QC Head (Head Quality Control) and determine whether to agree or not with rennet enzyme conditions.
Separation of whey with curd at 40℃	When separation occurs contamination of the equipment used	Apply proper SSOP and sterilize equipment before use	CCP	Clean equipment must be ensured before use (no dirt in the tool).	Tool surface External condition of appliance	Separation container	Do a visual inspection	Every production	Separation section	When the process of separation of whey with curd can cause contamination, the corrective action is to clean tools properly every time it is used.
Soaking for 2 hours with salt	Adding too much salt can cause the cheese to harden and the ripening process	Workers supervise when entering salt levels to be precise and appropriate	CCP	Salt composition must be adjusted before adding	Salt addition	Soaking process	Note the composition of the addition of salt	Every production	Immersion section	In the process, soaking with salt if you add salt too much can make the ripening process slower and the texture will be

Steps/ Input	Hazard	Action Control	CCP	Critical Point	Monitoring Procedure					Corrective Actions
					What	Where	How	When	Who	What & Who
	will slow									hard. The corrective action is to re-cooking or downgrade.
Packing	Microbial contaminant	The packaging used must be new and sterilized.	CCP	Packing according to SOP and no contamination from outside and must be done sterile	The packaging used	On the packing site	Perform a visual inspection	Every production	Packing section	The packaging process can make the packaging look bad. The corrective action is the product is destroyed or used as animal feed.

Date: 24/03/2023 Created by: Fitrah Approved by: Fadilah

FORM 11: ESTABLISHMENT OF VERIFICATION PROCEDURES

HACCP PLAN TABLE

Company/PT : PT. Greenfields Indonesia

Product : Mozzarella Cheese

Steps/ Input	Hazard	Action Control	CCP	Critical Point	Monitoring Procedure					Corrective Actions	Verification
					What	Where	How	When	Who	What & Who	What & Who
Pasteurize 72-73℃ for 15 seconds	Contamination from tools used	Clean equipment must be ensured before use (no dirt in the tool) and sterilization before and after use	CCP	Clean equipment must be ensured before use (no dirt in the tool).	Tool surface External condition of appliance	Place of pasteurization	Perform a visual inspection	Every production	Pasteurization Section	To avoid the microorganism in pasteurization that is cleaning all of the tools every time it is used.	In the pasteurizer the verification is reviewed from the condition in each of the pasteurizers used.
Cooling up to 4℃ with the addition of 5% starter	Mismatch of cooling time can cause other bacteria to enter	It must be ensured that the cooling must be at the desired temperature (in set time)	CCP	It must be ensured that the cooling must be at the desired temperature (in set time).	Cooling time temperature	In the cooling area	Observed the temperature of the cooling conditions	Every production	Cooling section	In the cooling process bacteria can enter. So the solution is re-cooking to make bacteria die.	The cooling process is to review the condition of the cooling tool form every time used and also do the maintenance every month.
Incubating 43℃ for 1-2 hours with rennet enzyme	Microbiology, chemistry and physical	It must be ensured that the incubation must be at the desired temperature (in set time)	CCP	The enzymes used must be known for their origin and composition	Enzymes used	At the incubation site	Observing from the list of items that enter	Every production	Incubation section	In the incubating rennet enzyme the solution to correcting is to complain to suppliers that sell the rennet enzyme and contact the QC Head (Head Quality Control) and determine whether to agree or not with rennet enzyme conditions.	For the incubating rennet enzyme can review form and the receipt every month.
Separation of whey with curd at	When separation occurs	Apply proper SSOP and sterilize	CCP	Clean equipment must be	Tool surface External	Separation container	Do a visual inspection	Every production	Separation section	When the process of separation of whey with curd	When process to separation of whey with curd

Steps/ Input	Hazard	Action Control	CCP	Critical Point	Monitoring Procedure					Corrective Actions	Verification
					What	Where	How	When	Who	What & Who	What & Who
40℃	contamination of the equipment used	equipment before use		ensured before use (no dirt in the tool).	condition of appliance					can cause contamination, the corrective action is to clean tools properly every time it is used.	can review form the condition in the separation tool for each use.
Soaking for 2 hours with salt	Adding too much salt can cause the cheese to harden and the ripening process will slow	Workers supervise when entering salt levels to be precise and appropriate	CCP	Salt composition must be adjusted before adding	Salt addition	Soaking process	Note the composition of the addition of salt	Every production	Immersion section	In the process, soaking with salt, if you add salt too much can make the ripening process slower and the texture will be hard. The corrective action is to re-cooking or downgrade.	In the process of soaking with salt, the salt used for soaking is very influential. The verification is to review the salt addition form.
Packing	Microbial contaminant	The packaging used must be new and sterilized.	CCP	Packing according to SOP and no contamination from outside and must be done sterile	The packaging used	On the packing site	Perform a visual inspection	Every production	Packing section	The packaging process can make the packaging look bad. The corrective action is the product is destroyed or used as animal feed.	To avoid the bad quality of packaging, the packaging must be tested and checked properly so that it can be used.

Date: 26/03/2023 Created by: Fitrah Approved by: Fadilah

FORM 12: ESTABLISHMENT OF DOCUMENTATION SYSTEMS

HACCP PLAN

Company/PT : PT. Greenfields Indonesia

Product : Mozzarella Cheese

Steps/ Input	Hazard	Action Control	CCP	Critical Point	Monitoring Procedure					Corrective Actions	Verification	Document ation
					What	Where	How	When	Who	What & Who	What & Who	
Pasteurize 72-73°C for 15 seconds	Contamination from tools used	Clean equipment must be ensured before use (no dirt in the tool) and sterilization before and after use	CCP	Clean equipment must be ensured before use (no dirt in the tool).	Tool surface External condition of appliance	Place of pasteurization	Perform a visual inspection	Every production	Pasteurization Section	To avoid the microorganism in pasteurization that is cleaning all of the tools every time it is used.	In the pasteurizer the verification is reviewed from the condition in each of the pasteurizers used.	Record of tools sanitation and sterilization.
Cooling up to 4°C with the addition of 5% starter	Mismatch of cooling time can cause other bacteria to enter	It must be ensured that the cooling must be at the desired temperature (in set time)	CCP	It must be ensured that the cooling must be at the desired temperature (in set time).	Cooling time temperature	In the cooling area	Observed the temperature of the cooling conditions	Every production	Cooling section	In the cooling process bacteria can enter. So the solution is re-cooking to make bacteria die.	For the cooling process is review the condition of the cooling tool form every time used and also do the maintenance every month.	Record of temperature and time in the cooling process.
Incubating 43°C for 1-2 hours with rennet enzyme	Microbiology, chemistry and physical	It must be ensured that the incubation must be at the desired temperature (in set time)	CCP	The enzymes used must be known for their origin and composition	Enzymes used	At the incubation site	Observing from the list of items that enter	Every production	Incubation section	In the incubating rennet enzyme the solution to correcting is to complain to suppliers that sell the rennet enzyme and contact the QC Head (Head Quality Control) and determine whether to agree or not with rennet enzyme conditions.	For the incubating rennet enzyme can review form and the receipt every month.	Record of the list of entered items.
Separation of whey with curd at 40°C	When separation occurs contaminatio	Apply proper SSOP and sterilize	CCP	Clean equipment must be ensured	Tool surface External condition	Separation container	Do a visual inspection	Every production	Separation section	When the process of separation of whey with curd can cause	When process to separation of whey with curd can review form the	Record of tools sanitation and

Steps/ Input	Hazard	Action Control	CCP	Critical Point	Monitoring Procedure					Corrective Actions	Verification	Document ation
					What	Where	How	When	Who	What & Who	What & Who	
	n of the equipment used	equipment before use		before use (no dirt in the tool).	of appliance					contamination, the corrective action is to clean tools properly every time it is used.	condition in the separation tool for each use.	sterilizatio n.
Soaking for 2 hours with salt	Adding too much salt can cause the cheese to harden and the ripening process will slow	Workers supervise when entering salt levels to be precise and appropriate	CCP	Salt compositio n must be adjusted before adding	Salt addition	Soaking process	Note the compositi on of the addition of salt	Every productio n	Immersion section	In the process, soaking with salt if you add salt too much can make the ripening process slower and the texture will be hard. The corrective action is to re-cooking or downgrade.	In the process of soaking with salt, the salt used for soaking is very influential. The verification is to review the salt addition form.	Record of salt compositio n used in the process
Packing	Microbial contaminant	The packaging used must be new and sterilized.	CCP	Packing according to SOP and no contaminati on from outside and must be done sterile	The packaging used	On the packing site	Perform a visual inspection	Every productio n	Packing section	The packaging process can make the packaging look bad. The corrective action is the product is destroyed or used as animal feed.	To avoid the bad quality of packaging, the packaging must be tested and checked properly so that it can be used.	Record of worker sanitation and packaging sterilizatio n

Date: 28/03/2023 Created by: Annisa Approved by: Fadilah