SRI LANKA STANDARD 528 : 1981

UDC 633.1:620.113

METHOD FOR SAMPLING OF FOOD GRAINS

BUREAU OF CEYLON STANDARDS

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SLS 528 : 1981

Gr. 5

BUREAU OF CEYLON STANDARDS,
53, Dharmapala Mawatha,
Colombo 3,
Sri Lanka.

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This Standard does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD

METHOD FOR SAMPLING OF FOOD GRAINS

FOREWORD

This Sri Lanka Standard Specification has been prepared by the Drafting Committee of the Bureau on Methods of Analysis of Foodgrains. It was approved by the Agricultural and Food Products Divisional Committee of the Bureau of Ceylon Standards and was authorized for adoption and publication by the Council of the Bureau on 1981-08-13.

All standard values given in this specification are in SI units.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis shall be rounded off in accordance with CS 102*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

In the preparation of this standard, the assistance gained from publications of the International Organization for Standardization and the Indian Standards Institution is gratefully acknowledged.

1 SCOPE

1.1 This standard prescribes a method for the sampling of cereals and pulses.

2 DEFINITIONS

2.1 consignment : The whole quantity of grain intended to be of the same quality despatched under a particular contract.

**CS 102 Presentation of numerical values.*

2.2 lot : All the containers in a single consignment of grain pertaining to the same variety and grade shall constitute a lot.

If a consignment is declared or is known to include different varieties, different classes or if it appears that the lot is heterogeneous, the containers holding products of similar characteristics shall be grouped together and each group thus obtained shall constitute a separate lot.

2.3 primary sample : The quantity of grain taken from a single position in the lot.

A series of primary samples should be drawn from different positions in the lot, which when bulked will be representative of the lot.

2.4 composite (bulk) sample : The quantity of grain formed by combining and blending the primary samples drawn from different positions of a lot.

2.5 final lot sample (laboratory sample) : The sample obtained by reduction from the composite sample and which is representative of the quality of the lot.

3 GENERAL REQUIREMENTS OF SAMPLING

3.1 Samples should be drawn jointly by sampling superintendents appointed by buyers and sellers or by a sampling superintendent appointed jointly.

3.2 Samples should be fully representative of the lots from which they are drawn. Therefore, as the composition of the lot is seldom uniform, a sufficient number of primary samples should be drawn and carefully mixed, thus giving a bulk sample from which are obtained by successive divisions, the final lot sample.

3.3 It is essential that food grains which is sea-damaged or otherwise damaged in transit or out of condition should be kept separate from sound grains and sampled separately. Samples of unsound material should not be mixed with samples of the sound material.

3.4 Special care is necessary to ensure that all sampling apparatus are clean, dry and free from foreign odours. Sampling should be carried out in such a manner as to protect the samples, the sampling instruments and the containers in which the samples are placed from adventitious contamination such as rain, dust, etc.

4 APPARATUS

The apparatus required may fall under the following headings (see Figures 1, 2, and 3).

4.1 *Sampling from bags*

Sampling spears, or *cylindrical sampler*.

4.2 *Sampling from bulk*

Shovels, handscoop, cylindrical sampler.

4.3 *Mixing and dividing*

Shovels and dividing apparatus preferably of wood or plastic material.

5 METHOD OF SAMPLING

5.1 Food grain in bags

5.1.1 *Sampling in warehouse*

Sampling of a lot in the warehouse shall be generally done at the time the lot is being moved out. The scale of sampling shall be as given in Table 1. Unless otherwise specified in the contract the number of the bags drawn from a lot shall be in accordance with Table 1.

TABLE 1 - Number of containers to be drawn for sampling

Lot size (N)	No. of containers (bags) to be drawn (n)
1 to 5 containers (bags)	All containers (bags)
6 to 49 containers (bags)	5 containers (bags)
50 to 100 containers (bags)	10% of the containers (bags)
Over 100 containers (bags)	The square root of the number of containers (bags), rounded to the nearest whole number.

These containers shall be drawn at random from the lot and in order to achieve this, a random number table (as in SLS 428 Sri Lanka Standard on random sampling methods) agreed between the buyer and seller shall be used. If such a table is not available, the following procedure shall be adopted.

Starting from any container count the containers as 1, 2, 3 ... etc., up to r and so on. Every rth container thus counted shall be withdrawn from the lot for sampling; the value of r is equal to

$$\frac{N}{n}$$

where

N is the total number of containers in the lot,

n is the number of containers to be drawn (see Table 1).

If r is a fractional number its value shall be taken as equal to the integral part of it.

5.1.1.1 Procedure for drawing primary samples

a) Using sampling spear

Sampling spear shall be inserted into the bag by keeping it in a horizontal position and then taken out.

Primary samples shall be taken from different parts of each bag to be sampled (for example: top, middle or bottom) by means of sampling spear.

When the walls of the bags sampled consist of material which does not permit the holes made by the sampling spear to close up naturally after removal of the spear the holes shall be patched effectively after the samples have been taken or another sampling instrument shall be used.

b) Using cylindrical sampler

The tube shall be inserted diagonally into the bags to be sampled. The sampler shall be inserted in the bag in the closed position with slotted part facing downwards, when sampler has been inserted to the desired position it shall be turned to bring slotted part to face upwards and brought to *open position*. Gentle turning fills the opened slots with grains. It shall then be brought to the closed position turned to bring the slotted part face downwards and then taken out of the bags keeping it in the horizontal position.

c) Samples drawn from each bag shall be spread on a clean piece of paper or wooden plank. Samples from different bags should not get mixed till visual examination on these samples is completed. In the visual examination if samples drawn from different bags are found to be homogeneous in quality they may be allowed to go in the composite sample. In case different qualities of grains are found in any one bag sampling shall be done on all the bags and the bags having different qualities shall be rejected.

5.1.2 *Sampling bagged grain in transit*

A consignment in transit may be suitably divided into convenient batches. Each batch shall be then sampled according to the scale (as in Table 1). When sampling is done at the unloading end, precautions shall be taken to select bags for sampling from each vehicle load. The procedure for sampling to be followed from the bags selected for the purpose shall be the same as given in 5.1.1.1.

5.2 Food grain in bulk

5.2.1 The scale of sampling for food grain in bulk shall be as given in Table 2.

TABLE 2 - Scale of sampling for food grains in bulk

Quantity of consignments (1)	No. of spots from which samples to be drawn (2)
Up to 300 tonnes	30 spots
301 to 1000 tonnes	50 spots
1001 tonnes and above	100 spots

Spots shall be selected for sampling at various depths and in case the desired depth cannot be reached, samples shall be drawn while the grain is being moved out. As far as possible selection of spots for samples may be done at random.

5.2.2 *Procedure for sampling*

Shovel, hand scoop or cylindrical sampler shall be used to obtain primary samples.

5.3 Preparation of composite samples (bulk sample)

5.3.1 All the primary samples drawn as described above shall be mixed thoroughly to form the composite sample.

5.3.2 *Preparation of final samples for moisture determination*

The composite sample shall be divided into three final samples and three samples for moisture determination. Each final sample shall comprise about 500 g and each sample for determination of moisture about 150 g.

NOTE - Larger or smaller samples may be required in some cases, according to the tests to be carried out.

6 PACKAGING

6.1 The samples shall be packed in containers made of a material which has no action on the product, for example: glass bottles or jars, tins with close fitting lids, unglazed, unbleached, insewn cotton bags of very close texture, or paper bags.

6.2 Samples for the determination of moisture, or for other tests in which it is important to avoid the loss of volatile matter (for example: examination for evidence of chemical treatment), shall be packed in air-tight and moisture-tight containers, fitted with air-tight closures. The containers shall be completely filled and the closures shall be sealed to prevent loosening or tampering.

6.3 The bags and other containers shall carry the seal of each sampler.

7 LABELLING

7.1 The labels shall contain the following particulars:

a) Name of the commodity ;

b) Contract number and date ;

c) Quality grade contracted for ;

d) Quantity ;

e) Whether in bags or in bulk ;

f) Place and date of sampling ;

g) Trade mark or lot number ;

h) Name of ship/wagon no./ truck no./warehouse ;

j) Period of discharge ; and

k) Name of person who sampled.

8 SAMPLING REPORT

If a sampling report is prepared, besides giving the usual information it shall make reference to the condition of the product sampled, including signs of insect, mite or rodent infestation, visible in the warehouse silo or during working the vessel or other carrier. This infestation is not always readily apparent in the sample except on close inspection or sieving. The report shall also refer to the sampling technique applied, if this differs from that described in this Sri Lanka Standard, and all the circumstances that may have influenced sampling.

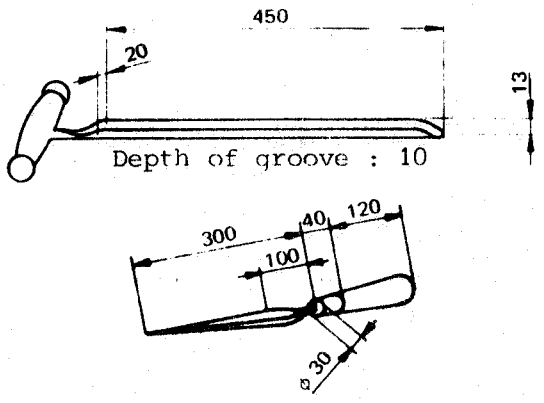

FIGURE 1 - Sampling spear (open trier)

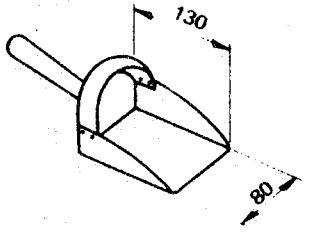

FIGURE 2 - Hand-scoop

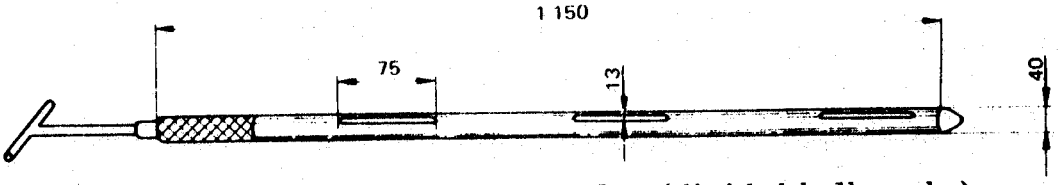

FIGURE 3 - Cylindrical sampler (divided bulk probe)

(All dimensions are in millimetres)

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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