HANDLING, ANALYSIS AND DOCUMENTATION: FSSA(I) SAMPLES

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FSSA (I): The Enforcement Structure

Centre and State:
- State Food Commissioner (Overall in charge of implementation)

District:
- Designated Officer (DO)
- Adjudicating Officer
- Food Safety Officer (FSO) Inspection & Monitoring FBOs
- Food Analyst (FA)
Food Safety Officer: Powers

Taking a sample of any article of food, seizure of any article intended for food, which appears to the FSO to be in contravention of the Act or Regulations or orders made thereunder, power to enter and inspect any place where food is manufactured or stored for sale.
Food Safety Officer

Powers (contd)

- May destroy, deteriorated, perishable product after giving notice in writing to FBO.
Obtain signature from one or two persons in all forms and documents.

Give notice in writing of his intention to the FBO/Vendor in Form V A

Form V A signature or thumb impression of FBO. If FBO refuses then signature of two witnesses
The basic principles for official sample collection:

• the sample should represent the food as sold to the consumer and each part of a divided sample should be truly representative of the original.
• where divided, all parts of the sample must individually be representative of the food and of each other
• the sampling process must not alter the sample in any way that might affect the analysis
• storage and transportation of the sample must not alter it in any significant way – whether through contamination, loss, deterioration or other means.
Flow chart for Analysis of Food samples under FSSA(I), 2006

Flow chart:

1. **FOOD SAFETY OFFICER (FSO)**
2. **FOOD BUSINESS OPERATOR**
   - FSO must pay FBO at rate sold to public
3. **Signature or thumb impression of FBO or witness if FBO declines signing**
4. Lifting the sample
5. **4 samples or divide in 4 Parts**
6. **NABL Accredited Lab if FBO demands**
7. **DO: 2 parts 2+1**
8. **Analysis and prepare of 4 copies of report**
9. **Purchaser can lift sample(1+1)**
10. **FBO**
11. **FA Report**
12. **Designated Officer**
13. **Analysis**
14. **RFL Report**
15. **FSO**
16. **TRIBUNAL SPECIAL COURT**
17. **State Govt. to launch prosecution/penalty if sample is Unsafe, Substandard or Misbranded**
18. **Adjudication**
All must have the same Lot/Batch No & Mfg Date
• The FSO/Authorized Officer is responsible for collecting, holding, sealing, storing and delivering the sample in a manner that will prevent it from being changed after sampling.

• **Whoever receives the sample at the laboratory has the same responsibility from that time on.**

• It is very important that the FSO/Authorized Officer be able to document sample integrity from time of collection to delivery to the analyst, particularly when enforcement action is being considered.
The label of food sample sent to FA & to DO shall bear:

1. Code number
2. Name of the sender with his official designation and signature
3. Date and place of collection
4. Nature of articles being sent for analysis
5. Nature and quantity of preservative, if any, added

Code No: 32273
Name/Designation: Date: 4.7.2015
Place collected: Nature: Toned Milk (500ml)
Contains 0.4ml formalin
Signature:
Analyses of official samples.

FSO must pay FBO at rate sold to public

Lifting the sample

Signature or thumb impression of FBO or witness if FBO declines signing

4 samples or divide in 4 Parts

NABL Accredited Lab if FBO demands

DO: 2 parts 2+1

Analysis and prepare of 4 copies of report

FBO

Appeal

FA Report

DESIGNATED OFFICER

Analysis

RFL Report

ADJUDICATION

FSO

State Govt. to launch prosecution/penalty if sample is Unsafe, Substandard or Misbranded

An appeal against the report of Food Analyst lies before the Designated Officer who shall, if he so decides, refer the matter to the Referral Food Laboratory as notified by FSSA(I) for opinion.
Key elements for Best Practices at a RL
1. SAMPLE ACCOUNTABILITY

Ensures that the official samples, test samples, test potions, test solutions, etc., are traceable. The life of the laboratory sample should be documented until final disposal, including all test samples and test portions.
2. SAMPLE INTEGRITY

• Ensures nothing the laboratory does has the effect of making the material non-representative: storage, handling and transport in the laboratory, maintenance of proper storage temperature, opening sample containers in the appropriate level of controlled environment.

• Laboratory waste disposal, workflow layout, cross-contamination, etc. also can affect sample integrity.

• Supporting Records: sample storage refrigerator temperatures, microbiology lab environmental monitoring (RH, Temperature)
2. SAMPLE INTEGRITY: STORAGE

Samples are maintained at the following temperatures:
• Frozen samples are maintained at -28 to -18 °C;
• Refrigerated samples are maintained at 2 to 8 °C; and
• Ambient samples should be protected from heat and moisture.

Refrigerated and frozen sample storage location temperatures are recorded daily.
3. SAMPLE SECURITY

• Physical security of samples prevents intentional adulteration or substitution of the laboratory sample.
• This ensures that the material collected remains representative of the product, and that it is usable as evidence in court.
3a. Physical Security in RL

- Building security,
- Protection of official samples,
- Visitor control,
- Document security,
- Controlled substances (absolute alcohol, Pt dishes, NaCN)
3a. CONTROLLED AREAS

- Sample storage area;
- Solvent storage area;
- Alcohol storage area;
- Radioactive Material Area;
- PCR Room;
- Document room;
- Computer room; and
- Mail room

Access is limited

Cleaned only during normal working hours under supervision

High security locks or card readers with alarm contacts

Entrances are secured
4. Chain of Custody

- Laboratory samples are physical evidence.
- A chain-of-custody form is a mechanism for tracing the lineage of a sample from the time of collection through reporting of results to sample disposal.
- Documentation of chain of custody, including all test portions and test solutions, provides evidence that sample accountability, integrity, and security have been maintained.
Physical Custody of Sample

- The Sample Custodian receives the majority of samples delivered to the laboratory. Occasionally, an analyst or supervisor may receive a sample into the laboratory.
- Only those designated for custodial role may receive and sign for the laboratory receipt of the sample.
- It is the responsibility of the person receiving physical custody of the sample to initiate the original record of sample receipt.
Flow Chart for Analysis of Appellate Food Samples

FSO/DESIGNATED OFFICER

Sample → NABL/FA/RFL

Memo

Report

Analysis

Security & Integrity

Documentation

Microbiological parameters

Food additives

Labeling Compliance

Physical Examination

Quality Standards

Pesticide Residues

Heavy Metal analysis

Naturally Occurring Toxic substances

Security & Integrity

Security & Integrity
A Sample Package received from FSO/DO under FSSA(I)

- Wrapped with thick paper (waterproof)
- FSO/DO Code
- Securing Thread/Twine
- FSO/DO Signature & Seal
- SEAL
- Seals
### Sample Receipt & Custodial Storage Register

**FT/FSAQCL/FSSA-RFL/2016/1**

<table>
<thead>
<tr>
<th>Serial No</th>
<th>Date of receiving Parcel</th>
<th>DO/FSO Code No</th>
<th>No of outer seals on parcel</th>
<th>Seals intact Yes/No if No details</th>
<th>Custodial Storage Ambient/Frezer/Refrigerator Temperature</th>
<th>Name and Signature of Sample Custodian</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28.7.2015</td>
<td>32273</td>
<td>6</td>
<td>Yes</td>
<td>Refrigerator FSAQCL/Ref/1 4°C</td>
<td></td>
</tr>
</tbody>
</table>

**Accountability, Security & Integrity**
Custodial Storage: Use a checklist

1. Registered Parcel Number and dispatch date:
2. Name and Designation of sender:
3. Signature of sender (Yes/No)
4. Date of parcel receipt:
5. **Condition of outer cover of parcel.** Specify
   - i. Normal/Leakage/ Damaged
   - ii. Covered/not covered with paper/cloth
   - iii. Packed in wooden box/tin/cardboard carton/paper/plastic box
   - iv. Intact outer seals /without seals/broken seals
   - v. Number of outer seals
6. Details of Custodial Storage (Place, Temperature)
7. Name and Signature of Custodian
<table>
<thead>
<tr>
<th>Serial No</th>
<th>Date of receiving Parcel from Custodial storage</th>
<th>DO/FSO Code No</th>
<th>Date of receiving memo with seal</th>
<th>Parcel opening date</th>
<th>Laboratory Code No</th>
<th>Do outer seals on parcel and FSO/DO memo match</th>
<th>Name and Signature of person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30.7.2015</td>
<td>32273</td>
<td>30.7.2015</td>
<td>30.7.2015</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Copy of memo and seal sent to FA/RFL

2. A fees of Rs. 1000 for analysis of the sample is enclosed vide Demand Draft for Rs. 1000 drawn in favour of the Senior Accounts Officer, FSSAI, FDA Bhawan, Kotla Road, New Delhi – 110002. [The Director, Recherche, Food Safety Laboratories, on receipt of the Demand Draft shall immediately send a copy of the same to the FSSAI, New Delhi for deposition in respective Receipt Head.

3. A copy of memorandum and the specimen impression of the seal used on container and the cover are sent separately by Registered Post.

Bank Draft No. 232529
Dated: 04/07/2015.

Designated Office
Food Safety Administration
district, Dausa

[Signature]
Check whether memo seal and parcel seal match and document

2. A fees of Rs...1,000...for analysis of the sample is enclosed vide Demand Draft for Rs...1,000...drawn in favour of the Senior Accounts Officer FSSAI, FDA Bhawan, Kotla Road, New Delhi – 110002. [The Director, Food Safety Laboratories, on receipt of the Demand Draft shall immediately send same to the FSSAI, New Delhi for deposition in respective Receipt Head.

3. A copy of memorandum and the specimen impression of the seal use container and the cover are sent separately by Registered Post.

BANK DRAFT NO. 232529
DATED. 04/07/2015.

Seals were intact and unbroken.
The seals fixed on container and cover tallied with the specimen seal impression sent separately along with copy of Memorandum.

[Signature]

Designated Offic
Food Safety Administr
District, Daman & Diu.
Documentation on opening parcel:
Use a checklist

1. Date of receipt from Custodial Storage:
2. Date of opening parcel:
3. Registered Parcel Number and dispatch date:
4. Name and Designation of sender:
5. **Condition of outer cover of parcel.** Specify
   i. Normal/Leakage/Damaged
   ii. Covered/not covered with paper/cloth
   iii. Packed in wooden box/tin/cardboard carton/paper/plastic box
   iv. Intact outer seals/without seals/broken seals
   v. Number of outer seals
6. **Condition of inner contents of parcel**

   I. Packing material: sufficient/insufficient
   II. Packing material used: waste cotton /cloth /paper/cotton/paddy husk/ thermocol /straw/wood shavings/cardboard pieces/any other
   III. Sample container: Bottle/tin/packet/polythene cover/Tetrapak/any other
   IV. Condition of sample container: Normal/ Leakage/ Damaged
   V. Condition of seal if any: Normal/Broken
   VI. No of seals if any:
   VII. Does the seal compare with the seal impression on outer cover: Yes/No
7. Number of samples in parcel
8. Name of the sample as per memorandum
9. Code number of sample as per memorandum
10. Name of sample on Sample container
11. Code Number of sample on Sample container
12. Signature of FSO/DO on sample container: Yes/No
13. Date of sampling and collection
14. Any other observation of significance
15. Copy of memorandum in parcel: Yes/No
16. Challan No/DD No Yes/No. Details of Challan
17. Laboratory Code Number:
18. Parcel opened in the presence of Name and signature

Signature & Name of Food Analyst
Date & Seal
<table>
<thead>
<tr>
<th>Serial No</th>
<th>Date of receiving from Custodial Storage&amp; opening</th>
<th>FSO/DO Code No</th>
<th>Laboratory Code No</th>
<th>Sample Name and Quantity received does it tally</th>
<th>Fit or Unfit for Analysis If Unfit give details</th>
<th>Name and Signature of Analyst with date receiving the sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30.7.2015</td>
<td>32273</td>
<td>172-F</td>
<td>Toned milk 250 mL yes</td>
<td>Unfit Mold and fungal growth visible</td>
<td></td>
</tr>
</tbody>
</table>
Time Frame for Analysis of Food Samples

- **FSO/DO**
  - Report
  - **14 days***
- **FA/RFL/NABL**
  - Documentation
  - *5 days for imported sample
- **Sample Fit for Analysis**
  - Unfit
  - 7 days
- **Microbiological parameters**
- **Food additives**
- **Labeling Compliance**
- **Physical Examination**
- **Quality Standards**
- **Pesticide Residues**
- **Heavy Metal analysis**
- **Naturally Occurring Toxic substances**
Immediate action is taken to document and reconcile any discernible abnormalities and/or discrepancies such as:

- Conflicting sample numbers/name,
- Broken seals,
- Breakage,
- Leakage or thawing
- Putrid smell

Inform FSO/DO and request for second sample - 7 days time
* 

- In case a sample container received by the PA/RFL is found to be in broken condition or unfit for analysis, he shall within a period of seven days from the date of receipt of such sample inform the FSO/DO about the same and send a requisition for a second part of the sample.
- In case the sample cannot be analysed within 14 days of its receipt, the RFL shall inform the Designated Officer and the Commissioner of Food Safety giving reasons and specifying the time to be taken for analysis.
Intra Laboratory Splitting and Transferring Samples

A split/transfer of a sample occurs when a sample requires an additional analysis to that performed by the original analyst.

Diagram:
- Sample
  - Microbiology Lab (FA)
    - Chemical Lab (FA)
  - Sample
    - Microbiology Lab (FA)
    - Chemical Lab (FA)

Details must be recorded.
Carry out Analysis as per FSS Rules& Regulations, 2011

- Licensing and Registration of Food businesses
- Packaging and Labelling
- Food product standards and Food Additives
- Prohibition and Restriction on sales
- Contaminants, toxins and residues
- Laboratory and sampling analysis
Food Standards : INDIA

FOOD LAWS (INDIA)

MANDATORY

FSS Rules 2011

BIS

AGMARK

VOLUNTARY
Check List for evaluating Label (Packaged Food)

Food grade packaging: Food grade as per BIS.

- Label must declare
  - Name of Food in English/Devnagiri script
  - List of Ingredients in decreasing order
  - Nutritional information
  - Declaration regarding Veg or Non veg
  - Declaration regarding Food Additives
  - Name and complete address of the manufacturer
  - Net quantity
  - Lot/Code/Batch identification
  - Date of manufacture or packing
  - Best Before and Use By Date
  - FSSA(I) Logo & License/Registration Number
  - Country of origin for imported food
  - Instructions for use (if Necessary)
  - Product Specific requirements (ISI/Agmark)

- Restriction on advertisement
  - Super refined. Ultra refined etc.
Extraneous Addition of colours/flavors to be mentioned on label

CONTAINS PERMITTED NATURAL COLOUR(S)

OR

CONTAINS PERMITTED SYNTHETIC FOOD COLOUR(S)

OR

CONTAINS PERMITTED NATURAL AND SYNTHETIC FOOD COLOUR(S)

CONTAINS ADDED FLAVOUR

CONTAINS PERMITTED NATURAL COLOUR(S) AND ADDED FLAVOUR(S)

OR

CONTAINS PERMITTED SYNTHETIC FOOD COLOUR(S) AND ADDED FLAVOUR(S)

OR

CONTAINS PERMITTED NATURAL AND SYNTHETIC FOOD COLOUR(S) AND ADDED FLAVOUR(S)
Product Specific Requirements (few examples)

PACKAGED DRINKING WATER
CRUSH THE BOTTLE AFTER USE

CINNAMON (DALCHINI)

CASSIA BARK (TAJ)

IT CONTAINS ADDITIONAL SODIUM/POTASSIUM SALT

Polyols may have laxative effects

IRON FORTIFIED COMMON SALT

“CONTAINS CAFFEINE”

Contains Oligofructose (dietary fiber) —— gm/100 gm

Frozen Desserts / Frozen Confection Contain …………….. Milk Fat* / Edible Vegetable Oil* / and Vegetable Fat*

“MOTHER’S MILK IS BEST FOR YOUR BABY”

MIXED MASALA (FRIED)
THIS MASALA HAS BEEN FRIED IN
(Name of the edible oil used)

Coffee blended with Chicory
This mixture contains
Coffee………………………….. Per cent
Chicory………………………….. Per cent

“MOTHER’S MILK IS BEST FOR YOUR BABY”

“(i) This contains ……………… (Name of the artificial sweeteners).  
(ii) Not recommended for children.  
(iii) (a) *Quantity of sugar added …………… gm/100 gm.  
(b) No sugar added in the product.  
(iv) *Not for Phenylketonurics (if Aspartame is added)
Ultra Pure
BOTTLED WATER, INC.

MP WHEAT ATTA
Chakki Fresh | 100% Atta | 0% Maida

PROTEIN = PROTEIN
OF ONE GLASS OF COW'S MILK
OF 100g BISCUIT
10 ESSENTIAL VITAMINS
1 glass of Milk = 250ml (Ref: NIN)

ADDED FIBRE
HEALTHY
AIDS DIGESTION
Analytical Methods
The laboratory shall normally use only standard methods as prescribed in
• FSSA(I) Manuals, BIS methods
• AOAC test method manual or
• Any other international publications like USFDA BAM, American Public Health Association (APHA) Compendium of Methods for the Microbiological Examination of Foods. etc. as per the product & laboratory requirement.

Use Fit for Purpose Methods
FOOD SAFETY AND STANDARDS (FOOD PRODUCTS STANDARDS AND FOOD ADDITIVES) REGULATIONS, 2011

PART 2.1: Dairy Products and Analogues
PART 2.2: Fats, Oils And Fat Emulsions
PART 2.3: Fruit & Vegetable Products
PART 2.4: Cereals & Cereal Products
PART 2.5: Meat and Meat Products
PART 2.6: Fish and Fish Products
PART 2.7: Sweets & Confectionery
PART 2.8: Sweetening agents including Honey
PART 2.9: Salt, Spices, Condiments and Related Products
PART 2.10: Beverages (Other than Dairy and Fruits & Vegetables based)
PART 2.11: Other Food Product and Ingredients
PART 2.12: Proprietary Food
PART 2.13 Irradiation of Food

CHAPTER 3 : SUBSTANCES ADDED TO FOOD
Part 3.1: Food Additives
PART 2. 4: CEREALS AND CEREAL PRODUCTS

2.4.1: ATTA
2.4.2: MAIDA
2.4.3: SEMOLINA (Suji or Rawa)
2.4.4: BESAN
2.4.5: PEARL BARLEY (Jau)
2.4.6: FOOD GRAINS
2.4: CORNFLOUR (Maize starch)
2.4.8: CORN FLAKES
2.4.9: CUSTARD POWDER
2.4.10: MACARONI PRODUCTS
2.4.11: MALTED AND MALT BASED FOODS
2.1.12: ROLLED OATS
2.1.13: 2.4.13 SOLVENT EXTRACTED FLOURS
2.4.14: STARCHY FOODS
2.4.15 BAKERY PRODUCTS
   1. BISCUITS
   2. BREAD
2.4.1 Specification for Atta

2.4.1 ATTA

1. Atta or resultant atta means the coarse product obtained by milling or grinding clean wheat free from rodent hair and excreta It shall conform to the following standards:

   - **Moisture**: Not more than 14.0 per cent (when determined by heating at 130-133°C for 2 hours).
   - **Total ash**: Not more than 2.0 per cent (on dry weight basis).
   - **Ash insoluble in dilute HCl**: Not more than 0.15 percent (on dry weight basis).
   - **Gluten (on dry weight basis)**: Not less than 6.0 per cent.
   - **Alcoholic acidity (with 90 per cent alcohol expressed as H2SO4 (on dry weight basis)**: Not more than 0.18 per cent.

   It shall be free from rodent hair and excreta.
<table>
<thead>
<tr>
<th>General Parameters</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical examination for moulds, living and dead insects, insect fragments and rodent contamination(hair, excreta) visible to the naked eye</td>
<td>Absent</td>
</tr>
<tr>
<td>Musty odour and rancidity</td>
<td>Absent</td>
</tr>
<tr>
<td>Test for antioxidants (BHA, TBHQ)</td>
<td>Absent</td>
</tr>
<tr>
<td>Test for preservatives (Benzoic acid, Sorbic acid, Sulphur di oxide etc</td>
<td>Absent</td>
</tr>
<tr>
<td>Test for added Natural colours (Curcumin, Riboflavin, Chlorophyll, Beta carotene, Carotene(Natural extract), Annatto extract (Bixin), Beta apo-8 carotenal, Methyl ester of Beta apo-8 carotenonic acid, Canthaxanthin, Caramel colours(Plain), Caramel colours(Ammonium Sulphite process)</td>
<td>Absent</td>
</tr>
<tr>
<td>Test for synthetic colors (Ponceau 4R, Carmoisine, Erythrosine, Tartrazine, Sunset Yellow FCF, Indigo carmine, Brilliant blue FCF, Fast green FCF)</td>
<td></td>
</tr>
<tr>
<td>Quality Parameters</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td>Not more than 14% (when determined by heating at 130-133°C for 2 hours)</td>
</tr>
<tr>
<td>Total ash</td>
<td>Not more than 2.0 per cent (on dry weight basis)</td>
</tr>
<tr>
<td>Ash insoluble in dilute HCl</td>
<td>Not more than 0.15 percent (on dry weight basis)</td>
</tr>
<tr>
<td>Gluten (on dry weight basis)</td>
<td>Not less than 6%</td>
</tr>
<tr>
<td>Alcoholic acidity (with 90 per cent alcohol) expressed as H2SO4 (on dry weight basis)</td>
<td>Not more than 0.18%</td>
</tr>
<tr>
<td>Metal Contaminants</td>
<td>Value</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Lead</td>
<td>2.5 mg/kg</td>
</tr>
<tr>
<td>Copper</td>
<td>30 mg/kg</td>
</tr>
<tr>
<td>Arsenic</td>
<td>1.1 mg/kg</td>
</tr>
<tr>
<td>Mercury</td>
<td>1.0 mg/kg</td>
</tr>
<tr>
<td>Methyl Mercury calculated as the element</td>
<td>0.25 mg/kg</td>
</tr>
<tr>
<td>Tin</td>
<td>250 mg/kg</td>
</tr>
<tr>
<td>Cadmium</td>
<td>1.5 mg/kg</td>
</tr>
<tr>
<td>Zinc</td>
<td>50 mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Naturally occurring Toxic Substances</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aflatoxin</td>
<td>30 μg/kg</td>
</tr>
<tr>
<td>Agaric acid</td>
<td>100 mg/kg</td>
</tr>
<tr>
<td>Hydrocyanic acid</td>
<td>5 mg/kg</td>
</tr>
<tr>
<td>Hypericin</td>
<td>1 mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pesticides</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aldrin, dieldrin (the limits apply to aldrin and dieldrin singly or in any combination and are expressed as dieldrin)</td>
<td>Nil</td>
</tr>
<tr>
<td>Carbaryl</td>
<td>Nil</td>
</tr>
<tr>
<td>Chlordane (residue to be measured as cis plus trans chlordane)</td>
<td>Nil</td>
</tr>
<tr>
<td>Diazinon</td>
<td>Nil</td>
</tr>
<tr>
<td>Dichlorvos (content of di-chloroacetaldehyde (D.C.A.) be reported where possible)</td>
<td>0.25 mg/kg</td>
</tr>
<tr>
<td>Fenitrothion</td>
<td>0.005 mg/kg</td>
</tr>
<tr>
<td>Heptachlor (combined residues of heptachlor and its epoxide to be determined and expressed Milled as Heptachlor)</td>
<td>0.002 mg/kg</td>
</tr>
<tr>
<td>Hydrogen cyanide</td>
<td>3.0 mg/kg</td>
</tr>
<tr>
<td>Hydrogen phosphide</td>
<td>Nil</td>
</tr>
<tr>
<td>Inorganic bromide (determined and expressed as total bromide from all sources)</td>
<td>25 mg/kg</td>
</tr>
<tr>
<td>Hexachlorocycle hexane Gamma (Gamma) Isomer (Known as Lindane)</td>
<td>Nil</td>
</tr>
<tr>
<td>Malathion (Malathion to be determined and expressed as combined residues of malathion and malaoxon)</td>
<td>1.0 mg/kg</td>
</tr>
<tr>
<td>Substance</td>
<td>Limit (mg/kg)</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Chlorienvinphos</td>
<td>0.006</td>
</tr>
<tr>
<td>Pyrethrins (sum of pyrethrins I &amp; II and structurally related insecticide Ingredients of pyrethrum)</td>
<td>Nil</td>
</tr>
<tr>
<td>Phosphamidon residues (expressed as the sum of phosphamidon and its desethyl derivative)</td>
<td>Nil</td>
</tr>
<tr>
<td>Chlorpyrifos</td>
<td>0.01</td>
</tr>
<tr>
<td>2,4D</td>
<td>0.003</td>
</tr>
<tr>
<td>Ethion (Residues to be determined as ethion Tea And Its oxygen analogue and expressed as ethion)</td>
<td>0.006</td>
</tr>
<tr>
<td>Monochrotophos</td>
<td>0.006</td>
</tr>
<tr>
<td>Paraquat Dichloride (Determined as Paraquat cations)</td>
<td>0.025</td>
</tr>
<tr>
<td>Trichlorfon</td>
<td>0.0125</td>
</tr>
<tr>
<td>Thiometon (Residues determined as thiometon its sulfoxide and sulphone expressed as thiometon)</td>
<td>0.006</td>
</tr>
<tr>
<td>Decamethrin / Deltamethrin</td>
<td>0.20</td>
</tr>
<tr>
<td>Carbendazim</td>
<td>0.12</td>
</tr>
<tr>
<td>Benomyl</td>
<td>0.12</td>
</tr>
<tr>
<td>Carbofuran (sum of carbofuran and 3-hydroxy carbofuran expressed as carbofuran)</td>
<td>0.03</td>
</tr>
<tr>
<td>Decamethrin / Deltamethrin</td>
<td>0.20</td>
</tr>
<tr>
<td>Fenthion (sum of fenthion, its oxygen analogue and their sulfoxides and sulphones expressed as fenthion)</td>
<td>0.03</td>
</tr>
<tr>
<td>Dithiocarbamates (the residue tolerance limit are determined and expressed as mg/CS2/kg and refer separately to the residues arising from any or each group of dithiocarbamates)</td>
<td>0.05</td>
</tr>
<tr>
<td>Phenthoate</td>
<td>0.01</td>
</tr>
<tr>
<td>Phorate (sum of Phorate, its oxygen analogue and their sulfoxides and sulphones, expressed as phorate)</td>
<td>0.01</td>
</tr>
<tr>
<td>Pirimiphos-methyl</td>
<td>1.0</td>
</tr>
<tr>
<td>Cypermethrin (sum of isomers) (fat soluble residue)</td>
<td>0.01</td>
</tr>
<tr>
<td>Microbiological Safety Standards for frozen vegetables</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Total Plate Count</strong></td>
<td>Not more than 40,000 cfu /gm</td>
</tr>
<tr>
<td><strong>Yeast and Mould Count</strong></td>
<td>Positive in not more than 100 count per gm</td>
</tr>
<tr>
<td><strong>Enterobacteriaceae</strong></td>
<td>Not more than 100 cfu / gm</td>
</tr>
<tr>
<td><strong>Staphylococcus aureus</strong></td>
<td>Not more than 20 cfu/gm</td>
</tr>
<tr>
<td><strong>Salmonella</strong></td>
<td>Absent in 25 gm</td>
</tr>
<tr>
<td><strong>Shigella</strong></td>
<td>Absent in 25 gm</td>
</tr>
<tr>
<td><strong>Clostridium botulinum</strong></td>
<td>Absent in 25 gm</td>
</tr>
<tr>
<td><strong>E.coli 0157</strong></td>
<td>Absent in 25 gm</td>
</tr>
<tr>
<td><strong>Vibrio cholerae</strong></td>
<td>Absent in 25 gm</td>
</tr>
<tr>
<td><strong>Listeria sp</strong></td>
<td>Absent in 25 gm</td>
</tr>
</tbody>
</table>
Analytical Results: Documentation

*If it was not documented, it was not done.*
Three major concerns about the Analytical notebook:
(a) The safekeeping of the lab notebook
(b) The organization and readability of the lab notebook,
(c) The quality of the recordkeeping.
Best practices for Analytical Documentation

- Detailed Sample Description
- Sample Chain of Custody
- Analytical information
- Quality Control
- Raw Data
- Attachments
- Commercial Labels
- Good Record Keeping practices
Physical Characteristics of a Good Notebook...

- Large: >= 8.5 x 11 at least (attaching stuff)
- Bound (stitched) pages to ensure integrity
- Numbered pages
- Acid free paper (30 years)
- Duplicate pages (differing opinions)
General Good Record Keeping Practices

- Document/version control as required by ISO/IEC 17025
- Clear annotation of entries
- Logical sequence of recordings
- Consecutive page numbers (example 1 of 12, 2 of 12...12 of 12 or 1.2.3......)
- All unused areas are lined out and dated/initialed. Can use a diagonal line to cross out multiple areas at once
General Good Record Keeping Practices

- All entry errors are corrected by putting one line through the error, clearly rewriting the entry,
- Dating and initialing the error and an explanation of the error if it is not obvious
- No correction fluid or correction tape on worksheets
- No blacking out entry errors
- All data packages are recorded using blue or black ink (*no pencils, using felt tip a bad idea*)
Quality Control

- Equipment Identification Number
- Lot Number of sterile dishes
- Lot Number of Chemicals used
- Lot Number and date of preparation of reagents used
- QC standards information
- QC Standard microorganism used
RAW DATA

- Detailed sample preparation information
- All calculations including formula
- All standard preparations
- All dilution schemes
- Test conditions
- Deviations, additions, exclusions
- Any raw data associated with analysis and all observations
ATTACHMENTS

Instrument Printouts, computer generated charts and data sheets, photographs, photocopies etc.

- Must have a unique attachment number/letter (Example Attachment A)
- Each page of the attachment must have
  1. the attachment number/letter at the top
  2. the product name at the top
  3. the unique sample ID number at the top
  4. the initials or signature of the primary analyst
  5. Sequentially numbered (example 1 of 4, 2 of 4)
- If the attachment is of awkward size it can be mounted to mounting paper
ETHICAL & LEGAL ISSUES

• The Laboratory owns “your” notebook

• Do NOT remove your notebook from the lab (unless this is an acceptable lab practice)

• Do not take original pages

• Should be kept for at least 5 years

• Dated and signed by author

• Checked by witness (Senior Lab in charge) and signed/dated
FORM A

(Refer regulation 2.2.2)

CERTIFICATE OF ANALYSIS BY THE REFERRAL FOOD LABORATORY

Certificate No. ......................

Certificate that the sample, bearing number ........purporting to be a sample/of .......... was received on ............ with Memorandum No. ........ Dated ............ From ........ [Name of the Court] ............ for analysis. The condition of seals on the container and the outer covering on the receipt was as follows:

........................................................................................................................................................................
........................................................................................................................................................................

I ................. (name of the Director) ................ found the sample to be ................. (Category of food sample) ................. falling under Regulation No. ............ of Food Safety and Standards(Food Products and Food Additive) Regulations, 2011. The sample was in a condition fit for analysis and has been analyzed on ............ (Give date of starting and completion of analysis) ................. and the result of its analysis is given below /*was not in a condition fit for analysis for the reasons given below:—

Reason:—
........................................................................................................................................................................

Analysis Report:—
........................................................................................................................................................................

(i) Sample Description:—
........................................................................................................................................................................

(ii) Physical Appearance :—
........................................................................................................................................................................

(iii) Label:— ........................................................................................................................................................................
<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Quality Characteristics</th>
<th>Name of the Method of the test used</th>
<th>Results</th>
<th>Prescribed Standards as per:-</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(a) As per Food Safety</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and Standards (Food Products</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and Food Additive) Regulations,</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>2011</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(b) As per label declaration</td>
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<td></td>
<td></td>
<td>for proprietary foods</td>
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<tr>
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<td></td>
<td>(c) As per the provisions of</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>the Act and Regulations, for</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>both above</td>
</tr>
<tr>
<td>1.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
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<tr>
<td>3.</td>
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<td></td>
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<tr>
<td>4.</td>
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<tr>
<td>5.</td>
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<tr>
<td>6.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Opinion**

Place: 
Date:  
(Signature) 
Director Referral Food Laboratory  
(Seal)

* Strike out whichever is not applicable

** When opinion and interpretation are included, document the basis upon which the opinions/interpretations have been made.
Unsafe Food

- If composed of poisonous or deleterious substance
- If consisting of any filthy, putrid, rotten, decomposed or diseased animal substance or vegetable substance
- If processed unhygienically or presence of any harmful substance
- If substitution of any inferior or cheaper substance
- If addition of a substance directly or as an ingredient which is not permitted
- If the abstraction of any of its constituents
- If coloured, flavoured or coated, powdered or polished, as to damage or conceal the article or to make it appear better or of greater value
- If it contains any colouring matter or preservatives other than that specified
- If the article infected or infested with worms, weevils, or insects
- If prepared, packed or kept under insanitary conditions;
- If mis-branded or sub-standard or food containing extraneous matter
- If it contains pesticides and other contaminants in excess of quantities specified by regulations.
Misbranded

- If sold under false, misleading claims on label or advertisement
- If sold by a name which belongs to another article of food
- If sold under the name of a fictitious individual or company
- If the article is an imitation or substitute or resembles another article
- If label on the package has any misleading statement, design or device regarding the ingredients, which is false or misleading
- If sold as the product of any place or country which is false
- If it contains additives /chemicals without declaration
- If sold as food for special dietary uses without following regulatory concern on its vitamins, minerals or other dietary properties
- If is incorrectly stated as a product which is not the actual one under the act.
An article of food shall be deemed to be sub-standard if it does not meet the specified standards but not so as to render the article of food unsafe.
<table>
<thead>
<tr>
<th>Serial No</th>
<th>Date of receiving Parcel</th>
<th>FSO/DO Code No</th>
<th>Date of issue to Analyst</th>
<th>Laboratory Code No</th>
<th>Report prepared by and signed</th>
<th>Report Dispatch Date by Regd Post with A/D</th>
<th>Regd Post No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28.7.15</td>
<td>32273</td>
<td>1.8.15</td>
<td>172-F</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All documents including memo in parcel, letter memo, parcel covering etc. with a copy of final report must be filed together.