SOP n°2
Collection of samples

Food and Agriculture Organization of the United Nations

World Health Organization

Benin  Cameroon  Mali  Nigeria
Source and Scope

<table>
<thead>
<tr>
<th>tds exposure</th>
<th>Standard Operating Procedure</th>
<th>TDS SOP 02</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCOPE</strong></td>
<td><strong>this procedure is a generic SOP applicable for the collection of food samples for TDS.</strong></td>
<td></td>
</tr>
</tbody>
</table>

**It is intended to be used (possibly after adequate adaptations) by each national TDS team.**
Objective

To be a generic procedure for the collection of samples
FOOD SHOPPING LIST: detailed list of food products to be purchased by food item that will form a representative sample of the total diet according to the RTDS FOOD LIST.

The shopping list should indicate when appropriate:

- Type / Variety / Brand
- Number of items / Amount in grams
- Places
- Frequency / Seasonality
ASSIGNMENT SHEET:

- **Shopping plan calendar**
  1. Dates to go
  2. Places to go (city and market or shop)
  3. Staff involved

- **Food preparation plan**
  1. Dates
  2. Which kitchen
  3. Staff involved
Definitions (3/4)

COLLECTION REPORT (filled by purchasers):

1. Date / location / retail type
2. Food identification (food group, food sub-group and food item)
3. Product origine / source / brand / batch number / expiry date
4. Subsample size
5. Subsample packaging and condition when purchased
6. Packaging / conditioning for transport
7. Cost of the subsample
Definitions \(4/4\)

**CONTINGENCY SAMPLES:**
- Extra samples acquired saved for any future loss or event

**PACKING LIST:**
- Template for writing a general description of the content of each box or thermal bag

**SPECIAL NOTE:**
- Instructions for corrective actions etc...
Responsibilities

Job description of:

- Purchasers
- Coordinators

Should be noted:
- Identify required training
- Compose list of trained & allowed personnel
- See SOP n°1 for material to take while shopping
The collection report (see appendix n°1) should contain:

- Name, title and signature of the responsible purchaser
- Date, time and place of sampling
- Date, location, market, lieu and retail type
- Reason for sampling (if applicable)
- Any deviation from sampling instructions must be registered
- Date of dispatch to kitchen laboratory
- Name and address of kitchen laboratory
- Registering of corrective actions
PROCEDURE
Collection report

Each food item bought is described in the collection report:

- Food identification (see codification in SOP n°1)
- Origin, importer, producer, wholesaler, retailer...
- Product type, brand and batch number if available
- Expiry date if available
- Sampling method (random/lot or random/accessible units)
- Size, number and code number of field sample
- Real cost of each item
- Packaging when purchased / for transport
- Any other relevant information
Acceptance criteria for deviations / SHOPPING LIST:

- Collected samples should be representative of the food supply in the area investigated

- Different sample sizes, brands, prices etc can be purchased if budget and study proper prosecution are not jeopardized

- If a food item of a certain origin or kind is not available, choose an alternative product:
  - consistent with the behavior of the average consumer
  - widely available
  - with the same characteristics
PROCEDURE
Conditioning, codification and labelling

**Conditioning:**

- Take time, fill in the PACKING LIST
- Place a label on each food item
- Each food item is placed in a plastic bag and inside boxes
- Plastic bags should be adequate
- Each box is labelled with a number / total number of boxes
- PACKING LIST, SHOPPING LIST & COLLECTION REPORT should be inside box n°1 together with shopping receipts
- Make sure that food items are very well wrapped
PROCEDURE
Conditioning, codification and labelling

**Conditioning:**

- Avoid cross contamination during conditioning
- If more boxes are needed, use cardboard boxes
- Place harder items around the edge of box and pack softer food items in the middle
- Use newspaper to fill the boxes and prevent food items from rattling. Mark « FRAGILE » and « FOOD » on boxes
PROCEDURE
Conditioning, codification and labelling

Codification and labelling:
See SOP n°1
PROCEDURE
Transportation from the markets to kitchen labs

*Time* [purchase – delivery] *as short as possible:*

- 6 hours in cool climate recommended and otherwise:
  - Refrigerated transport, ice boxes and coolants or dry ice
  - Transport frozen food at -20°C => +4°C
  - Transport perishable food at +2°C => +4°C
  - Transport non-perishable food at < +24°C
  - Use a temperature logger with samples
  - Inform kitchen lab staff when collecting and shipping
  - Avoid cross contamination during transport
  - Avoid local sources of environmental contamination
For more information, please contact the Scientific Committee Secretariat

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THANK YOU FOR YOUR CONTRIBUTIONS!
SOP n°3
Reception of samples

Food and Agriculture Organization of the United Nations

World Health Organization

Benin
Cameroon
Mali
Nigeria
**SCOPE**: this procedure is a generic SOP applicable for the reception of food samples for TDS.

It is intended to be used *(possibly after adequate adaptations)* by each national TDS team.
Objective

To be a generic procedure for the reception of samples
FOOD SHOPPING LIST: detailed list of food products to be purchased by food item that will form a representative sample of the total diet according to the RTDS FOOD LIST.

The shopping list should indicate when appropriate:

- Type / Variety / Brand
- Number of items / Amount in grams
- Places
- Frequency / Seasonality
ASSIGNMENT SHEET:

● **Shopping plan calendar**
  1. Dates to go
  2. Places to go (city and market or shop)
  3. Staff involved

● **Food preparation plan**
  1. Dates
  2. Which kitchen
  3. Staff involved
Definitions (3/3)

COLLECTION REPORT (filled by purchasers):

1. Date / location / retail type
2. Food identification (food group, food sub-group and food item)
3. Product origine / source / brand / batch number / expiry date
4. Subsample size
5. Subsample packaging and condition when purchased
6. Packaging / conditioning for transport
7. Cost of the subsample
Responsibilities

Job description of:

- **Purchasers**
- **Kitchen lab staff**
- **Coordinators**

**Should be noted**

- Training mandatory
- Compose list of trained & allowed personnel
PROCEDURE
Reception of samples

Food items arrive in bags + boxes:

- If size and condition of packagings allow, these can be kept.
- Food items are wrapped individually. In case of non-compliance, they should be re-ordered.
- The SHOPPING LIST, PACKING LIST & COLLECTION REPORT as well as shopping receipts are located in box n°1.
PROCEDURE
Checking for compliance

Check temperature and other acceptance criteria:

- Frozen food should arrive frozen, perishable food should arrive fresh, non perishable products should arrive at room temperature
- Each food item is checked against COLLECTION REPORT
- The SHOPPING LIST, is checked against the COLLECTION REPORT
- Sensory analysis / edibility criteria

In case of non-compliance => re-order
Entrance and disposal of food items (appendix n°4) and the description of each food items (appendix n°2) are recorded

- Reception date
- Identification code numer of sample
- Sample weight (ex: 4 X 100g)
- Comments/Observations
- Storage conditions (ex: 4°C)
- Preparation date / preparation date
- Signature of responsible staff for sensory analysis/record
PROCEDURE
Storage

Food samples storage areas are recorded in appendix n°3

- No storage outside of designated areas
- Keep all storage areas clean, dry and well ventilated
- Check temperature on a regular basis
- Do not remove labels of commercially processed food
- Some substances or food types require specific storage conditions (appendix n°1)
PROCEDURE

Storage

- In the absence of information provided by supplier, non perishable food is stored at: 10=>25°C
- Perishable food should be prepared within 48h after reception and freezing should be avoided
- Frozen samples are stored at -18°C or colder and should be thawed in a refrigerator
- Common household storage practices should be kept in mind
- Label bags with waterproof pen
- Stored samples conditioning material should be inert
PROCEDURE

Stockage

- Improper storage conditions may distort TDS results, either by causing loss of chemical substance, or change in the final food composition

- Frozen and perishable food may cause lack of free space in freezers and refrigerators => to be prepared asap

- Dispose of samples if the expiry date is reached or if samples show inedible characteristics
PROCEDURE
Storage (dry food)

- 15 cm from floor and walls
- Away from direct sunlight
- Store food in durable containers that cannot be damaged by water / pests
- Set temperature 10 - 25°C, if possible
- Maintain humidity levels 50 - 65%
PROCEDURE
Storage (frozen food)

- -18°C or colder
- Defrost if necessary find available racks and shelves and register space for samples
- Do not overload freezers
- Place food in freezers as soon as inspected
- No hot food placed in freezers
- Make sure proper air circulation is effective
- Keep the freezer closed as much as possible
PROCEDURE

Storage (refrigerated food)

- +4°C or colder
- Place a thermometer on top shelf and near the door
- Store raw food below cooked/ready to eat food
- Do not use foil on shelves (air circulation)
- No hot food placed in refrigerators
- Cover food properly (avoid cross contamination)
- Keep refrigerators closed as much as possible
For more information, please contact the Scientific Committee Secretariat

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THANK YOU FOR YOUR CONTRIBUTIONS!
SOP n°4
Processing of samples

Food and Agriculture Organization of the United Nations

World Health Organization

Benin  Cameroon  Mali  Nigeria
## Source and Scope

**SCOPE:** this procedure is a generic SOP applicable for the processing of food samples for TDS.

It is intended to be used *(possibly after adequate adaptations)* by each national TDS team.

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<th>tds exposure</th>
<th>Standard Operating Procedure</th>
<th>TDS SOP 04</th>
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<tr>
<td><strong>SOP Valid from:</strong></td>
<td>Sample preparation (at kitchen laboratory)</td>
<td></td>
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Objective

To be a generic procedure for the preparation/processing of samples at kitchen laboratory level.
• **Composite**: sample consisting of 12 subsamples of equal weight

• **Individual composite**: sample consisting of 12 subsamples each of the same food subgroup (level 2 of RTDS classification)

• **Subsample**: sampled unit, defined by its intrinsic nature, origin, place of purchase and preparation process.
**Vocabulary**

- **National sample**: analyzed only once (for the whole country) by time-period investigated.

- **Local sample**: at least two composites need to be analyzed (one for each location of interest), from the assumption of significant differences in contamination level between the selected locations.

- **Local sample by default**: justification requested to consider a sample as “national”.
Responsibilities

Job description of:

- Kitchen lab staff
- Coordinators

Should be noted

- Training mandatory
- Compose list of trained & allowed personnel
PROCEDURE
Sample preparation and culinary operations

General recommendations:

- Highly perishable food targeted with priority
- Inedible parts removed before or after cooking according to consumers usual behaviour
- Food should be prepared as reported in sampling plan and according to reference recipes
- Reflect consumer habits including cooking method and cooking time.
- Distilled water is used for boiling and salt and fat are analyzed individually
- Sauces, seasoning and spices are not added to food
PROCEDURE
Sample preparation and culinary operations

Materials:

- Kitchen utensils used for preparing samples should be a source of contaminants.
- However, a migration study will try to characterize the contribution of traditional kitchen utensils to the dietary exposure of populations

- List of kitchen utensils
- Liste of homogenising equipement
- Recipients for TDS samples
PROCEDURE
Preparation of samples and culinary operations

Prepare each TDS sample as described in appendix n°1

• Record while preparing samples in appendix n°1 any relevant information:
  1. Date, weight before and after each culinary process
  2. Cooking method
  3. Type of water (distilled water)
  4. Comments (absence of salt, oil...)
  5. Name and signature

• Check if recorded values/calculations are correct

• One composite sample of water (12 subsamples)
PROCEDURE
Pooling, homogenising

- 100g minimum of the edible fraction of each of the 12 « prepared as consumed » subsamples should be added to a 2L HDPE container to form the TDS composite sample
- The TDS sample should be thoroughly homogenised
- Visual inspection for homogeneity of samples
- Special attention should be paid to the list of containers which may be modified if necessary
PROCEDURE

Division into analytical units

- At least $2 \times 100g$ (analytical sample + reserve sample) are taken from homogeneous TDS pooled sample. If 10 analysis are requested, $11 \times 100g$ will be needed.

- Transport to laboratories: frozen (-20°C) iceboxes + dry ice

- The analytical plan can be found in the following Excel file: RTDS ANALYTICAL PLAN
PROCEDURE
Storage of samples

- Preserved at -20°C or below until delivery to the analytical laboratories.

- Record in Appendix n°2 permit d’enregistrer where and where pooled samples are stored

- When portions are withdrawn from storage, they should be rehomogenised if needed or tested for homogeneity
PROTOCOL

Cleaning

Kitchen utensils

- Following common household practices

Laboratory utensils

1. Pre-clean with paper towels
2. Clean using appropriate laboratory scale detergent (Deconex…) and rinse with tap water
3. Rinse with distilled water
4. If manually cleaned, finally rinse with ethanol
5. The equipment should be dried

Other cleaning procedures should be evaluated beforehand
If samples are inedible or spoiled

- Waste

Leftovers of prepared TDS samples

(once pooled samples are frozen and stored)

- Waste

Attention: do not dispose of frozen samples before the end of the study/publication of results
For more information, please contact the Scientific Committee Secretariat

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