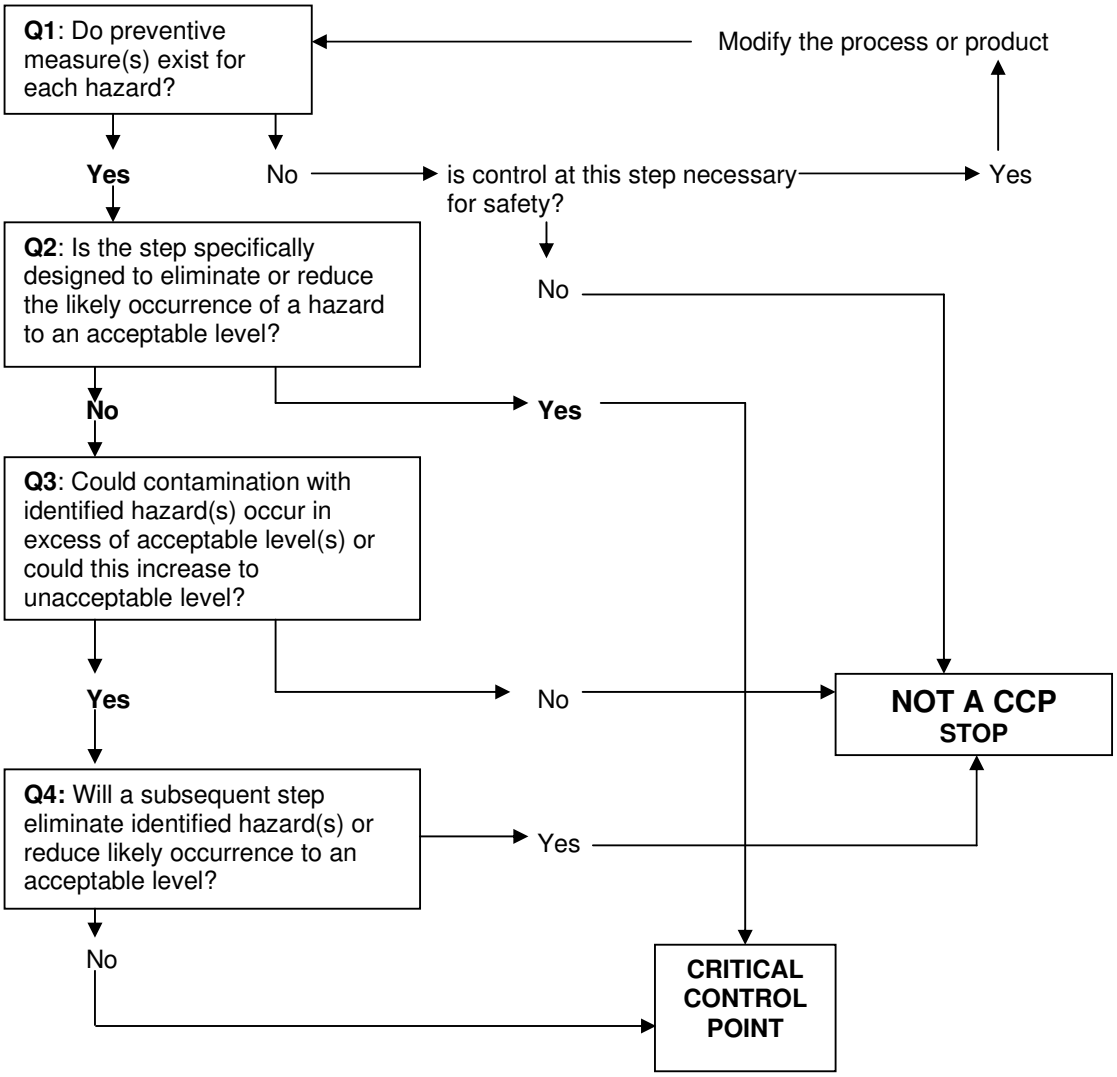
Decision Tree

Applied HACCP decision tree to each processing step in order to identify CCPs: -



Reviewed by :	*Quality Assurance Manager*
Approved by :	

Southern Sun Teas (Pvt.) Ltd

HACCP Plan

NO	INGREDIENT/ PROCESSING STEPS	POTENTIAL HAZARD AND POSSIBLE CAUSES		SEVERITY	SIGNIFICANCE	CONTROL MEASURES	DECISION TREE				CCP (Y/N)
							Q1	Q2	Q3	Q4	
1	Tea – Local	Biological Bacteria	M	M	M	Moisture analysis	Y	Y	-	-	**CCP 01**
		Mould	M	M	M	Ensure bags are not damaged. No wooden chests	Y	Y	-	-	**CCP 01**
		Insects	L	L	L	Ensure bags are not damaged. No wooden chests	Y	N	N	-	-
		Chemical	M	M	M	Valuation certificate form Tea Board.	Y	N	N	-	**-**
		Physical Metal Particles Wooden, other non-metal particles	M	M	M	Going through Magnets Ensure bags are not damaged. No wooden chests	Y	N	Y	Y	-
2	Moisture analysis	Biological Bacteria	L	L	L	Moisture analysis done by trained person with clean hands	Y Y	N N	N N	- -	- -
		Mould	L	L	L	Moisture analysis is done by train person wit clean hand.	Y	N	N	-	-
		Insects	L	L	L	Bags are closed after taking the sample	Y	N	N	-	**-**
		Chemical- Pesticides	L	L	L	Use clean equipments					
		Physical Nails, Wood chips, Metal	L	L	L	Ensure bags are not damaged. No Wooden chests	Y	N	N	-	-

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NO	INGREDIENT/ PROCESSING STEPS	POTENTIAL HAZARD AND POSSIBLE CAUSES		SEVERITY	SIGNIFICANCE	CONTROL MEASURES	DECISION TREE				CCP
							Q1	Q2			(Y/N)
3	Incoming Herbals	Biological Bacteria	M	M	M	Certificate of analysis. Certificate of origin and Moisture analysis	Y	N	N	-	-
		Mould	M	M	M	Certificate of analysis. Certificate of origin and Moisture analysis	Y	N	N	-	-
		Insects	M	M	M	Phytosanitary certificate. Certificate of fumigation	Y	N	N	-	-
		Chemicals-Pesticides	M	M	M	Organic produce certificate or Once a year chemical analysis report	Y	N	N	-	-
		Physical Nails, Wood chips, Meta	L	M	M	Ensure bags are not damaged. No Wooden chests	Y	N	N	-	-
4	Flavour	Biological Bacteria	M	M	M	High concentrated liquids, Certificate of origin, Certificate of analysis	Y	N	N	-	-
		Mould	M	M	M	Tea Board approval. Certificate of origin, Certificate of fumigation Phytosanitary certificate.	Y	N	N	-	-
		Insects	M	M	M						
		Chemicals	M	M	M	Certificate of analysis	Y	N	N	-	-
		Physical Nails, Wood chips, Metal	L	L	M	Ensure bags are not damaged. No Wooden chests	-	-	-	-	-

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NO	INGREDIENT/ PROCESSING STEPS	POTENTIAL HAZARD AND POSSIBLE CAUSES		SEVERITY	SIGNIFICANCE	CONTROL MEASURES	DECISION TREE				CCP
							Q1	Q2			(Y/N)
5	Receive tea, Herbals and Flavour at stores	Biological Bacteria	L	L	L	Ensure bags containers are not damaged.	-	-	-	-	-
		Mould	M	M	M	Ensure bags containers are not damaged and not wet products.	-	-	-	-	-
		Insects	L	L	L	Ensure bags are not damaged.	-	-	-	-	-
		Chemical	L	L	L	Ensure bags /containers are not damaged. Vehicle inspection records.	-	-	-	-	-
		Physical Nails, Wood chips, Metal	L	M	M	Ensure bags /containers are not damaged.	-	-	-	-	-
6	Storage of teas and Herbals	Biological Bacteria	L	L	L	Ensure bags/packs are not damaged and dry storage facility.	Y	N	N	-	-
		Mould	M	H	H	Ensure bags/packs are not damaged and dry storage facility.	Y	N	N	-	-
		Insects	L	L	L	Ensure bags/packs are not damaged and closed and cleaned storage facility.	-	-	-	-	-
		Chemical	L	L	L	Ensure Bags/packs are not damaged and no chemicals stored in side tea storage area.	-	-	-	-	-
		Physical Nails, Wood chips, metals	L	L	L	Ensure bags/packs are not damaged.	-	-	-	-	-

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HACCP Plan

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							Q1	Q2	Q3	Q4	
7	Storage of Flavours	Biological- Chemical- Physical	L	M	M	Minimum Stock holding in closed containers. Store under conditions specified. Biological contaminates cannot exist in this environment Temperature maintainers Supplier Control.	Y	N	N	-	-
8	Tea tasting/ Sample drawing/ Formulating	Biological Bacteria	L	L	L	Ensure bags/packs are not exposed for too long when drawing samples.	-	-	-	-	-
		Mould	M	M	M	Ensure good manufacturing practices are maintained.	-	-	-	-	-
		Insects	L	L	L		-	-	-	-	-
		Chemical	L	L	L	Sampling only done by trained people. Tasting done in a separate location.	-	-	-	-	-
		Physical Nails, Wood chips, Metal	L	M	M	.	-	-	-	-	-
9	Issue Tea and Flavours for Flavouring	Biological Micro-organisms Bacteria	L	L	L	Apply good manufacturing practices for Flavouring operation	-	-	-	-	-
		Mould Insects	L	L	L	Pest controls treatment in place.	-	-	-	-	-
		Chemical Physical	L	L	L	Minimum exposure to the environment.	-	-	-	-	-

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Approved by :	

NO	INGREDIENT/ PROCESSING STEPS	POTENTIAL HAZARD AND POSSIBLE CAUSES	RISK	SEVERITY	SIGNIFICANCE	CONTROL MEASURES	DECISION TREE				CCP
							Q1	Q2	Q3	Q4	(Y/N)
10	Machine Blending of Tea	Biological Bacteria	L	L	L	Ensure good hygiene practices are maintained	Y	N	N	-	-
		Mould	M	H	H	Ensure moisture content is maintained < 7.5% and No lumps	Y	Y	-	-	**CCP 01**
		Insects	L	M	M	Ensure good pest control system is maintained.	-	-	-	-	-
		Chemical	L	L	L	Ensure bags are not damaged during transport & storage. No chemical stored in side the blending floor	-	-	-	-	-
		Physical Nails, Wood chips, Metals	L	L	L	Good manufacturing practices and conveyer with magnet Separate tiled area for blending	-	-	-	-	-
11	Tea Cleaning process/ Magnets	Biological Mould, Insects	L	L	L	Tea cleaning carried-out in a concealed environment.	-	-	-	-	-
		Chemical Lubricants	L	L	L	Cleaning the unit after preventive maintenance program.	-	-	-	-	-
		Physical Metal Fillings, Nails	L	H	H	Removal of Metal Fillings by Magnet.	Y	Y	-	-	**CCP 02**

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HACCP Plan

NO	INGREDIENT/ PROCESSING STEPS	POTENTIAL HAZARD AND POSSIBLE CAUSES	RISK	SEVERITY	SIGNIFICANCE	CONTROL MEASURES	DECISION TREE				CCP (Y/N)
							Q1	Q2	Q3	Q4	
12	Collecting in to Bags	Biological Mould, Insects Chemical Physical	L L L	L L L	L L L	Minimum exposure to the environment. Ensure good manufacturing practises and tiled separate area.	-	-	-	-	-
13	Transfer Tea bags in to stores	Biological Mould, Insects Chemical Physical	L L L	L L L	L L L	Minimum exposure to the environment. Ensure good manufacturing practises and well maintained stores facility.	-	-	-	-	-
14	Mixing with Flavours	Biological Micro-organisms Bacteria Mould	L	L	L	Apply good manufacturing practices for Flavouring operation and SS flavouring drum	-	-	-	-	-
		Insects	L	L	L	Pest controls treatment in place.	-	-	-	-	-
		Chemical	M	M	M	Correct does in to the product	Y	N	N		-
		Physical	L	L	L	Minimum exposure to the environment.	-	-	-	-	-

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NO	INGREDIENT/ PROCESSING STEPS	POTENTIAL HAZARD AND POSSIBLE CAUSES	RISK	SEVERITY	SIGNIFICANCE	CONTROL MEASURES	DECISION TREE				CCP (Y/N)
							Q1	Q2	Q3	Q4	
15	Filling in to Bags / Envelops sewing	Biological Micro organisms Bacteria Mould	L	L	L	Maintaining a good Health & Hygiene Program for personal coming in direct contact with food. Minimum exposure to the environment.	- -	- -	- -	- -	- -
		Insects	L	L	L	Maintaining a pest control treatment out side the packing area.					
		Chemical Machine Cleaning agents Pest control chemicals	L	L	L	Machine cleaning is done by manually. Service is done by out side party. No pest control chemical stored in side the manufacturing area.	-	-	-	-	-
		Physical Ferrous Parts	L	L	L	Maintain a good Preventive Maintenance Program for machines	-	-	-	-	-
16	Over Wrapping	Biological Micro organisms Bacteria	L	L	L	Maintaining a Personal Health & Hygiene Program for personal coming in direct contact with food.	- -	- -	- -	- -	- -
		Mould	L	L	L		-	-	-	-	-
		Insects	L	L	L	Raw material not exposed to the environment.	-	-	-	-	-
		Chemical No Physical Ferrous Matter	L	L	L	Maintaining a Pest Control Program.					

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HACCP Plan

NO	INGREDIENT/ PROCESSING STEPS	POTENTIAL HAZARD AND POSSIBLE CAUSES	RISK	SEVERITY	SIGNIFICANCE	CONTROL MEASURES	DECISION TREE				CCP (Y/N)
							Q1	Q2	Q3	Q4	
17	Weighing	Biological Micro organisms Bacteria Mould	L	L	L	Maintaining a good Health & Hygiene Program for personal coming in direct contact with food.	-	-	-	-	-
		Insects	L	L	L	Maintaining a pest control treatment.	-	-	-	-	-
		Chemical Machine Cleaning Chemicals Pest control chemicals	L	L	L	No chemicals stored in side the stores or packing section.	-	-	-	-	-
		Physical Ferrous Parts	L	L	L	Maintain a good Preventive Maintenance Program.	-	-	-	-	-
18	Sealing	Biological Micro-organisms Bacteria Mould	L	L	L	Maintaining a good Health & Hygiene Program for personal coming in direct contact with food. Minimum exposure to the environment.	-	-	-	-	-
		Insects	L	L	L	Maintaining a pest control treatment.	-	-	-	-	-
		Chemical Machine Cleaning Chemicals	L	L	L	Maintain a good Preventive Maintenance Program.	-	-	-	-	-
		Pest control chemicals	L	L	L	No pest control chemicals stored inside	-	-	-	-	-
		Physical Ferrous Parts	L	L	L	Maintain a good Preventive Maintenance Program. Machine hopper magnets extract ferrous components.	-	-	-	-	-

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							Q1	Q2	Q3	Q4	
19	Packing in to containers	Biological Micro-organisms Bacteria Mould	M	H	H	Ensure moisture content is maintained < 7.5% and No lumps	Y	Y	-	-	CCP03
		Insects	L	L	L	Maintaining a Personal Hygiene Program for personal coming in direct contact with food. Raw material not exposed to the environment.	-	-	-	-	-
		Chemical Physical	L	L	L	Maintaining a Pest Control Program.	-	-	-	-	-
20	Packing in to Master cartons	Biological Micro-organisms Bacteria	L	L	L	Maintaining a Personal Health & Hygiene Program for personal coming in direct contact with food.	-	-	-	-	-
		Mould	L	L	L						
		Insects	L	L	L						
		Chemical No Physical Ferrous Matter	L	L	L	Raw material not exposed to the environment. Maintaining a Pest Control Program.	-	-	-	-	-
21	Gum tapping	Biological Chemical Physical	N	N	N	Biological, Chemical and Physical contaminates will not be introduced at this processing stage	-	-	-	-	-
22	Palletising	Biological Chemical Physical	N	N	N	Biological, Chemical and Physical contaminates will not be introduced at this processing stage	-	-	-	-	-
23	Outer Poly-aging	Biological Chemical Physical	N	N	N	Biological, Chemical and Physical contaminates will not be introduced at this processing stage	-	-	-	-	-
24	Finished Good Storage	Biological Micro-organisms Bacteria	L	L	L	Ensure Finished goods are dispatched in a timely manner.	-	-	-	-	-
		Mould	L	L	L						
		Insects	L	L	L						
		Chemical No Physical Ferrous Matter	L	L	L						

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NO	INGREDIENT/ PROCESSING STEPS	POTENTIAL HAZARD AND POSSIBLE CAUSES	RISK	SEVERITY	SIGNIFICANCE	CONTROL MEASURES	DECISION TREE				CCP (Y/N)
							Q1	Q2	Q3	Q4	
25	Loading	Biological Chemical Physical	N	N	N	Raw material not exposed to the environment	-	-	-	-	-
26	Packing Material	Biological Chemical Physical	L	L	L	Receive packaging Material in appropriate packaging minimum exposure to the environment.	-	-	-	-	-
27	Receive Packaging material at the Warehouse	Biological Chemical Physical	L	L	L	Receive packaging Material in appropriate packaging minimum exposure to the environment.	-	-	-	-	-
28	Packaging Material (1) Tag (2) Tread (3) Staple wire (4) Filter Paper (5) Foil (6) Paper Envelops (7) Boxboard (8) Corrugated Cartons (9) Gum Tape (10) BOPP Film (11) Shrink Film (12) Glue	Biological Chemical Physical	L	L	L	Purchase Material from approved suppliers. Use packaging material approved for food industry.	-	-	-	-	-
29	Storage of packaging Material	Biological Mould Insects Chemical Physical	L L L	L L L	L L L	Low moisture mould contamination is controlled. Pest Control Program. Chemical and physical contaminates not possible	-	-	-	-	-
30	Discharge for Production	Biological Mould Insects Chemical Physical	L L L	L L L	L L L	Low moisture mould contamination is controlled. Pest Control Program. Chemical and physical contaminates not possible	-	-	-	-	-

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Critical Limits

A Critical Limit is a "prescribed tolerance" for which the product has to maintain in order to meet the safety standards.

Potential hazard may exist if Critical Limits are exceeded.

- For each identified CCP, Critical Limits have been specified.
- Critical Limits were obtained from,

  Regulations;
  Guidelines or criteria required by standards;
  Industry codes of practice;
  Scientific journals, abstracts or text book;
  Microbiological and chemical studies carried out.

- The critical limits are easily measurable and where possible, monitored continuously.

CHEMICAL HAZARD

Substance	***Limits***	***Source***
Copper	Maxi: 50 ppm	FAO Limits
Ferrous	Maxi: 5.0 ppm	
Lead	Maxi: 5.0 ppm	
Cadmium	Maxi: 1.0 ppm	
Mercury	Maxi: 0.5 ppm	
Arsenic	Maxi: 1.0 ppm	
Cyanide	Maxi: 1.0 ppm	
Total Ash % (m/m)	Min: 4.0- Maxi: 8.0	ISO 3720
Aflotoxins B1 + B2 + G1 + G2 B1	4.0 ppb 2.0 ppb	FAO Limits

REDIOACTIVE SUBSTANCES

Strontium	90 100 BK/kg	FAO Limits
Cesium	137 100 BK/kg	

BIOLOGICAL HAZARDS

Substance	***Maximum***	***Source***
Aerobic Plate Count (Total Plat Count)	<5,000 / g	**FAO Limits**
Yeast/Mould	<1,000/g	
Escherichia coli	**Negative in / 25 g**	
Salmonella	Negative in / 25 g	
Clostridium Perfrngens	Negative in / 25 g	
Thermofilic Bacteria	None in 1 ml after sterilizing at 110 c for 20 Mts.	

PHYSICAL HAZARDS

Substance	***Maximum***	***Source***
Foreign Matters	1.0% (m/m)	ISO 3720
Ion Fillings	Acid insoluable ash	

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Monitoring

- **Monitoring Procedures**
  i. A monitoring system for is each critical control point was established.
  ii. The monitoring process includes planned measurements/observations to determine the control of the CCP.
  iii. Process adjustments are made when monitoring results indicates a deviation of a critical limit.
  iv. A designated person will evaluate data with knowledge to carryout corrective action.
  v. Monitoring is carried-out according to accepted sampling plan.
  vi. Physical and chemical measurements are carried-out for rapid analysis of critical control points, which will be followed, by microbiological analysis if needed.
  vii. Responsibility for the records related to the monitoring process will are maintained and persons monitor such records designated to verify the same.

- Monitoring instructions will indicate the following:
  i. Monitoring method;
  ii. Monitoring frequency;
  iii. Personnel responsible for monitoring;
  iv. Personnel responsible for verifying the monitoring result;
  v. Where the monitoring results are recorded/documented.

(1) Critical Control Point (CCP)	(2) Hazard	(3) Critical Limit of the Preventive measures	(4) Monitoring	(5) Monitoring	(6) Monitoring	(7) Monitoring	(8) Corrective Action	(9) Records	(10) Verification
			What	How	Frequency	Who			
Incoming and Machine Blending **CCP 01**	Biological – Moulds	< 7.5 % Moisture and no lumps	Moisture Content of blend and lumps	1)Determination of loss in mass Moister Analyzer 2) Visual	Every Blend	Tea Taster and Blender	Reject tea / Mix with the approval of QA manager	Blending Check list	Once a year finished product analysis report
Tea Cleaning process/ Magnets **CCP 02**	Physical Metal Filings, Nails	No metal	Check for metal filings with Hand Magnet	Visual inspection Once a blend	Every Blend	Tea taster /QC and Blender	Sent it through the metal cleaning machine again.	Metal Foil Cleaning Record.	Once a year Heavy Metal analysis report
Final packing of Tea **CCP 03**	Biological Micro-organisms Bacteria Mould	< 7.5 % Moisture and no lumps	Moisture Content of Final Packing	1)Determination of loss in mass Moister Analyzer 2) Visual	Every Bin of packing materials	Tea Taster	Reject tea bags and envelopes.	Production Sample book.	Once a year finished product analysis report

- General

Procedure followed when deviations occur at Critical Control Points (CCP's) is outlined.

- Responsibility

QA Manager /Tea Taster/ Factory Manager and Supervisors are responsible for the control of deviations in CCP's and Food safety and hygiene standards.

- Deviations in CCP's and Food safety and hygiene standards: -

Every employer has responsibility to raise a Non Conforming report.

17.1.1 If deviations in hygiene and safety standards are detected it is brought to the attention of a responsible person as soon as possible;

17.1.2 The products are traced and are identified. Labels are placed to prevent it being inadvertently used.

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17.1.3 The Management Representative is responsible for reviewing and evaluating deviations.

- **External Complaints**

Custom /Distributor complaints

Management Representative has the responsibility for investigating the food safety and hygiene related complaints and recommending corrective & preventive measures. Investigation reports are forwarded through the Managing Director to the relevant sources.

- Verification of the HACCP System

Management recognizes the importance of verification of HACCP system. It enables the organization to determine whether the HACCP system is followed in accordance with the documented plan and ensure that a safe product is delivered to the customer.

- The company has established and is maintaining a documented Procedures for performing periodical verification.
- Verification activities:

i. Ensuring that the implemented HACCP system is followed.
ii. HACCP system and the HACCP plan is carried out in accordance with the relevant standard and regulatory requirements.
iii. Elements of the HACCP plan are suitable and adequate in relation to the relevant hazards.
iv. Audit Plan is in place, which indicates the activity to be audited, frequency of the audit, records to be audited.
v. Audit Schedule is drawn up in a manner that the complete system is audited at least twice a year.
vi. Internal Audit records are maintained by the Management representative.
vii. Management regards internal auditing as an 'open' activity. The findings of Internal Audits are fully documented.
viii. Responsibility of verification activities in line with the HACCP team leader.

- Verification Schedule is given below.

ACTIVITY	SPECIFICATION	FREQUENCY	RECORDS
Verify Flow Diagram	Process Flow	Once a year or change in the process	HACCP Flow Diagram
1) Review identified hazards 2) Risk Assessment Table 3) Review appropriateness of the established CCPs		Once a year or change in the process	Analysis HACCP
1) Critical Limits Verification Review	Against the Currant standards	Once a year	HACCP-External-Documents
1) Monitoring Records	-	Every three months	Check List pertaining to HACCP
1) Records of Corrective Action	-	Every three months	Corrective Action Records
1) GMP's a) Building Maintenance b) Water Supply c) Personal Hygiene Facilities d) Supplier Evaluation e) Preventive maintenance of Equipment f) Calibration records g) Cleaning and sanitation procedures h) Drainage and waste disposal i) Personal Health status j) Illness and injury k) Personal cleanliness l) Pest Control		Quarterly Once a year Once a year Once every year Once every 6 months -do- Every Month Every Month Once a year Once a year Weekly Weekly Once a month	HACCP Records and Audit report

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ACTIVITY	SPECIFICATION	FREQUENCY	RECORDS
1) End product testing			
a) Moisture Content	7.5%	1) Yearly assessment of and external assessment of the same sample	
b) Microbiology	FAO Limits	2) Once a year	
Mould/Yeast Counts	1×10^3 mg/kg		
	FAO Limits		
	1×10^3 mg/kg	1) Once a year	
	100 mg/kg		
	Negative in 1 g		
	Negative in 1 g		
c) Toxic elements	FAO		
Cyanide	1.0 mg/kg	1) Once a year	External Testing
Arsenic	1.0 mg /kg		
Copper	10.0 mg/kg		
Lead	5.0 mg/kg		
Cadmium	1.0 mg/kg		
Mercury	1.0 mg /kg		
Ion	1.0 mg /kg		
Aflotoxin	0.005 mg /kg		
c) Pesticide	ISO/TC 34/SC 8	1) Once a year	
d) ISO 3720 Specifications	ISO 3720	1) Once a year	
Total Ash	ISO 3720	1) Once a year	

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ACTIVITY	SPECIFICATION	FREQUENCY	RECORDS
Calibration of Moisture Meter	Loss in drying at 103 ^{0} C	Once a year	Calibration Records
Calibration of Scales	Specific weights for different scales	Every six Months	Calibration Records