INTERNATIONAL STANDARD

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Fine-cut tobacco and smoking articles made from it — Survey and analysis of consumer-made articles

Tabac de fine coupe et objets confectionnés à partir de ce type de tabac — Inventaire et analyse des objets confectionnés par le consommateur

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Foreword

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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.

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ISO 21147 was prepared by Technical Committee ISO/TC 126, *Tobacco and tobacco products*.

Introduction

Studies to determine the nicotine-free dry particulate matter (NFDPM) and nicotine of smoking articles made by consumers have been reported in the literature (see Bibliography, references [1] and [2]).

The studies show that consumers make smoking articles that are extremely variable in terms of mass, diameter, density and size. The articles are frequently badly made and have very loosely filled ends. Great care must be taken when handling them.

It is necessary that any study should ensure that the consumers chosen are experienced in hand-rolling smoking articles, that the number of smokers studied is large, and that the articles made are correctly sampled and carefully transported to the testing laboratory.

The survey can be conducted either by providing tobacco and wrappers or the consumers can be asked to provide their own.

Evidence in reference [3] shows that free tobacco provision leads to the use of more tobacco and higher smoke yields from the articles. On the other hand, non-provision leads to less well-controlled making conditions particularly with respect to tobacco moisture content. This factor is also known to affect article smoke yields.

Fine-cut tobacco and smoking articles made from it — Survey and analysis of consumer-made articles

1 Scope

This International Standard specifies the method of conducing a survey to determine nicotine-free dry particulate matter and nicotine yields from fine-cut smoking articles made by consumers.

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 15592-2, *Fine-cut tobacco and smoking articles made from it — Methods of sampling, conditioning and analysis — Part 2: Atmosphere for conditioning and testing*

ISO 15592-3:2003, *Fine-cut tobacco and smoking articles made from it — Methods of sampling, conditioning and analysis — Part 3: Determination of total particulate matter of smoking articles using a routine analytical smoking machine, preparation for the determination of water and nicotine, and calculation of nicotine-free dry particulate matter*

3 Terms, definitions and abbreviated terms

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

3.1
fine-cut tobacco
FCT
tobacco produced to be used by consumers for making their own smoking articles

3.2
fine-cut smoking article
FCSA
article, suitable for smoking, produced by combining fine-cut tobacco with a wrapper

3.3
wrapper
material specially prepared and supplied in a form suitable for enclosing fine-cut tobacco so as to produce a fine-cut smoking article

3.4
total particulate matter
TPM
that portion of the mainstream smoke which is retained in the smoke trap

3.5
dry particulate matter
DPM
total particulate matter after deduction of its water content

3.6
nicotine-free dry particulate matter
NFDPM
dry particulate matter after deduction of its nicotine content

4 Principle

A panel of fine-cut tobacco consumers is selected. The panel members make fine-cut smoking articles (FCSAs). The samples are collected and packaged. The moisture content, draw resistance, NFDPM and nicotine yields of the FCSAs are determined according to methods specified in ISO 15592-3.

5 Consumer panel selection

Choose panel members from consumers who regularly make and smoke FCSAs at least once a day, preferably from the type of fine-cut tobacco and wrapper being studied.

Select the panel so that it is representative in socio-demographic terms and in quantity of tobacco used per week.

A minimum panel size of 100 is required, but select a larger size if there is an intention to sub-classify the data.

NOTE Pilot studies with a sample size of 40 may permit approximate findings. However, a study of 100 consumers is required to obtain satisfactory confidence limits.

6 Making FCSAs

The Introduction discusses whether tobacco and wrappers should be supplied to the consumers.

If they are to be supplied, then the tobacco to be used to make FCSAs shall be supplied at the moisture content at which it is normally sold.

If the consumers are to supply their own tobacco and wrappers, they shall be asked to use their normal tobacco and wrappers.

Each consumer shall be asked to make a minimum of 25 FCSAs and identify the intended mouth end. From these, 20 samples shall be taken at random and used to determine smoke yields; two shall be used to determine the moisture content of the tobacco and the remainder shall be used to test draw resistance and to serve as spares in case of damage. For a more accurate determination, 45 samples shall be made to allow for two smoking runs of 20 FCSAs per consumer.

NOTE Increasing the sample size to 45 may present a risk that the consumers would not take sufficient care over the making and consequently lead to FCSAs that are not truly representative.

The consumers should ideally be asked to make the FCSAs in their natural environment and by their normal manner of making. They should be required to make one for sampling and then a second one for smoking at the time when they wish to smoke until the number required for the study has been made.

Sealable foam-lined containers shall be provided to protect and store the FCSAs as they are made.

7 Laboratory analyses

Condition the FCSAs according to ISO 15592-2, keeping separate those made by each consumer.

Inspect the FCSAs made by each consumer for physical defects. Defective FCSAs shall not be used for smoke analysis but can possibly be used to determine other properties.

Identify each article for any subsequent reference without causing damage. Randomly select one FCSA per consumer batch for determination of moisture content.

Weigh and record the mass of each of 20 of the remaining FCSAs [40 if two smoking runs are to be made].

Prepare and smoke the FCSAs according to 9.6 to 9.9.3 of ISO 15592-3:2003.

Because of the nature of consumer-made FCSAs, it is most important that they are undamaged when inserted into the holders for smoking. Care should be taken to avoid leaks and it may be necessary to use sealant or a longer insertion depth to do so.

If possible, measure the diameter of the remaining FCSAs at three places along the length. Measure to the nearest millimetre at places 10 mm from each end and in the middle. Express the result as the mean of the three measurements. Where possible, select the FCSA holder bobbin and latex sleeve dimensions appropriately (see ISO 15592-3:2003, 5.2).

8 Statistical evaluation

Examine the data for statistical outliers. Take great care to remove only those outliers arising from a known departure from procedure during the laboratory analysis because consumer-made articles are inherently very variable.

9 Test report

9.1 General

The test report shall show the methods used and the results obtained.

9.2 Conduct of the survey

9.2.1 Tobacco and wrappers supplied

The following particulars shall be included:

a) type of tobacco;

b) type of wrapper and its classification.

9.2.2 Tobacco and wrappers supplied by the consumers

The following particulars shall be included:

a) type of tobacco if not normal brand;

b) type of wrapper and its classification.

9.3 Consumer data

The following data shall be reported:

a) normal brands used of the fine-cut tobacco and wrapper;

b) daily consumption;

c) whether other tobacco products are used and, if so, daily consumption;

d) how the FCSAs were made (hand-rolled, making device, use of tubed wrapper, etc.);

e) circumstances in which the FCSAs were made;

f) date of receipt of the batch of FCSAs at the laboratory.

9.4 Laboratory data

The following data shall be reported for each consumer's batch of FCSAs:

a) moisture content after conditioning, as mass fraction in percent to the nearest 0,1 %;

b) tobacco mass of the individual fine-cut smoking articles, in milligrams to the nearest 1 mg;

c) mean tobacco mass of the fine-cut smoking articles, in milligrams to the nearest 1 mg;

d) diameter of the individual fine-cut smoking article, in millimetres to the nearest 0,5 mm;

e) mean diameter of the fine-cut smoking articles, in millimetres to the nearest 0,1 mm;

f) draw resistance of the individual fine-cut smoking articles, in pascals to the nearest 10 Pa;

g) mean draw resistance of the fine-cut smoking articles, in pascals to the nearest 10 Pa;

h) number of puffs;

i) NFDPM yield, in milligrams to the nearest 1 mg;

j) nicotine yield, in milligrams to the nearest 0,1 mg;

k) type of smoking machine used.

9.5 Statistical analysis

Give a description of the methods of analysis used.