

A background image of a laboratory setting. In the foreground, there are several glass bottles and test tubes containing yellowish liquids. A person wearing a white lab coat and blue gloves is visible in the background, working with the equipment. The overall scene is brightly lit, typical of a laboratory environment.

Sampling of Food

Dr. Dhir Singh

ADG (PFA)

Food Safety and Standards Authority of India

FDA Bhavan, New Delhi-110002

E-mail: adgpfa@nic.in

Major Areas



Objectives



Importance of Sample Collection



Sampling tools and containers.



Sampling collection techniques



Sampling for Microbiological analysis of food



Routine versus Investigational sampling



Quantity of food samples to be collected for analysis



Packaging and sealing of sample



Dispatch of sample



Commodity Specific sampling procedure

Objective

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Sampling involves the selection of a certain portion, number of container and product units from a particular lot of the same food. It must be as representative.

Samples are usually collected from a lot of food for random surveillance, collection of data for a specific purpose, or monitoring/and to determine the conformity to product standards specified in the regulation .

FSO may collect samples from any place where any article of food is manufactured, or stored for sale, or stored for the manufacture of any other article of food by Authorized officer for sale, or exposed or exhibited for sale or where any adulterant is manufactured or kept.

Food Safety officer while taking samples of food or imported article of food for analysis shall, follow the specified procedure for taking samples and sending them for analysis.

Importance of Sample Collection

- Sample collection is very important to ensure that analytical data is reliable and to draw a representative sample.
- 3 activities in analysis
 - Collection of representative sample
 - Sample preparation
 - Analysis using proper methods & instruments
- Potential sources of variation for above activities to be identified and minimized or avoided
- Proper sample size, suitable containers for sampling or use of appropriate preservatives to prevent spoilage /damage before analysis.

Precautions during sampling

- The condition of the sample received for examination is of primary importance.
- A representative sample is essential when pathogens or toxins are sparsely distributed within the food.
- The number of units that comprise a representative sample from a designated lot of a food product must be statistically significant.
- The proper statistical sampling procedure, according to whether the food is solid, semisolid, viscous, or liquid, must be determined by the FSO at the time of sampling.



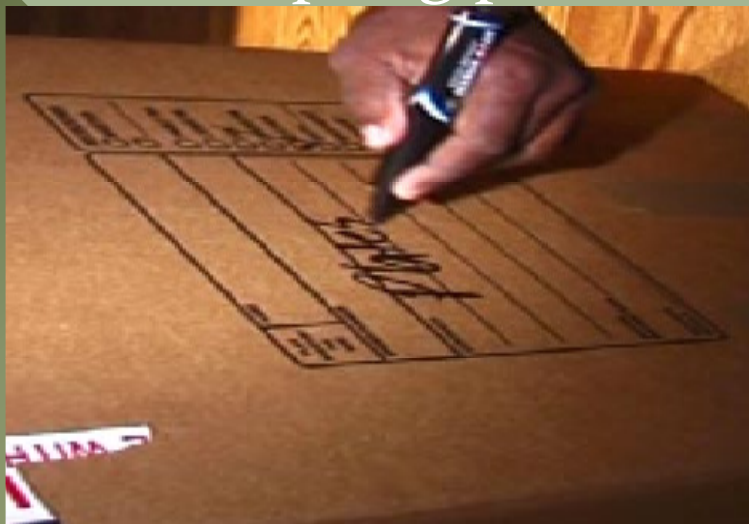
Precautions during sampling

- Clean, dry, leak-proof, wide-mouthed and sterile containers of a size suitable for sample of the product must be used.
- Sample must be submitted in original and in sealed condition.
- Dry or canned foods that are not perishable and are collected at ambient temperatures need not be refrigerated.
- Collect frozen samples in pre-chilled containers.
- Follow storage norms

Sampling plan

The criteria should be considered in formulating a sampling plan:

- type of food product
- the size of food articles to be sampled
- the degree of hazard to human health
- the potential for fraud
- acceptance and rejection criteria:
 - adulteration,
 - tolerance limits,
 - compositional standards,
 - net contents



Sampling tools and containers

Samples collected from bulk packages or unpackaged foods sold at retail must be placed in suitable containers for storage and handling to be presented for laboratory analysis.

- **Sampling tools:**



- The tools available to FSO/ Authorized Officer range from common tools for general purposes to special tools to be used in specific situations and for specific examinations of particular food products.
- Common tools such as pliers, spoon, screwdriver and knife are useful for opening containers, cutting bags of food products.

Sampling tools and containers

- **Sample containers:**
- In general, for liquids the FSO/ Authorized Officer should use clean, dry containers of appropriate waterproof and leak proof material, including glass, stainless metal, and suitable plastic material which can be sterilized by heat if necessary.
- The containers must have a secure closure of rubber or plastic stoppers, or a screw-cap of metal or plastic, coated with an insoluble, non-absorbent.
- For solids or semi-solids, clean, dry, wide-mouth, cylindrical receptacles of suitable waterproof, material should be used.
- For butter, suitable wide-mouth jars should be used. The butter must not be allowed to come into contact with paper or any water or fat-absorbing surface.

Sample Collection Techniques:

- The FSO/ Authorized Officer must obtain the following Information;
 - name of the food;
 - lot number;
 - container size or sizes;
 - product code numbers;
 - labelling information;
 - condition of the lot, i.e., broken packages, evidence of rodent or insect infestation, debris, etc.;



Sampled Unit (Lot)

- Every effort should be made to restore the lot from which the sample is collected to its original condition.
- Whenever possible, samples should be collected from previously unopened boxes or crates, unopened retail packages, and unopened bulk containers such as sealed big containers.
- Often samples may have to be collected from bulk containers which have been inadequately covered.
- When this happens, the existing condition should be described in detail, keeping in mind the effect that opening could have had on the composition of the product.

Sample integrity

- The FSO/ Authorized Officer must always be aware of the perishability of the sample and that, for analytical significance, the sample must reach the laboratory in a condition similar to that at the time of sampling.
- In taking official samples, many food control authorities prescribe the use of special tamper-proof containers or sealing with wax and a seal with the FSO/ Authorized Officer's designated identification number. It is usually a good precaution to have the owner of the goods sign for the owner's portion of the sample.
- The FSO/ Authorized Officer is responsible for collecting, holding, sealing, storing and delivering the sample. 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.

Quantity of Food Samples to be collected for Analysis

- Under the provision of Rule No. 13 (FSSA), the quantity of sample of food to be sent to the Food Analyst / Director for analysis shall be as specified in the table below:

Article of food	Approximate quantity to be supplied
1. Milk	500 ml.
2. Sterilized Milk/UHT Milk	250 ml.
3. Malai/Dahi	200 gms.
4. Yoghurt/Sweetened Dahi	300 gms.
5. Chhana/Paneer/Khoya/Shrikhand	250 gms.
6. Cheese/Cheese spread	200 gms.
7. Evaporated Milk/Condensed Milk	200 gms.
8. Ice-Cream/Softy/Kulfi/Ice Candy/Ice lolly	300 gms.
9. Milk Powder/Skimmed Milk Powder	250 gms.
10. Infant Food/Weaning Food	500 gms.
11. Malt Food/Malted Milk Food	300 gms.
12. Butter/Butter Oil/Ghee/Margarine/Cream/ Bakery Shortening	200 gms.
13. Vanaspati, Edible Oils/Fats	250 gms.
14. Carbonated Water	600 ml.
15. Baking Powder	100 gms

Quantity of Food Samples to be collected for Analysis

Article of food	Approximate quantity to be supplied
16. Arrowroot/Sago	250 gms
17. Corn flakes/Macaroni Products/ Corn Flour/ Custard Powder	200 gms.
18. Spices, Condiments and Mixed Masala(Whole)	200 gms.
19. Spices, Condiments and Mixed Masala (Powder)	250 gms.
20. Nutmeg/Mace	150 gms.
21. Asafoetida	100 gms.
22. Compounded Asafoetida	150 gms.
23. Saffron	20 gm.
24. Gur/jaggery, Icing Sugar, Honey, Synthetic Syrup, Bura	250 gms.
25. Cane Sugar/Cube sugar/Refined Sugar/Dextrose, Misri/ Dried Glucose Syrup.,	200 gms
26. Artificial Sweetener	100 gms.
27. Fruit Juice/Fruit Drink/Fruit Squash	400 ml
28. Tomato Sauce/Ketchup/Tomato Paste, Jam/ Jelly/ Marmalade/ Tomato Puree/Vegetable Sauce	300 gms.
29. Non Fruit Jellies	200 gms.
30. Pickles and Chutneys	250 gms.
31. Oilseeds/Nuts/Dry Fruits	250 gms.
32. Tea/Roasted Coffee/Roasted Chicory	200 gms.
33. Instant Tea/Instant Coffee/Instant Coffee Chichory Mixture	100 gms.

Quantity of Food Samples to be collected for Analysis

Article of food	Approximate quantity to be supplied
34. Sugar Confectionery/Chewing Gum/Bubble Gum	200 gms.
35. Chocolates	200 gms.
36. Edible Salt	200 gms.
37. Iodised Salt/ Iron Fortified Salt	200 gms.
38. Food Grains and Pulses (Whole and Split)	500 gms.
39. Atta/Maida/Suji/Besan/Other Milled Product/ Paushtik and Fortified Atta/Maida	500 gms.
40. Biscuits and Rusks	200 gms.
41. Bread/Cakes/Pastries	250 gms.
42. Gelatin	150 gms.
43. Catechu	150gms.
44. Vinegar/Synthetic Vinegar	300 gms.
45. Food colour	25 gms.
46. Food colour preparation (Solid/Liquid)	25 gms Solid/100 ml liquid
47. Natural Mineral water/Packaged Drinking water.	4000 ml
48. Silver Leafs	1 gm
49. Prepared Food	500 gms.
50. Proprietary Food, (Non Standardised Foods)	300 gms.
51. Canned Foods .	6 sealed cans
52. Food not specified	300 gms.

PACKING AND SEALING THE SAMPLES

- In order to maintain integrity, packages containing exhibits should be secured or sealed to prove their authenticity, i.e., to ensure that they could not have been tampered.
- The stopper shall first be securely fastened so as to prevent leakage of the contents in transit
- The bottle, jar or other container shall then be completely wrapped in fairly strong thick paper. The ends of the paper shall be neatly folded in and affixed by means of gum or other adhesive.
- A paper slip of the size that goes round completely from the bottom to top of the container, bearing the signature of the Designated Officer and code number of the sample, shall be pasted on the wrapper, the signature or thumb impression of the person from whom the sample has been taken, shall be affixed in such a manner that the paper slip and the wrapper both carry a part of this signature or the thumb impression
- The outer covering of the packet shall also be marked with the code number of the sample.



DISPATCH OF SAMPLE

- All samples packaged for dispatch must be secured with shock-absorbing materials to protect them from damage en route.
- Samples of frozen foods to be sent overnight may be packed in insulated cartons containing dry ice that will last for that length of time.
- If special precautions in handling or storing samples are needed, the FSO/ Authorized Officer should ensure that persons who will be handling the samples are informed.

DOCUMENTATION

FORM III

[Refer rule 3.3.2.(1)]

(to keep any article of food in safe custody of the vender)

To

(Name and address of the vendor)

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

Whereas *.....intended for food which is in your possession appears to me to be adulterated/misbranded:

Now therefore under clause (c) of sub-section (1) of section 38 of the Food Safety and Standards Act, 2006 (34 of 2006), I hereby direct you to keep in your safe custody the said sealed stock subject to such orders as may be issued subsequently in relation thereto.

Food Safety Officer

Area.....

Place:

Date:

**Here give the name of article of food.*

FORM V
(Refer rule 3.4.1. (3))

To

.....

.....

Dear Sir/s/ Madam:

I have this day taken from premises ofsituate at.....
.....samples of food specified below to have the same analysed by the Food
Analyst for _____.

Details of food:

Code number:

Place:

Date:

Address:

Sd/-) Food Safety Officer

FORM VI
(Refer rule 3.4.3 (7))

Memorandum to Food Analyst

From:

.....

..... Date: _____

To

Food Analyst

.....

.....

MEMORANDUM

(Refer rule (v)a of 3.4.1(8))

1. The sample described below is sent herewith for analysis under ___ of ___ of section ___ of Food Safety and Standards Act, 2006

- I. Code Number
- II. Date and place of collection
- III. Nature of articles submitted for analysis
- IV. Nature and quantity of preservative, if any, added to the sample.

2. A copy of this memo and specimen impression, of the seal used to seal the packet of sample are being sent separately by post/courier/hand delivery (strike out whichever is not applicable)

(Sd/) Food Analyst
Address:

COMMODITY SPECIFIC SAMPLING PROCEDURES

- Adulteration crosses the economic fraud area when toxic or inedible adulterants are used and human illness and chemical poisoning result.
- Food control also includes responsibilities for prevention of economic fraud.
- Inspection activities include review of labelling, check of net contents, identity and compositional aspects of food standards, and false and misleading food advertising.
- Sampling procedures should be performed in accordance with appropriate ISO Standards related to the commodity of concern.
- General Guidelines on Sampling can be downloaded from the Codex Website (*CAC/GL 50-2004*).



Thank you