SRI LANKA STANDARD 605:1983

UDC 663.974

SPECIFICATION FOR
CIGARETTES

BUREAU OF CEYLON STANDARDS

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SLS 605:1983

Gr. 8

BUREAU OF CEYLON STANDARDS
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Sri Lanka.

SRI LANKA STANDARD

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FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Bureau of Ceylon Standards on 1983-04-08, after the draft, finalized by the Drafting Committee on Tabacco and Tobacco Products, had been approved by the Agricultural and Food Products Divisional Committee.

Cigarettes are manufactured under different brand names. The cost depends on the blend of tobacco used, the processing method employed and the finish of the packing. As the appreciation of any brand of cigarette depends on an individual's taste, it is difficult to lay down parameters which would cover individual requirements, such as, flavour and aroma. However, an attempt has been made in this specification to lay down certain minimum requirements which would result in a product that would generally satisfy a smoker.

Grading of cigarettes is usually based on the tar and nicotine content generated through the unlit end during smoking. As facilities are presently not available in Sri Lanka to determine the tar and nicotine content of the mainstream smoke, requirements for these parameters have not been included. However, the limits for the nicotine content of cigarette tobacco have been specified.

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

For the purpose of deciding whether a particular requirement of this specification 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 specification.

In the preparation of this specification, valuable assistance derived from the relevant publications of the Indian Standards Institution is gratefully acknowledged.

1 SCOPE

This specification prescribes the requirements and the methods of sampling and test for cigarettes made from tobacco.

2 REFERENCES

CS 102 Presentation of numerical values

SLS 309:Part 1 Test methods for tobacco products

SLS 428 Random sampling methods

3 TERMINOLOGY

For the purpose of this specification, the following definition shall apply:

loose shorts: The cross section of the tobacco of the cigarette end filled unevenly due to either improper filling of cigarettes or falling of the tobacco from the end.

4 REQUIREMENTS

4.1 General requirements

The cigarettes shall be cylindrical in shape and circular or oval in cross-section and may be with or without filter. The cigarette cover shall be made from suitable paper, the ends of the paper being joined together by means of a harmless adhesive. The ends of the cigarettes shall be evenly cut and shall be at right angles to the central axis.

4.2 Tobacco blend

The tobacco blend used in the manufacture of cigarettes shall be of the following types of tobacco:

a) Flue cured virginia

b) Air cured virginia

c) Air cured

d) Oriental.

4.3 Length

4.3.1 The length designation of cigarettes, based on its overall length (measured as prescribed in Appendix A) shall be as follows:

a)	Regular size:	Minimum 60 mm
b)	Long size:	Minimum 75 mm
c)	*King* size:	Minimum 82 mm
d)	Imperial/Luxury size:	Minimum 93 mm
e)	Extra long size:	Minimum 98 mm.

4.3.2 The length of each cigarette when measured as prescribed in Appendix A shall be not less than the minimum value specified for that particular length designation.

4.4 Circumference

The circumference of each cigarette when measured as prescribed in Appendix A shall be not less than 22 mm.

4.5 Density of tobacco

The density of the tobacco mixture in cigarettes shall be not less than 0.20 g/cm^3 when determined by the method prescribed in Appendix A.

4.6 Freedom from mould attack

The cigarettes shall be free from any mould attack when examined by the method prescribed in 5 of SLS 309:Part 1:1974.

4.7 Freedom from beetle attack

The material shall be free from any tobacco-beetle attack when examined by the method prescribed in Appendix B.

4.8 Burning quality

The cigarettes shall satisfy the test for burning quality as prescribed in Appendix C.

4.9 Loose shorts

When examined by the method prescribed in Appendix D the limit on ex-factory basis for loose shorts shall be not more than 0.8 per cent for plain cigarettes and 0.4 per cent for filter-tipped cigarettes.

4.10 Other requirements

The material shall also conform to the requirements specified in Table 1.

5 PACKAGING

The cigarettes may be packed in 5's, 6's, 10's, 12's, 14's, 20's, 24's and 25's in packets and in 50's in containers. The packets shall have an aluminium foil or any moisture resistant inner lining.

The packets shall be packed in cartons. Cartons shall then be packed in bulk containers.

TABLE 1 - Requirements for cigarettes

Sl. No. (1)	Characteristic (2)	Requirement (3)	Method of test ref. to	
			Appendix (4)	Clauses in SLS 309: Part 1:1974 (5)
i)	Width of tobacco shreds, mm	0.3 to 1.0	E	-
ii)	Loss on heating, per cent by mass.	10.0 to 16.0	-	4
iii)	Nicotine content, per cent by mass (on dry basis)	0.5 to 2.5	-	6
iv)	Total ash, per cent by mass (on dry basis), max.	25.0	-	8
v)	Acid insoluble ash, per cent by mass (on dry basis), max.	3.0	-	9

6 MARKING

The following particulars shall be legibly and indelibly marked:

6.1 On each cigarette

a) Brand name.

6.2 On each packet or container

a) Brand name;

b) Number of cigarettes;

c) If filter tipped, the word *filter*.

d) Length designation i.e. long size, king size imperial/luxury size or extra long size. (see 4.3).

NOTE - Length designation may not be marked in the case of regular size.

e) Name and address of manufacturer and registered trade mark (if any); and

f) *CPA Government warning: Smoking can be harmful to health* in Sinhala, Tamil and English except for cigarettes manufactured for export, where, if required by the importing country, the relevant health warning.

6.3 **On each carton, and bulk container**

a) Brand name;

b) Description of contents; (e.g. filter, size etc.,)

c) Number of cigarettes;

d) Batch or code number; and

e) Name and address of manufacturer and registered trate mark (if any).

6.4 The packets or containers may also be marked with the Certification Mark of the Bureau of Ceylon Standards illustrated below on permission being granted for such marking by the Bureau of Ceylon Standards.

NOTE - The use of the Bureau of Ceylon Standards Certification Mark (SLS Mark) is governed by the provisions of the Bureau of Ceylon Standards Act and the regulations framed thereunder. The SLS mark on products covered by a Sri Lanka Standard is an assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control, which is devised and supervised by the Bureau and operated by the producer. SLS marked products are also continuously checked by the Bureau for conformity to that standard as a further safeguard. Details of conditions under which a permit for the use of the Certification Mark may be granted to manufacturers or processors may be obtained from the Bureau of Ceylon Standards.

7 SAMPLING

The method of drawing representative samples of the material shall be as prescribed in Appendix F.

8 METHODS OF TEST

8.1 Tests for requirements laid down in 4 shall be carried out as prescribed in Appendices A, B, C, D, E and SLS 309:Part 1.

9 CONFORMITY TO STANDARD

The lot shall be declared as conforming to the requirements of this specification, if the following conditions are satisfied.

9.1 Loose shorts

The packets of cigarettes tested for loose shorts satisfy the requirement given in 4.9.

9.2 Packaging and marking

The packets and cigarettes satisfy the requirements given in 5 and 6.

9.3 Length, circumference, density of tobacco, freedom from mould attack, freedom from beetle attack and burning quality

The tests for above requirements conducted on the composite sample satisfy the corresponding requirements given in 4.

9.4 Total ash and acid insoluble ash

The value of the calculated expression $\bar{x} \pm 0.4R$ (see Note) for each requirement is less than or equal to the corresponding limit given in Table 1.

9.5 Width of tobacco shreds, loss on heating and nicotine content

The value of the calculated expression $\bar{x} \pm 0.4R$ (see Note) for each requirement is between the corresponding limits given in Table 1.

NOTES

1 *Mean* $\bar{x} = \dfrac{\text{Sum of the test results}}{\text{Number of test results}}$

2 *Range (R) = Difference between the maximum and the minimum of test results.*

APPENDIX A

DETERMINATION OF LENGTH, CIRCUMFERENCE AND DENSITY OF TOBACCO MIXTURE IN CIGARETTES

A.1 DETERMINATION OF LENGTH

A.1.1 Take 25 cigarettes and measure the length of each cigarette to the nearest 1 mm.

A.1.2 If the cigarettes are filter-tipped, after the length determination in A.1.1, cut-off the filter and measure the length (see Note) of each cigarette to the nearest 1 mm.

NOTE - The mean value of these lengths will be used for the determination of mean volume of a cigarette **(A.4.1)** *in the case of filter tipped cigarettes.*

A.2 DETERMINATION OF CIRCUMFERENCE

A.2.1 After the determination of length as in A.1.1 or A.1.2, slit the cigarettes across a line diagonally opposite to the seam using a straight edge taking care to have a straight and clean cut. Remove the tobacco mixture carefully on to a clean sheet of paper.

A.2.2 Wet the cigarette paper individually with liquid paraffin and measure the width of each cigarette paper to the nearest 1 mm by placing them against a steel ruler taking care that there is no air bubble between the paper and the steel rule. Take at least two measurements at two places near the two ends and determine the mean for each cigarette.

A.3 DETERMINATION OF DENSITY OF TOBACCO SMOKING MIXTURE OF CIGARETTES

Weigh to the nearest 0.01 g, the tobacco obtained from the tobacco mixture of 25 cigarettes in A.2.1 in a tared weighing dish.

A.4 CALCULATION

A.4.1 Mean volume of a cigarette in cm^3, $V = \frac{C^2 L}{4\pi}$

where

C = mean circumference, in cm, of the 25 cigarettes; and

L = mean length (without the filter), in cm, of the 25 cigarettes.

A.4.2 Density in g/cm^3, of the tobacco mixture of cigarettes $= \frac{m}{25\ V}$

where

m = mass, in g, of the tobacco mixture of 25 cigarettes (see A.3); and

V = mean volume, in cm^3, of a cigarette (see A.4.1)

APPENDIX B

EXAMINATION FOR FREEDOM FROM TOBACCO-BEETLE ATTACK

B.1 PROCEDURE

B.1.1 Take 5 cigarettes and examine visually the surface of each cigarette for the presence of any penetrations by tobacco beetles. Cut open these cigarettes one by one on a clean white sheet of paper

B.1.2 Examine the cut material carefully for the presence of live tobacco beetle *(Lasioderma serricorns)* in all its stages, that is, egg, larva, pupa and adult. Examine either visually or with the help of a hand lens (magnification x 10).

APPENDIX C

TEST FOR BURNING QUALITY

C.1 PROCEDURE

C.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.

C.1.2 Light a cigarette thoroughly by puffing a few times and fix the cigarette on the pin through one of its ends, 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.

C.1.3 Carry out this test on ten cigarettes.

C.2 REPORT

C.2.1 A cigarette shall be deemed to have satisfied the test for burning quality if the cigarette burns continuously for 80 per cent of its length.

APPENDIX D

DETERMINATION OF LOOSE SHORTS

D.1 PROCEDURE

D.1.1 Loose shorts may be determined by an indirect method as prescribed in D.1.2.

D.1.2 Carefully open sufficient number of packets to contain at least 300 cigarettes and remove the cigarettes from the packets taking care that no loose shorts are adhering to cigarettes. After removing the cigarettes, empty the packet on a clean sheet of paper and finally remove the bundling paper or foil tissue and recover loose short from these. Determine separately the mass of the loose shorts collected and the mass of the cigarettes taken.

D.2 CALCULATION

$$\text{Loose shorts, per cent by mass} = \frac{m_2}{m_1 + m_2}$$

where

m_1 = mass, in g, of the cigarettes taken for the test including paper, filter and tipping; and

m_2 = mass, in g, of the loose shorts collected from the cigarettes.

APPENDIX E

DETERMINATION OF WIDTH OF TOBACCO SHREDS

E.1 APPARATUS

E.1.1 *Microscope*, equipped with a 10 X objective and a 10 X eye piece.

E.1.2 *Stage micrometer.*

E.1.3 *Eyepiece micrometer.*

E.1.4 *Glass slides*, as many as required.

E.1.5 *Cover slips*, as many as required.

E.2 PROCEDURE

E.2.1 Mount of tobacco shreds

Cut open a few cigarettes and condition the tobacco of the cigarettes so that the shreds are flexible. Pick out 10 long shreds from the sample. Place them carefully over a clean glass slide and straighten them with a tight finger pressure and finally cover them with another glass slide.

E.2.2 Introduce the eyepiece micrometer into the eyepiece of the microscope and calibrate it by using the stage micrometer. Measure the width of the individual tobacco shreds using the eyepiece micrometer at four places. Express the results in millimetres.

APPENDIX F

SAMPLING

F.1 lot: In a single consignment, all the bulk containers containing cigarettes of same size and brand, manufactured under same conditions shall constitute a lot.

F.2 GENERAL REQUIREMENTS OF SAMPLING

In drawing, preparing, storing and handling samples, the following precautions and directions shall be observed.

F.2.1 Precautions shall be taken to draw the samples so as to protect the samples and the material being sampled from loss or gain of moisture and from adventitious contamination.

F.2.2 The samples shall be placed in clean and dry receptacles, the sample receptacle shall be sealed air-tight after filling and marked with necessary details of sampling.

F.2.3 The samples shall be stored in such a manner, that the conditions of storage do not unduly affect the quality of the material.

F.3 SCALE OF SAMPLING

F.3.1 The conformity of the lot to the requirements of this specification shall be ascertained on the basis of tests carried out on the cigarettes selected from the lot.

F.3.2 The number of samples to be selected from the lot shall be as in F.3.3 or F.3.4.

F.3.3 If a lot contains less than 10 bulk containers, sample unit shall be a carton. The number of cartons to be selected from such a lot shall be in accordance with Table 2. As far as possible cartons shall be drawn to represent all the bulk containers in the lot.

TABLE 2 - Scale of sampling

(for lots having less than 10 bulk containers)

No. of cartons in the lot	No. of cartons to be selected
Up to 50	2
51 to 150	3
151 to 300	4
301 to 500	5

F.3.3.1 At least 150 cigarettes shall be drawn from each carton selected as in F.3.3. The cigarettes so drawn from each carton, shall constitute an individual sample to represent the carton and shall be kept separately.

F.3.3.2 Cigarettes shall be drawn from the remaining packets of cigarettes of selected cartons to form a composite sample of 300 cigarettes to represent the lot. As far as possible an equal number of packets shall be drawn from each carton. If packets of cigarettes from selected cartons are not sufficient to obtain 300 cigarettes, an additional carton shall be drawn from the lot and required number of cigarettes shall be obtained from this carton.

F.3.4 If a lot contains more than 10 bulk containers sample unit shall be a bulk container and number of bulk containers to be selected from the lot shall be in accordance with Table 3.

TABLE 3 - Scale of sampling

(for lots having more than 10 bulk containers)

No. of bulk containers in the lot	No. of bulk containers to be selected
Up to 20	2
21 to 50	3
51 to 200	4
201 to 500	5
501 to 800	7
801 to 1300	8
Over 1300	10

F.3.4.1 Two cartons shall be drawn from each bulk container selected as in **F.3.4** and shall be kept separately.

F.3.4.2 At least 75 cigarettes shall be drawn from each selected carton. The cigarettes, so drawn from 2 cartons of each bulk container shall constitute an individual sample to represent the bulk container and shall be kept separately.

F.3.4.3 Cigarettes shall be drawn from remaining packets of cigarettes of selected cartons, to form a composite sample of 300 cigarettes to represent the lot. As far as possible an equal number of packets shall be drawn from each selected carton.

F.3.5 Bulk containers, cartons and packets shall be drawn at random. In order to ensure randomness of selection random number tables as given in **SLS 428** shall be used.

F.3.6 Tobacco from each individual sample obtained as in **F.3.3.1** or **F.3.4.2** shall be crushed into small pieces, thoroughly mixed together and transferred immediately to clean and dry receptacles and sealed air-tight. They shall be labelled with the particulars given under **F.2.2.**

F.3.7 Packets of the composite sample obtained as in **F.3.3.2** or **F.3.4.3** shall not be opened until the tests start.

F.4 REFERENCE SAMPLE

F.4.1 If a reference sample is required, the sizes of an individual sample and the composite sample shall be 450 cigarettes and 900 cigarettes respectively. To obtain required sizes, the scale of sampling shall be increased in the following way;

F.4.1.1 In case of lots having less than 10 bulk containers, number of cartons to be selected from the lot shall be three times the corresponding value given in Table 2 and the cigarettes from each set of three cartons shall be grouped to form an individual sample.

F.4.1.2 In case of lots having more than 10 bulk containers, six cartons shall be drawn from each selected bulk container.

F.4.2 The individual samples and composite sample so obtained shall be divided into 3 parts. One for the purchaser, another for the vendor and third for the reference.

F.5 NUMBER OF TESTS

F.5.1 The examinations for packaging and marking and the tests for length, circumference, density of tobacco, freedom from mould attack, freedom from beetle attack, burning quality and loose shorts shall be conducted on the composite sample (F.3.3.2 or F.3.4.3). The test for loose shorts shall be conducted first.

F.5.2 The tests for determination of width of tobacco shreds, loss on heating, nicotine content, total ash and acid insoluble ash shall be conducted on each individual sample (F.3.3.1 or F.3.4.2).

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Printed at SLSI (Printing Unit)

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