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DRAFT EAST AFRICAN STANDARD

Cigarettes — Specification

EAST AFRICAN COMMUNITY

Second Edition 2021

Copyright notice

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 013, *Tobacco and tobacco products*.

This second edition cancels and replaces the first edition (EAS 110: 2005), which has been technically revised.

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

Introduction

Cigarette" means any product which consists wholly or partly of cut, shredded or manufactured tobacco, or of any tobacco derivative or substitute, rolled up in paper or any other material and capable of being used immediately for smoking.

Cigarettes are manufactured under different brands depending on many factors including blend of tobacco leaves of the cultivated plant *Nicotiana tabacum* and *Nicotiana rustica*. Classification of tobacco leaf (lamina and stem) grades is on the basis of method of curing that is, flue, fire, sun or air cured, position of leaf on plant, maturity of leaf colour, aroma, texture and oil, length and leaf damage.

The ultimate quality of tobacco is sum total of factors of crop variety, environment at growth, curing and processing.

Smoke constituents such as tar, nicotine and carbon monoxide may be controlled to some extent by the selection of cigarette paper filters, e.t.c. and there is an awareness of the need to monitor these yields. The member countries will continue to monitor tar yields in member states market with a view to establish the trend and future specification.

Cigarettes — Specification

1 Scope

This East African Standard specifies the requirements, sampling and test methods for cigarettes.

This standard does not cover the requirements for flavour and aroma of cigarettes.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

AOAC 952.13, *Arsenic in food. Silver diethyldithiocarbamate*

ISO 3402, *Tobacco and tobacco products — Atmosphere for conditioning and testing*

ISO 2817*, Tobacco and tobacco products — Determination of silicated residues insoluble in hydrochloric acid*

ISO 2881, *Tobacco and tobacco products — Determination of alkaloid content-spectrometric method ISO*

ISO 3550-1, *Cigarettes — Determination of loss of tobacco from the ends — Part 1: Method using a rotating cylindrical cage*

ISO 4387*, Cigarettes — Determination of total and nicotine-free dry particulate matter using a routine analytical smoking machine*

ISO 6561-1, *Fruits, vegetables and derived products — Determination of cadmium content — Part 1: Method using graphite furnace atomic absorption spectrometry*

ISO 8243, *Cigarettes — Sampling*

ISO 8454*, Determination of carbon monoxide in the vapour phase of cigarette smoke — NDIR method*

ISO 9174, *Water quality — Determination of chromium — Atomic absorption spectrometric methods*

10185*, Tobacco and tobacco products — Vocabulary*

ISO 10315*, Determination of nicotine in smoke condensates — Gas-chromatographic method*

ISO 12193, *Animal and vegetable fats and oils — Determination of lead by direct graphite furnace atomic absorption spectroscopy*

ISO 20193*, Tobacco and tobacco products — Determination of the width of the strands of cut tobacco*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10185 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
nicotine in smoke
nicotine content retained by the filter smoke trap

3.2
tar
total nicotine-free dry particulate matter (Tar) retained by smoke trap after deduction of its nicotine alkaloids and water content

3.3
water
the water in smoke condensates content retained by the filter smoke traps

3.4
moisture content
percentage by weight as volatile fraction of tobacco at 100 °C to 105°C

3.5
loose shorts
the free tobacco particles enclosed within the packet which are no longer attached to the cigarettes

3.6
cigarettes rod
the tobacco filled portion of the stick, that is, full length excluding the filter tipping

3.7
tobacco blend
is a product of the cultivated plant *Nicotiana tabacum* and *Nicotiana rustica* used in the manufacture of cigarettes may be a mixture of one or more of the following types of tobacco drying process: fire cured; flue cured; air cured; sun cured; and fermented.

4 Requirements

4.1 Description

The cigarettes shall be approximately cylindrical in shape and may be with or without filter. The cigarettes cover shall be made from porous cigarette paper; the ends of the paper being joined together by means of suitable approved adhesive and shall comply with the limits as prescribed in this standard.

4.2 General requirements

4.2.1 Length

When measured in accordance with Annex A, the length of each designation of cigarettes, including the filter shall be as prescribed in Table 1.

Table 1 — Designation of cigarettes

S/No.	Designation	Rod length, mm	Overall length, mm	Circumference mm
i)	Plains	50	60	15 and 30
ii)	Regular size	53	68	
iii)	King size	62	82	
iv)	International (imperial/luxury size)	73	93	
v)	Extra long size	78	98	

4.2.2 Freedom from mould and beetle attack

Cigarettes shall be free from any mould or tobacco-beetle attack when examined.

4.2.3 Ingredients

Ingredients include tobacco components (eg paper, filter) including materials used to manufacture those components, additives, processing aids, residual substances found in tobacco (following storage and processing) and substances that are known to migrate from packaging material into the product.

All above ingredients must be free of any form of contaminant to ensure purity of materials used.

4.2.4 Burning quality.

Cigarettes shall be of good burning quality and shall satisfy the test in Annex B.

4.2.5 Loose ends

The limit on ex-factory basis for loose ends shall be less than 0.8 % for plain cigarettes and 0.4 % for filter-tipped cigarettes, when examined by the method in ISO 3550-1.

4.3 Specific requirements

The tobacco blend in a cigarette shall comply with the specific quality requirements given in Table 2 when tested in accordance with the methods indicated therein.

Table 2 — Specific requirements for tobacco blend of cigarettes

SL NO.	Parameter	Limits	Test method
i)	Width of tobacco shreds, mm	0.1 to 1.5	ISO 20193
ii)	Nicotine content, % by mass (on dry basis) max.	2.5	ISO 2881
iii)	Moisture content, % by mass (loss on heating)	10.0 – 16.0	Annex C
iv)	Total ash, % by mass (on dry basis) max.	25.0	Annex D
v)	Acid insoluble ash % by mass (on dry basis) max.	3.0	ISO 2817

vi)	Potash (as K_2O) % weight (on dry basis) max.	10.0	Annex E
vii)	Sulfur (as sulfate) % by weight, max.	3.5	Annex F
viii)	Filling density of tobacco blend min.	0.15 g/cm^3	Annex G
ix)	Tar yields, mg per cigarette	18	ISO 4387
x)	Nicotine in smoke. mg per cigarette	1.5	ISO 10315
xi)	Carbon monoxide. mg per cigarette	18	ISO 8454

6 Contaminants

6.1 Heavy metal

Cigarette shall not contain heavy metal contaminants in excess of the limits specified in Table 3 when tested in accordance with the methods specified therein.

Table 3 — Limits for heavy metal contaminants

S/N	Parameter	Limit	Test Method
i)	Arsenic As, ppm max,	0.5	AOAC 952.13
ii)	Cadmium Ca, ppm max	1	ISO 6561-1
iii)	Chromium Cr, ppm max	0.5	ISO 9174
iv)	Lead Pb, ppm max	1	ISO 12193

6.2 Pesticides residues

Cigarette shall comply with the pesticide residue limits prescribed by the Codex Alimentarius Commission of the respective commodity.

7 Sampling

The method of drawing representative samples of the material and the criteria for conformity shall be as prescribed in ISO 8243.

8 Packaging

8.1 Packets

Cigarettes for retail trade shall be packed in 10's or more in packets. To constitute a packet, appropriate number of cigarette sticks shall be wrapped and packed in appropriate packing material. Packing material shall be able to preserve the integrity of the product.

8.2 Bundles

To constitute bundles, appropriate number of packets shall then be packed to make a bundles.

8.3 Cartons

Bundles shall then be packed in cardboard containers to constitute cartons.

NOTE 1 A bundle may contain 10 or more packets.

NOTE 2 A carton container may contain 20 or more bundles.

9 Labelling

9.1 The following particulars shall be legibly and indelibly marked on each cigarette packet:

a) name of product/brand name or both;

b) number of cigarettes;

c) manufacturing date or Code;

d) name and address of manufacturer;

e) tax stamps;

f) country of origin;

NOTE The country of origin includes trading blocks that have been fully economically integrated and recognized as such under the World Trade Organization.

g) A Health Warming imprint on the packet in two common languages in the country.

9.2 Health warnings and messages on tobacco product packaging and labelling should be 50% or more, but no less than 30%, of the principal display areas.

9.3 The text of health warnings and messages should be in bold print in an easily legible font size and in a specified style and colour(s) that enhance overall visibility and legibility.

9.4 The following particulars shall be legibly and indelibly marked on each carton:

a) name of the product as “Cigarettes”

b) brand;

c) number of cigarettes; and

d) date of manufacture or date code.

Annex A
(normative)

Determination of length

A.1 Take 25 cigarettes and measure the length of each cigarette to the nearest 1 mm with a steel ruler then take the average of the 25 cigarettes.

A.2 To determine the rod length, if the cigarettes are filter tipped, after the length determination of A.1, cut off the filter and measure the length of each cigarette to the nearest 1 mm.

Annex B
(normative)

Determination of burning quality for cigarettes

B.1 Procedure

B.1.1 Clamp a cork carrying a brass pin not more than one millimetre in diameter horizontally on an iron stand. The length of the pin projecting from the cork should be 15 mm.

B.1.2 Light the cigarette thoroughly by puffing for a few times and fix the cigarette on the pin through the non-lighted end of the cigarette, the pin piercing through the cigarette along its central axis. Maintain a distance of at least three millimetres between the cork and the cigarette. Place the assembly carrying the cigarette in a draught-free atmosphere, maintaining the horizontal position of the cigarette.

B.1.3 10 cigarettes shall be examined for burning quality

B.2 Report

The sample shall be deemed to have complied with the test for burning quality if all the cigarettes tested burn continuously for 80 per cent of their lengths.

Annex C
(normative)

Determination of mass loss on heating

C.1 Principle

The method is based on dehydration of the sample in a hot air oven at a temperature of 100.0 ± 0.5 ºC for 15 hours.

C.2 Apparatus

C.1.1 Dish — Made of aluminium stainless steel, silica or porcelain and provided with a perforated cover. The diameter of the dish shall be at least 50 mm and the depth not more than 40 mm.

C.1.2 Oven — Fitted with a ventilator and means for forced internal circulation of air and maintained at a temperature of 100.0 ± 0.5 °C.

C.3 Procedure

Place about 10 g of the material in tared dish, close it with the perforated cover, weigh and place it in the oven which shall previously have been brought to a temperature of 100.0 ± 0.5 °C. Maintain this temperature in the oven for the drying period of 15 hours. Remove the dish and allow it to cool in a desiccator with an effective desiccant. After some period of cooling, weigh it. Drying and weighing should be taken at intervals until there is no change in weight from the previous weighing. Carry out the operation in triplicate.

C.4 Calculation

Loss on heating, per cent by weight $100 \frac{(w - w1)}{W}$

where,

w = weight in g of the material taken or the test;

and w1 = weight in g of the material after drying

Annex D
(normative)

Determination of total ash

D.1 Procedure

D.1.1 Accurately weigh about 10 g of the material using analytical balance into a tared 9-cm diameter platinum, porcelain or silica dish. Weights should be made to the nearest 0.001 g. Carefully dry the material on a Bunsen flame and char it completely until all organic matter is destroyed. Ignite the charred material by placing the dish in a muffle furnace maintained at a temperature of 550 ± 25 °C for 2 hours. Cool the dish and weigh. Drying, cooling and weighings must be repeated until weight is constant. Note the weight of the ash contained in the dish.

D.1.2 Preserve the ash for the determination of acid insoluble ash.

D.2 Calculation

Total ash content of the material, (on dry basis), per cent by weight = $\frac{10000w}{W2\,[100-m]}$

where;

w1= weight in g of the ash;

w2= weight in g of the material taken for the test; and

m= loss on heating, per cent by weight.

Annex E
(normative)

Determination of potash in tobacco flame photometric method

E.1 Reagents

E.1.1 Potassium Standard Solutions

a) Stock solution — Dissolve 1.907 g dry KCl in H20 and dilute to 1 l (100 ppm K).

b) Working solutions — Place 0, 5,10, 15, 20, 25, and 30 ml stock solution in seven 1 l volume flasks, add 40 ml 3 N HCl to each, and dilute to volume with H2O.

E.1.2 Diatomaceous earth — Celite 545, acid-washed.

E.2 Apparatus

E.2.1 Flame Photometer — Natural gas-air fuel, or equivalent, adequate for K analysis.

E.2.2 Chromatographic Tube — 20 mm × 150 mm with coarse fritted disk.

E.2.3 Preparation of Sample Solution —Accurately weigh ca 0.5 g tobacco dust into ca 40 ml weighing dish. Add ca 1 g celite and mix intimately with a spatula. Transfer quantitatively through the powder funnel into the chromatographic tube. Add additional celite through the funnel into the tube until a 2.5 cm layer accumulates on top of the sample celite mixture. Compact the sample and celite by tapping the tip of tube on a table top and insert the tip of tube into the neck of a 1 l volumetric flask. Add 40 ml 3 N HCl into the tube by pipette or dispenser, washing down the sides, and let elute into the volume flask. When the liquid level reaches the top of celite, add 25 ml of H2O and let elute. Add a second 25 ml portion of H2O, let the elute by gravity, or force through rapidly with compressed air. Rinse the tip of tube into the volume flask, dilute to volume with H2O, and mix well.

E.2.4 Determination — Determine per cent T for sample elute and K standards as specified in the instruction manual of instrument.

Prepare a calibration curve and determine ppm K of the sample from the curve.

% K = ppm K × 0.1/g sample

% K2O = ppm K × 0.120 5/g sample.

Annex F
(normative)

Determination of sulphur using magnesium nitrate

F.1 Procedure

F.1.1 Weigh a 1 g sample into a large porcelain crucible. Make Mg(NO3)2 solution by putting 950 g S-free Mg(NO3)2.6H20 in H2O and dilute to 1 l. Add 7.5 ml of Mg(NO3)2 to the sample so that all material comes in contact with the solution. (It is important that enough Mg(NO3)2 solution be added to ensure complete oxidation and fixation of the S present.

F.1.2 For larger samples and for samples with high S content, proportionally larger volume of this solution shall be used.)

F.1.3 Heat on an electric hotplate (180 oC) until no further action occurs. Transfer the crucible while hot to a furnace (500 oC) and let it remain until the sample is thoroughly oxidized. (No black particles should remain. If necessary, break up the sample and return to the furnace.) Remove the crucible and let it cool. Add H2O; then HCl in excess. Bring the solution to boil, filter and wash thoroughly. If preferred, transfer the solution to a 250 ml volumetric flask before filtering and diluting to volume with H2O.

F.2 Determination

F.2.1 Dilute the entire filtered solution, to 200 ml, or take a 100 ml aliquot of the measured volume, dilute to 200 ml.

F.2.2 Dilute the aliquot of prepared solution to ca 200 ml with H2O and add HCl until ca 0.5 ml free acid is present.

F.2.3 Heat to boiling point and add 10 ml 10 per cent BaCl2 solution dropwise with constant stirring.

F.2.4 Continue boiling ca 5 min, and let stand for 5 h in a warm place. Decant through ashless paper or ignited and weighed gooch.

F.2.5 Add 15 ml -20 ml boiling H2O to ppt, transfer to a filter, and wash with boiling H2O until the filtrate is Cl-free.

F.2.6 Dry the ppt and filter, ignite, and weigh as BaSO4.

Wt ppt × 0.137 4 = S

Annex G
(normative)

Determination of cigarette filling density

G.1 Procedure

G.1.1 Take 20 cigarettes and measure the length of the tobacco rod, excluding the filter plug portion. Then condition them according to the method given in ISO 3402 which specifies conditions as follows:

Temperature 22 ± 1 ^{o}C

Relative humidity 60 ± 2 per cent

Atmospheric pressure 96 ± 10 kPa

The test pieces should be in these atmospheric conditions for at least 48 h prior to the test.

G.1.2 Slit the conditioned cigarettes diametrically opposite to the seam using a straight edge, taking care to have a straight and clean cut parallel to the seam. Remove and place the tobacco mixture carefully on a white sheet of paper and weigh in a tared weighing dish.

G.1.3 Determine the moisture content of the tobacco

G.1.4 Use a steel ruler (marked in 0.5 mm increments) to measure the width of the paper. Take at least two width measurements in different places along the length of the paper and calculate the arithmetic mean of the determinations from 20 papers.

G.2 Calculation

G.2.1 Volume of the tobacco rod $V(cm^3) = \frac{C^2 L}{4\pi}$

where,

C = circumference in cm of the cigarette paper;

L = length in cm of the tobacco rod;

π = pi.

G.2.2 Cigarette filling density in mg/cm3 at 13.5 per cent moisture, $d = \frac{(100-M_1)M}{86.5V}$

Where,

M = tobacco mass in mg;

M1 = moisture content of the tobacco;

V = volume as calculated;

d = density

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