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# SN

ENTRY-EXIT INSPECTION AND QUARANTINE INDUSTRY

STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

## SN/T 0800.1-2016

Replacing SN/T 0800.1-1999

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**Inspection of cereals, oils and feedstuffs for import and  
export - Methods of sampling and preparation of samples**

进出口粮油、饲料检验抽样和制样方法

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## Foreword

SN/T 0800 consists of the following 20 parts:

- Part 1: Inspection of cereals, oils and feedstuffs for import and export - Methods of sampling and preparation of samples;
- Part 2: Inspection of cereals, oils and feedstuffs for import and export - Method for the determination of crude fat;
- Part 3: Inspection of cereals, oils and feedstuffs for import and export - Method for the determination of crude protein;
- Part 4: Inspection of cereals, oils and feedstuffs for import and export - Method for the determination of urease activity;
- Part 5: Inspection of cereals, oils and feedstuffs for import and export - Method for the determination of starch content;
- Part 6: Inspection of cereals, oils and feedstuffs for import and export - Method for the determination of ash;
- Part 7: Inspection of cereals, oils and feedstuffs for import and export - Method for the inspection of imperfect grains;
- Part 8: Inspection of cereals, oils and feedstuffs for import and export - Method for the determination of crude fibre content;
- Part 9: Inspection of cereals, oils and feedstuffs for import and export - Method for the determination of tannin content;
- Part 10: Inspection of cereals, oils and feedstuffs for import and export - Method for the determination of water absorption;
- Part 11: Inspection of cereals, oils and feedstuffs for import and export - Method for the determination of salt contents;
- Part 12: Inspection of cereals, oils and feedstuffs for import and export - Method for the inspection of grain composition including whole kernels and broken rice;
- Part 13: Inspection of cereals, oils and feedstuffs for import and export - Method for the inspection of milling degree;
- Part 14: Inspection of cereals, oils and feedstuffs for import and export - Method for the determination of germinative energy and germination;
- Part 15: Inspection of cereals, oils and feedstuffs for import and export -

# Inspection of cereals, oils and feedstuffs for import and export - Methods of sampling and preparation of samples

## 1 Scope

This Part of SN/T 0800 specifies the methods of sampling and preparation of samples of inspection of cereals, oils and feedstuffs for import and export.

This Part is applicable to the sampling and sample preparation for inspection of cereals, oils and feedstuffs for import and export.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 5494, *Inspection of grain and oils - Determination of foreign matter and unsound kernels of grain and oilseeds*

GB/T 5502, *Inspection of grain and oils - Determination of milling degree of rice*

GB/T 5524, *Animal and vegetable fats and oils - Sampling*

GB/T 10361, *Wheat rye and respective flours durum wheat and durum wheat semolina - Determination of the falling number according to Hagberg-Perten*

GB/T 15687, *Animal and vegetable fats and oils - Preparation of test sample*

SN/T 0798, *Inspection of cereals oils and feedstuffs for import and export - Terminology for inspection*

SN/T 0799, *Inspection of cereals oils and feedstuffs for import and export - General rules for the inspection*

SN/T 0803.5, *Oil bearing materials for import and export - Method for the inspection of grade and uniformity*

SN/T 2504, *Technique procedures of quality inspection and quarantine for imported and exported cereals*

to samplings of beans, corns, feeds;

- b) total length is 50cm, slot length is 40cm, slot width is 0.8cm ~ 1.5cm, outer diameter is 1.6cm ~ 2.0cm, tip is about 4.0cm, solid cone; it is applicable to samplings of small, medium grains, oilseeds, feeds;
- c) total length is 55cm, slot length is about 35cm, slot width is 0.6cm ~ 0.7cm, the maximum outer diameter is about 1cm, head-tip-shaped; it is applicable to sampling of powder cargo.

## 5.2 Double-sleeve sampler and slot receiver

Applicable to sampling of bulk static cargo.

According to the actual loading transport tools, the size of the cargo, the storage of cargo, use double sleeve sampler of different specifications, length. The commonly used one: total length is 110cm, handle length is 15cm, cone length is 6.5cm, outer diameter of outer tube is 2.6cm, inner diameter is 2.0cm, with four outlets with each outlet of 20cm×1.8cm. There are also other double-sleeve standard samplers with total lengths of 250cm, 300cm, etc.

The slot receiver is made of tin or aluminum skin, of which the length is 100cm, semi-cylindrical, opening width is 10cm, used to collect the sample collected by double-sleeve sampler. Or it can use canvas of sufficient length to collect the sample.

## 5.3 Sampling shovel

The shovel length is about 13cm, the width is about 8cm, the side height is about 4cm, the handle length is about 8cm. See Figure A.1 of Annex A.

## 5.4 Automatic mechanical sampling device

Applicable to dynamic cargo sampling. The device mainly consists of four parts:

- a) shunt mechanical sampler;
- b) rotary divider;
- c) gravity divider;
- d) rotary-table sampler.

The specific operation is carried out according to the specifications of each sampling device.

## 5.5 Deep-layer sampler

A semi-automatic sampling device that mainly consists of several connectable

cylinder. A momentary pause between the opening of the inlet and outlet valves is to ensure that the sample first enters the bottom of the cylinder and causes a slight increase in the internal pressure of the cylinder to prevent the sample from entering the top when the top valve is opened.

### **5.12 Simple counterweight sampling tank**

The simple counterweight sampling tank (see Figure A.3) is suitable for sampling at different depths in a variety of storage tank. It consists of a stainless steel cylinder (capacity of approximately 500mL), a counterweight with a separate bottom and a tapered barrel neck. The metal ring fixed on both sides of the cone neck has a ring at its highest point. The rope passes through the ring and is tied to the cork of the conical barrel neck. Empty sampling tank with cork drops to the specified depth of liquid grease. Urgently pull the rope and unplug the cork, the tank shall be full of samples.

### **5.13 Sampling barrel with bottom valve**

The sampling barrel with foot valve (see Figure A.4) is suitable for taking samples from liquid oil contained in tanks or oil tanks. It is divided into two parts: the upper and the lower. The top of the upper is open. The lower part is equipped with a heavier screw mechanism on the outside of the barrel. A lightweight self-weight valve is fixed at the bottom to ensure the stability of the sampling device from bottom to top. When the sampling barrel falls in the liquid grease, the pressure of the oil on the valve keeps the bottom open until the grease flows evenly into the barrel. When it stops falling, the bottom valve closes and the grease is drawn from the depth of the sampling barrel.

### **5.14 Tube sampler**

Applicable to sampling of paste grease. (See Figure A.5). It is a stainless steel device consisting of two concentric tubes of the same length and close together, one of which can rotate in the other tube. Each tube has a longitudinal opening. In a certain position, the tube is opened so that the oil flows in, and the tube is closed by turning the inner tube.

### **5.15 Sampling probe**

Sampling probe (see Figure A.6) is used for stearin sampling. It is made of stainless steel, with semi-circular or C-shaped cross section. When it is twisted and inserted into grease, it shall obtain a sample of oil.

### **5.16 Sampling tube**

Made of thick-walled glass tube or stainless steel, suitable for liquid grease sampling (see Figure A.7).

the cabin. After extracting the first batch of samples, a small batch of samples shall be increased after every 1000t of loading and unloading. When it is less than 1000t, it shall be calculated as 1000t. Each small batch of samples shall be taken from at least 50 points so that the total amount of small batches of original samples is not less than 8kg.

#### **b) River steamer or small barge**

For small river steamer or barge with loading number is 100t ~ 500t, the sampling point setting shall be according to 7.1.1.1.2. Extract a small batch of initial samples per loading and unloading about 500t. Each small batch sample is drawn from at least 20 points. Total amount is not less than 8kg. When the loading quantity is less than 500t, the loading of different river steamer or small barges of the same variety and grade can be used as a sampling batch. After combining the individual samples at each sampling point, they are mixed into a small batch of initial samples with a total amount of not less than 8kg.

#### **7.1.1.1.5 Silo**

In general, no manual sampling is used in the silo. For silos with mechanized sampling equipment, the cargo entering and exiting the silo adopts the device specified in 5.4. Extract a small batch of samples when 1000t enters and exists the silo. According to the unloading flow rate, set the device sampling frequency at least 50 times.

Silos without mechanized sampling device, according to the sampling tools specified in 5.1, 5.2, 5.3, 5.4, according to the actual situation, use dynamic or static sampling method to extract representative samples.

#### **7.1.1.1.6 Container bulk**

If the number of cargo submitted for inspection of same inspection number, same variety, same level is less than 10000t, extract one original sample per 500t. The sample number is not less than 5kg. When it is less than 500t, it shall be calculated as 500t and extract one original sample. If the number of the batches submitted for inspection is greater than 10000t, extract 20 original samples from 10000t and take it as the base. The number of each sample is not less than 5kg. For every additional 1000t, add one original sample. When it is less than 1000t, it shall be calculated as 1000t and extract one original sample.

For 5 or less containers, all samples shall be taken out of the containers. If there are more than 5 containers, add 1 for every 5 additional containers. If less than 5 containers remain, one shall be taken. Randomly select 7 points in the sampled container to collect samples. Try to ensure that the sampling points are evenly distributed within the container. The sampling methods are as follows:

root of the number of bags (pieces) of a batch of cargo. See equation (1):

$$n = \sqrt{N} \dots\dots\dots( 1 )$$

where,

N - Total bags (pieces) of a batch of cargo;

n - Number of pieces to be extracted (n value is integer; fractional part is rounded up).

### 7.2.1.1.2 Determination of sampling site

Based on different loading state, the sampling shall be performed according to the following methods.

- a) If a warehouse or open-air sampling is implemented, sinusoidal curves are taken around the stack, sampling points are randomly determined from the upper, middle, and lower levels, and the sampling points are determined according to 7.2.1.1.1.1. Take 5% randomly from the sample package to carry out the ladle-to-ladle. Use sampling method of sampling shovel combining with the ladle-to-ladle to extract the sample. If it is found that the difference between packages is obvious or other abnormal conditions, it shall increase the number of the ladle-to-ladle. When using a single or double-sleeve sampler, the length of the sampler shall be more than 65% of the length of the bag or at least 1/2 of the bag length.
- b) If sampling is performed during the loading and unloading process, according to the loading and unloading speed and the number of pieces to be pumped in each batch, extract the sample evenly and intermittently, or use the dump-package to extract the sample concentratedly.
- c) When loading bagged cargo with ships, trucks, wagons, extract the sample according to the method in a).
- d) When the container is loaded with bagged cargo, if the remaining space in the container is large, the personnel can access the sample by referring to the method in a). If more than one person is unable to enter the site and the site is able to pick it up, according to the number of sampling points in 7.2.1.1.1.1, a representative sample shall be taken from the tank, and the sample cannot be taken from the unloading warehouse.

### 7.2.1.2 Sampling operation

#### 7.2.1.2.1 Single-sleeve sampler

Hold the handle of the sampler, flow mouth facing downwards. Insert from the



corner of the bag or the bag diagonally into 1/2 or more of the bag. Rotate the sampler at 180°. Make the flow mouth upwards. Hold for a moment. Make the cargo flow into the sampler probe. Hold the flow mouth in the upward direction and pull the sampler out. Pour the sample from the handle end into the sample bag. Follow the above operations to extract the packages to be extracted till the total number of packages to be extracted. The number of samples per single plant shall be basically the same. Mix the samples of single plant to form original sample.

When using single-sleeve sampler to extract the bagged sample, it shall randomly take 5% from the packages extracted for the ladle-to-ladle inspection sample. If it is found that the difference between the packages is obvious or other abnormal conditions, the number of ladle-to-ladle shall be increased and the sample shall be taken with a sampling shovel. For large-grained, large-grained packaging feeds that are not suitable for sampling with a single-sleeve sampler and large grains such as peanuts, broad beans and large cowpeas as well as oilseeds (grass seed, cottonseed, etc.), it shall perform ladle-to-ladle, unpacking. The number for ladle-to-ladle shall not be less than 20% of the extracted number. Extract sample with sampling shovel.

#### **7.2.1.2.2 Sampling shovel**

According to different sampling method, the operation shall be performed as follows.

- a) Ladle-to-ladle sampling: place the bagged cargo on clean canvas or cement countertop. Remove the seam line. Lay down slowly. Hold both ends of the bag tightly with both hands. Lift to a height of about 50cm. Pull down about 1.5m long. Pour all out. Extract the sample from the middle and bottom of the equivalent of the bag with a sampling shovel. The number extracted from each package, each point shall be the same.
- b) Unpacking sampling: open the bag seam. Use a sampling shovel to extract the desired sample from the top. The number of sample extracted from each bag shall be the same.

#### **7.2.1.2.3 Double-sleeve sampler**

See 7.1.1.2.1.

### **7.2.2 Sampling of piece-packed grease**

#### **7.2.2.1 Sampling proportion of piece-packed grease**

If it is considered that an inspection lot is fairly uniform, randomly select packed cargo sampling. For different specifications of the packaging, the number of samples can be according to the recommended values in Table 2. The quantity

Keep the clean and dry sample divider steady. Turn off funnel switch. Pour the sample into the funnel from 5cm above the funnel. Turn on funnel switch. After sample flow is finished, tap the sampler housing and close the funnel switch. Then pour all the samples in the sample holder into the funnel at the same time. Continue mixing twice or three times according to the above method. Each time afterwards, use a sample in the sample holder to continue sample separation according to the above method until the sample in the sample holder approaches the required amount.

#### **8.1.1.2 Method of quartering**

Pour the sample on a clean, dry mixing table. Each hand holds one sample dividing plate to shovel the sample from the left and right sides to about 10cm height, aiming at the center and falling at the same time. Then change to its vertical direction to perform the same operation (center point remains unchanged). Repeatedly mix 4~5 times in this way. Place and press the sample into a thick square. Scratch two diagonal lines on the sample with a sample dividing plate, divide it into four isosceles triangles, and discard the sample of two opposing triangles. The remaining sample shall be repeatedly divided according to the above method till the last two samples of the top triangle are close to the required amount.

#### **8.1.1.3 Spoon sampling**

Pour the sample in a clean, dry white porcelain square plate or on a sample dividing table. Mix evenly and carefully with sample dividing plate. Tile into uniform thickness squares. Divide grids. Use a spatula to scoop samples from each grid, with no less than 16 samples, and the number of samples in each grid shall be the same.

### **8.1.2 Preparation of laboratory sample**

The original sample is reduced according to 8.1.1.1.1 sample divider dividing method or 8.1.1.2.4 method of quartering. Prepare the laboratory sample.

In the case of mechanically automatic sampling, the sample from the sampler is a laboratory sample.

## **8.2 Preparation of grease laboratory sample**

### **8.2.1 Preparation of bulk grease laboratory sample**

Where tankers or tanks WITHOUT clear water and impurities at the bottom, the extracted samples are representative samples of the tankers or tanks. Where tankers or tanks WITH clear water and impurities at the bottom, the extracted clear water and impurities shall be mixed with the original samples prepared in 7.1.2.3 in proportion to their respective tankers or tanks as the representative