INTERNATIONAL STANDARD

ISO 8243

Third edition
2003-12-15

Cigarettes — Sampling

Cigarettes — Échantillonnage

Reference number
ISO 8243:2003(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8243 was prepared by Technical Committee ISO/TC 126, *Tobacco and tobacco products*.

This third edition cancels and replaces the second edition (ISO 8243:1991), which has been editorially revised to include confidence intervals for carbon monoxide.

Introduction

Existing national standards, rules, regulations and laws were taken into account when preparing this International Standard and two different procedures are described:

— sampling at the point of sale;

— sampling at the producer's premises or importer's and distributor's warehouses.

Sophisticated sampling plans are often too expensive to be used. The two procedures in this International Standard are both simple and reliable.

Sampling is carried out either as a single procedure or as part of a series of samplings.

Sampling is carried out “at one point in time” (e.g. cigarettes available for distribution from a factory/warehouse or available at a retail outlet on the market on a particular day). When a sample is required which represents cigarettes available over an appreciable period of time (e.g. cigarettes representing several months' production) a number of sub-period samples will be taken at different times and the results combined.

The sampling plan depends upon the purpose of sampling (e.g. determination of physical properties or of smoke constituents). Further background considerations on the choice of sampling procedures are given in Annex C. It concludes that determinations of smoke yield should be made on the population manufactured for sale, sampled at manufacturers' factories or importers' warehouses, and that because of variations in cigarette manufacture the “sampling over a period of time” mode should be used wherever possible.

Detailed sampling plans are given in Annexes A and B.

NOTE Although outside the scope of this International Standard at present, it is recognized that there may be circumstances where it is relevant to the objectives for which test results are required to sample over a period of time at point of sale.

Cigarettes — Sampling

1 Scope

This International Standard specifies two methods of sampling a population of cigarettes manufactured for sale for the preparation of samples. Different procedures are specified (see Table 1) according to whether sampling is undertaken at the point of sale, at the producer's premises, or the importer's and distributor's warehouses.

a) Sampling “at one point in time” provides an instantaneous estimate of one or more characteristics of cigarettes. Sampling is carried out within as short a period as possible, not exceeding 14 d.

b) Sampling “over a period of time” provides a continuous estimate of one or more characteristics of cigarettes. It can be considered for practical purposes as a series of samples each taken “at one point in time”.

Table 1 — Sampling possibilities

	Sampling procedures	Sampling mode	
		At one time (instantaneous)	**Over a period** (continuous)
A	At point of sale	Subclause 4.2	
B	At producer's premises or importer's and distributor's warehouses	Subclause 4.3	Subclause 6.2

This International Standard provides information on the statistical treatment of data and provides estimates, based on practical experience of the order of ranking in condensate, nicotine and carbon monoxide which is found when a product is sampled and smoked in accordance with the specified procedures.

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.

ISO 5725-1:1994, *Accuracy (trueness and precision) of measurement methods and results — Part 1: General principles and definitions*

ISO 5725-2:1994, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
sale unit
quantity of cigarettes ready to be offered for sale to the public

NOTE The commonly sold packet of 20 cigarettes is used as the basis of this International Standard, but cigarettes are also sold loose and in other size packets.

3.2
population
aggregate of sale units of the cigarette to be sampled, intended for sale to consumers in a given geographical area in a given time period

NOTE The definition includes different sub-populations, two of which are given below.

3.2.1
population available to consumers
aggregate of sale units in retail outlets in a given geographical area, at any time in a given time period

3.2.2
population manufactured for sale
aggregate of sale units at a manufacturer's premises available for commercial distribution in a given geographical area, at any time in a given time period

3.3
increment
sample of cigarettes taken at one time, at one sampling point, to be combined to produce the gross sample

3.4
gross sample
aggregate of the increments

3.5
sub-period sample
that part of the whole sample taken in a brief period when sampling over a long period of time

3.6
laboratory sample
sample intended for laboratory inspection or testing and which is representative of the gross sample or the sub-period sample

3.7
test sample
cigarettes for test taken at random from the laboratory sample and which are representative of each of the increments making up the laboratory sample

3.8
test portion
group of cigarettes prepared for a single determination and which is a random sample from the test sample or conditioned sample as appropriate

3.9
place of purchase
town, village or district within the area to be sampled, or that part of the area where the cigarettes are available

NOTE Examples of boundaries are those of cantons, local government districts, electoral areas, postal code areas or any boundaries in accordance with the geographical context, or others.

3.10
sampling point
specific location (e.g. shop, specialist tobacco shop, vending machine, place in warehouse, place in factory) from which an increment is to be taken

3.11
factory
place of manufacture or its associated distribution depots or the warehouse of an importer

3.12
carton
commercial package available within a factory

EXAMPLE Packets of 20 cigarettes are usually put into cartons of 200 cigarettes.

4 Mode for sampling at one time

4.1 General

When a sale unit does not consist of a packet of 20 cigarettes, adjust the number of sale units sampled to produce the required number of cigarettes.

Two sampling procedures are described: in 4.2, a procedure for sampling at the point of sale, and in 4.3, a procedure for sampling at the premises of the manufacturer or importer.

4.2 Procedure for sampling at the point of sale

4.2.1 Selection of the places of purchase

The required number of increments and the number of places of purchase to be used will depend on the purpose of the test and are given in Annex A (A.2).

4.2.2 Selection of the sampling points

The increments obtained in each place of purchase shall originate from sampling points which are distributed over separate locations throughout the place of purchase.

The choice of sampling points shall, whenever possible, reflect the pattern of retail distribution of cigarettes in that sampling place to be sampled.

NOTE This is usually done by defining for each sampling scheme several kinds of sampling points (e.g. automatic vending machines, supermarkets, specialist tobacco shops).

Each kind of sampling point is sampled at random throughout the place of purchase and, in total, the sample from each kind of sampling point shall make up a defined proportion of the whole sample (this is called a quota from each kind of sampling point).

Sampling shall only be carried out at another kind of sampling point after two unsuccessful attempts have been made at sampling points of the specified kind.

4.2.3 Constitution of the gross sample

The gross sample is the aggregate of the increments. However, for reasons of convenience and also representativeness, it is preferable to prepare the laboratory sample directly from the increment (3.3). This is particularly important in order to secure matched laboratory samples when several laboratories are to run tests.

4.2.4 Constitution of the laboratory sample

4.2.4.1 If cigarettes of the same name and characteristics are required for several tests, sufficient sale units shall be obtained from each sampling point. If several laboratories are to run tests, an equal number of sale units from each sampling point shall be contained in each laboratory sample.

4.2.4.2 Each laboratory sample shall be marked with at least the following information:

a) name of the cigarettes and their characteristics;

b) date of sampling;

c) place of purchase;

d) kind of sampling point (if defined);

e) sampling point (address of retail outlet);

f) destination (i.e. the laboratory to which the samples are destined);

g) marks on stamp (if any);

h) printed smoke yields (if any);

i) manufacturer's pack codes (if any).

4.2.4.3 The cigarettes in the gross sample shall be obtained in as short a time as possible. This time should not exceed 14 d.

4.2.4.4 All the samples shall be packed securely with adequate protection against damage (e.g. mechanical damage, severe changes in humidity, temperature) and sent to each laboratory by the most expeditious means.

4.2.4.5 A list of samples dispatched on that day shall be sent to each laboratory, under separate cover.

4.3 Procedure for sampling at the premises of the manufacturer or importer

4.3.1 Principles

4.3.1.1 Sampling is in general carried out by an independent organization which will send to the manufacturer an accredited person referred to below as “the sampler”.

4.3.1.2 Sampling by an outside organization, which shall only be done with the manufacturer's consent unless otherwise required by law, shall be done within given short time periods (days) when the sampler visits the factory. The sampler shall be accompanied by a manufacturer's representative when he is in the factory unless otherwise required by law.

4.3.1.3 If the manufacturer so requests, the sampler will take a replicate sample for the manufacturer's use (see 4.3.4.1).

4.3.1.4 Samples shall only be taken from the finished product which is ready for commercial distribution. All factories, stock rooms and warehouses containing finished products shall be included in the population to be sampled.

4.3.1.5 The sampler shall bring written details of the purpose of test, name of the cigarette and number of sale units. Three copies shall be provided; one for the sampler's record, a second to be packed with the samples, and a third for the manufacturer, to act as a receipt for the goods taken.

4.3.2 Sampling

4.3.2.1 For each increment required, draw one carton (usually 200 cigarettes) at random from the population to be sampled, i.e. at each sampling point selected in the factory.

If the population has several strata (e.g. packets from different machine rooms or factories), then the increments should be drawn from all the strata, in proportion to their respective sizes.

4.3.2.2 If the sampler finds that the stock available is not adequate to take the number of increments required, he shall arrange a further visit to complete the sampling, but samples from different lots shall be considered as different laboratory samples.

4.3.3 Constitution of the gross sample

The gross sample is the aggregate of the increments. However, for reasons of convenience and also representativeness, it is preferable to prepare the laboratory sample directly from the increment (3.3). This is particularly important in order to secure matched laboratory samples when several laboratories are to run tests.

4.3.4 Constitution of the laboratory sample

4.3.4.1 If cigarettes of the same name and characteristics are required for several tests, sufficient sale units shall be obtained from each sampling point. If several laboratories are to run tests, an equal number of sale units from each sampling point shall be contained in each laboratory sample.

4.3.4.2 Each laboratory sample shall be marked with at least the following information:

a) name of the cigarettes and their characteristics;

b) date of sampling;

c) factory/warehouse at which the sale unit was taken;

d) sampling point within the factory/warehouse;

e) order number of sale unit of that day;

f) destination (i.e. the laboratory to which the samples are destined);

g) marks on stamp (if any);

h) printed smoke yields (if any);

i) manufacturer's pack codes (if any).

4.3.4.3 All the samples shall be packed securely with adequate protection against damage (e.g. mechanical damage, severe changes in humidity, temperature) and sent to each laboratory by the most expeditious means.

4.3.4.4 A list of samples dispatched on that day shall be sent to each laboratory, under separate cover.