SRI LANKA STANDARD 170 : 1988

UDC 668.524.222

SPECIFICATION FOR
OIL OF CEYLON CITRONELLA

(FIRST REVISION)

Gr.4

SRI LANKA STANDARDS INSTITUTION

SRI LANKA STANDARD

SPECIFICATION FOR OIL OF CEYLON CITRONELLA

(FIRST REVISION)

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1988-10-04, after the draft, finalized by the Drafting Committee on Essential Oils, had been approved by the Agricultural and Food Products Divisional Committee.

This specification was first issued in 1972. In this revision, citronella grass, *Cymbopogon winterianus Jowitt* which yields oil of Java citronella has been deleted as it is not presently cultivated in Sri Lanka. Terminology used at present in the essential oil trade has been employed to designate Grade 2 and Grade 3 oil of citronella. Additional physical and chemical requirements have been included to bring this specification in line with ISO 3849 : Oil of Ceylon citronella. The limits specified for total acetylisable constituents of each grade of oil of citronella have been amended considering the present trade practice. Cross reference has been made to relevant Sri Lanka Standards for sampling and methods of test.

In this specification 6.1 calls for agreement between the supplier and the purchaser.

Oil of citronella is suitable for use in soaps, perfumes and as a masking odour in sprays, disinfectants and other industrial preparations.

All standard values in this specification are given 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 an analysis, shall be rounded off in accordance with CS 102. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this specification.

In the preparation of this specification the assistance obtained from the publications of the International Organization for Standardization and the Bureau of Indian Standards is gratefully acknowledged.

1 SCOPE

This specification prescribes the requirements and methods of sampling and test for oil of ceylon citronella.

2 REFERENCES

CS 102 Presentation of numerical values

SLS 210 Preparation of test samples of essential oils

SLS 211 Labelling and marking of containers for essential oils

SLS 212 Packing of essential oils

SLS 213 Sampling of essential oils

SLS 572 Test for essential oils

3 DESCRIPTION

3.1 The oil shall be the product obtained by the steam distillation of *Cymbopogon nardus (L)* Rendle (Sinhala : Lenabatu, Lenabatupengiri) cultivated in Sri Lanka.

NOTE - C. nardus var, confertiflorus (Steud.) Stapf, is the wild form (Sinhala : Mana) and is considered to be the parent form of C. nardus.

4 GRADES

There shall be three grades of oil as follows:

Grade 1 - Estate quality

Grade 2 - Ordinary quality

Grade 3 - Common quality

5 REQUIREMENTS

5.1 Physical requirements

5.1.1 *Appearance*

The oil shall be a clear mobile liquid. It shall be free from sediments or other insoluble matter.

5.1.2 *Colour*

The oil shall be pale yellow to pale brownish yellow in colour.

5.1.3 *Odour*

The oil shall have the characteristic odour of oil of Ceylon citronella.

5.1.4 *Freedom from adulteration*

The oil shall be free from adulteration with spirits of any form or mineral/vegetable oils.

5.1.5 *Relative density at 30 °/30 °C*

The relative density of the oil at 30 °C, when determined by the method given in 5 of **SLS 572:Part 1:1982** shall be not less than 0.890 and not more than 0.910.

5.1.6 *Optical rotation at 30 °C*

The optical rotation of the oil at 30 °C, when determined by the method given in 6 of **SLS 572:Part 1:1982** shall be within the range -22 ° to -12 °.

5.1.7 *Refractive index at 30 °C*

The refractive index of the oil at 30 °C, when determined by the method given in 7 of **SLS 572:Part 1:1982** shall be not less than 1.465 0 and not more than 1.487 0.

5.1.8 *Solubility at 30 °C*

One volume of oil shall be soluble in two volumes of 80 per cent (*v/v*) ethyl alcohol at 30 °C, when determined by the method given in 8 of **SLS 572:Part 1:1982**.

5.2 Chemical requirements

The oil shall comply with the requirements given in Table 1, when determined according to the method given in Column 6 of the table.

TABLE 1 - Chemical requirements for oil of Ceylon citronella

Sl. No. (1)	Characteristic (2)	Grade 1 (3)	Grade 2 (4)	Grade 3 (5)	Method of test (Reference to relevant clauses) (6)
i)	Total acetylisable constituents (as geraniol), per cent by mass, min.	55.0	52.5	50.0	9.1
ii)	Ester value after acetylation, min.	174	167	160	9.2

6 PACKAGING AND MARKING

6.1 Packaging

6.1.1 The oil shall be packed in well closed drums or in any other suitable containers as agreed to between the supplier and the purchaser. Polythene or other plastic containers shall not be used.

6.1.2 General guidelines for the packing of essential oils as given in SLS 212 shall be followed.

6.2 Marking

6.2.1 Each container shall be legibly and indelibly marked with the following:

a) Name of the product;

b) Grade of the product (see 4);

c) Brand name **and/or** trade mark, if any;

d) Net mass, in kilograms;

e) Name and address of the manufacturer or exporter;

f) Batch or code number; and

g) The words *Produce of Sri Lanka.*

6.2.2 General guidelines for the marking of containers for essential oils as given in SLS 211 shall be followed.

7 SAMPLING

7.1 Lot

In any consignment all the drums or containers of oil of the same grade and belonging to one batch of supply shall constitute a lot.

7.2 Selection of samples

A representative sample of material shall be drawn as specified in SLS 213. A sampling tube or an appropriate sampling instrument shall be used to obtain the sample. The minimum quantity of the sample shall be not less than 75 millilitres.

7.3 Number of tests

7.3.1 Each container selected as in 3.3.3.2 of SLS 213:1973 shall be inspected for marking requirements.

7.3.2 The sample obtained as in 7.2 shall be inspected for the requirements given in 5.1.1 to 5.1.3 and shall be tested for the requirements given in 5.1.5 to 5.1.8 and 5.2.

8 STORAGE

The oil shall be stored in air-tight full containers away from light.

9 METHODS OF TEST

Tests shall be carried out as prescribed in SLS 572:Part 1 and 9.1 and 9.2 of this specification.

9.1 Determination of total acetylisable constituents

9.1.1 The total acetylisable constituents shall be determined by the method given in **7** of **SLS 572:Part 2:1982** for the determination of ester value after acetylation. Refluxing time for acetylation shall be 2 hours and saponification time shall be 1 hour 30 minutes.

9.1.2 Total acetylisable constituents (as geraniol),

$$\text{per cent by mass} = \frac{77.1(V_o - V_1)}{10\{m - 0.021(V_o - V_1)\}}$$

where,

V_o = volume, in millilitres, of the hydrochloric acid solution used for the blank determination;

V_1 = volume, in millilitres, of the hydrochloric acid solution used for the determination; and

m = mass, in grams, of the test portion.

9.2 Determination of ester value after acetylation

The ester value after acetylation shall be determined as given in **7** of **SLS 572:Part 2:1982**. Refluxing time for acetylation shall be 2 hours and saponification time shall be 1 hour 30 minutes.

10 CRITERIA FOR CONFORMITY

The lot shall be declared as conforming to the requirements of this specification, if the results obtained when tested as in **7.3** satisfy relevant requirements.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

Printed at SLSI (Printing Unit)

SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.