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मानक

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“Step Out From the Old to the New”

IS 14508 (1998): Oil of Jamrosa [PCD 18: Natural and Synthetic Fragrance Materials]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

जैमरोज़ा का तेल — विशिष्टि

Indian Standard

OIL OF JAMROSA — SPECIFICATION

ICS 71.080.90

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards after the draft finalized by the Natural and Synthetic Perfumery Materials Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

Few years ago, in the course of the research work for breeding of new varieties of essential oil-bearing plants with desired characters in terms of chemical composition, yield and odour/flavour characters using the gene pools of the genera of *Cymbopogon*, the Regional Research Laboratory, Jammu developed several new varieties of essential oils. One such essential oil developed and introduced in the eighties to the Perfume Industry was that of Jamrosa oil. The *Cymbopogon* variety known as "JAMROSA (RRL-82)" was developed by an interspecific hybridization between "*Cymbopogon nardus* var. *confertiflorus*" and "*Cymbopogon Jwarancusa*". The new strain which is sturdier than palmarosa can be cultivated in non-traditional areas like Jammu, UP and other northern parts of India and has already acquired popularity among the growers and distillers. In fact this oil was developed to substitute the higher priced palmarosa oil, but the odour of the oil is different from that of palmarosa oil. Though, Jamrosa oil has several components which are common to palmarosa oil it cannot replace palmarosa oil due to the presence of citral and piperitone. However, this oil is definitely a good source of natural geraniol next to palmarosa oil and gives a higher amount of geraniol than that obtained from Java-type citronella oil.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

OIL OF JAMROSA — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for the essential oil of Jamrosa.

2 NORMATIVE REFERENCES

The following Indian Standards contain provisions which through reference in this text constitute the provisions of the standard. At the time of publication, the edition indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	Title
326	Methods of sampling and test for natural and synthetic perfumery materials:
(Part 1) : 1984	Sampling (<i>second revision</i>)
(Part 2) : 1980	Preliminary examination of perfumery materials and samples (<i>second revision</i>)
(Part 3) : 1980	Relative Density (<i>second revision</i>)
(Part 4) : 1980	Determination of optical rotation (<i>second revision</i>)
(Part 5) : 1980	Determination of refractive index (<i>second revision</i>)
(Part 6) : 1988	Determination of solubility (<i>second revision</i>)
(Part 8) : 1980	Determination of ester value, content of esters and combined alcohols (<i>second revision</i>)
(Part 9) : 1980	Determination of ester value after acetylation and free alcohols (<i>second revision</i>)
(Part 11) : 1980	Determination of carbonyl value and content of carbonyl compounds (<i>second revision</i>)
1070 : 1992	Reagent grade water (<i>third revision</i>)
2284 : 1988	Methods for olfactory assessment of natural and synthetic perfumery materials (<i>first revision</i>)
6597 : 1988	Glossary of terms relating to natural and synthetic perfumery materials (<i>first revision</i>)

3 TERMINOLOGY

For the purpose of this standard, definitions given in IS 6597 shall apply.

4 REQUIREMENTS

4.1 Description

Oil of Jamrosa shall be obtained by the steam distillation of the grass belonging to the hybrid of *Cymbopogon nardus* var. *confertiflorus* and *C. Jwarancusa*.

4.2 The material shall be a clear liquid, almost colourless to pale yellow in colour, free from sediment, suspended matter and adulterants, when examined as prescribed in IS 326 (Part 2).

4.3 Solubility

The material shall not require more than one volume of ethanol (80 percent by volume) in one volume of oil to obtain solution when tested as prescribed in IS 326 (Part 6).

4.4 The material shall comply with the requirements given in Table 1.

Table 1 Requirements for Oil of Jamrosa
(Clause 4.4)

Sl No.	Characteristic	Requirement	Method of Test, Ref to IS No. or Annex
(1)	(2)	(3)	(4)
i)	Colour and appearance	Colourless to pale yellow liquid	326 (Part 2)
ii)	Odour	sweet floral rosy, with a citrusy, minty top-note appreciation	2284
iii)	Relative density* at 27°/27°C	0.883 0 - 0.889 0	326 (Part 3)
iv)	Refractive index* at 27°C	1.468 0 - 1.474 5	326 (Part 5)
v)	Optical rotation	-2° to +2°	326 (Part 4)
vi)	Total alcohols calculated as geraniol, percent by mass	80 - 89	326 (Part 9)
vii)	Total esters calculated as geranyl acetate, percent by mass	19 - 33	326 (Part 8)
viii)	Total carbonyl compounds calculated as citral, percent by mass	2 - 5	326 (Part 11)
ix)	Free alcohols as geraniol, percent by mass	52 - 60	Annex A

*The correction factor for relative density and refractive index for each degree celsius change in temperature is 0.000 64 and 0.000 38 respectively.

5 PACKING AND MARKING

5.1 Packing

The material shall be supplied in glass bottles, or in suitable containers as agreed to between the purchaser and the supplier. Aluminum containers shall be avoided. The containers shall be tightly closed and nearly full.

5.2 Marking

Each container so filled shall be marked legibly and indelibly with the following information:

- a) Name of the material;
- b) Name of the manufacturer and his recognized trade-mark, if any;
- c) Batch number and date of manufacture; and
- d) Net mass of the material.

5.2.1 The containers may also be marked with the Standard Mark.

5.2.1.1 The use of Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6 SAMPLING

6.1 Representative samples of the material shall be drawn as prescribed in IS 326 (Part 1).

7 TESTS

7.1 Tests shall be conducted as prescribed in **4.2**, **4.3** and **4.4**. Reference to relevant standards and annex is given in col 4 of Table 1.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A

[Table 1, Sl No. (ix)]

DETERMINATION OF FREE ALCOHOLS

A-1 OUTLINE OF THE METHOD

A sample of the material is dissolved in a suitable solvent (for example, cyclohexane, hexane, or petroleum ether) and is injected into the gas chromatograph where it is carried by the carrier gas from one end of the column to the other. During its movement, the constituents of the sample undergo distribution at different rates and ultimately get separated from one another. The separated constituents emerge from the end of the column one after another and are detected by suitable means whose response is related to the amount of a specific component leaving the column. The detector signals, on transmission to the recorder plots the chart. From the specific area under various peaks corresponding to the specific constituents, the quantities of different constituents are determined.

A-2 APPARATUS

A-2.1 Any suitable gas chromatograph and column capable of being operated under conditions suitable for resolving the individual constituent into distinct peaks may be used. The typical chromatogram for oil of Jamrosa with the following chromatographic conditions is shown in Fig. 1:

<i>Column</i>	
Material	Stainless steel
Length	3 m
Outside Diameter	0.318 cm
Stationary Phase	Non-polar
Carrier gas	Nitrogen

Conditions

Column temperature (isothermal)	200°C
Injection port temperature	230°C
Detector	
Type	FID
Temperature	250°C

A-3 PROCEDURE

The gas chromatograph is prepared for GLC analysis of oil of Jamrosa under the conditions indicated in A-2 or are set using pure samples of oil of Jamrosa. After stabilization of the desired temperature of the column, injection port and detector, 0.2 to 1.0 microlitre of the sample is injected with microlitre hypodermic syringe. On the chromatogram obtained, all peaks of interest should be of suitable dimensions and that except in case of attenuation, none should exceed 90 percent of all the available recorder paper width. If required, sample is re-injected to get a better chromatogram.

A-4 CALCULATION

A-4.1 Peak areas are calculated either by the most commonly used triangular method or automated integration. When an electronic integrator is used, concentrations of the constituents on the basis of the peak areas on chromatogram are automatically calculated and presented as a printout. For specific constituents, internal standard method is employed for higher accuracy.

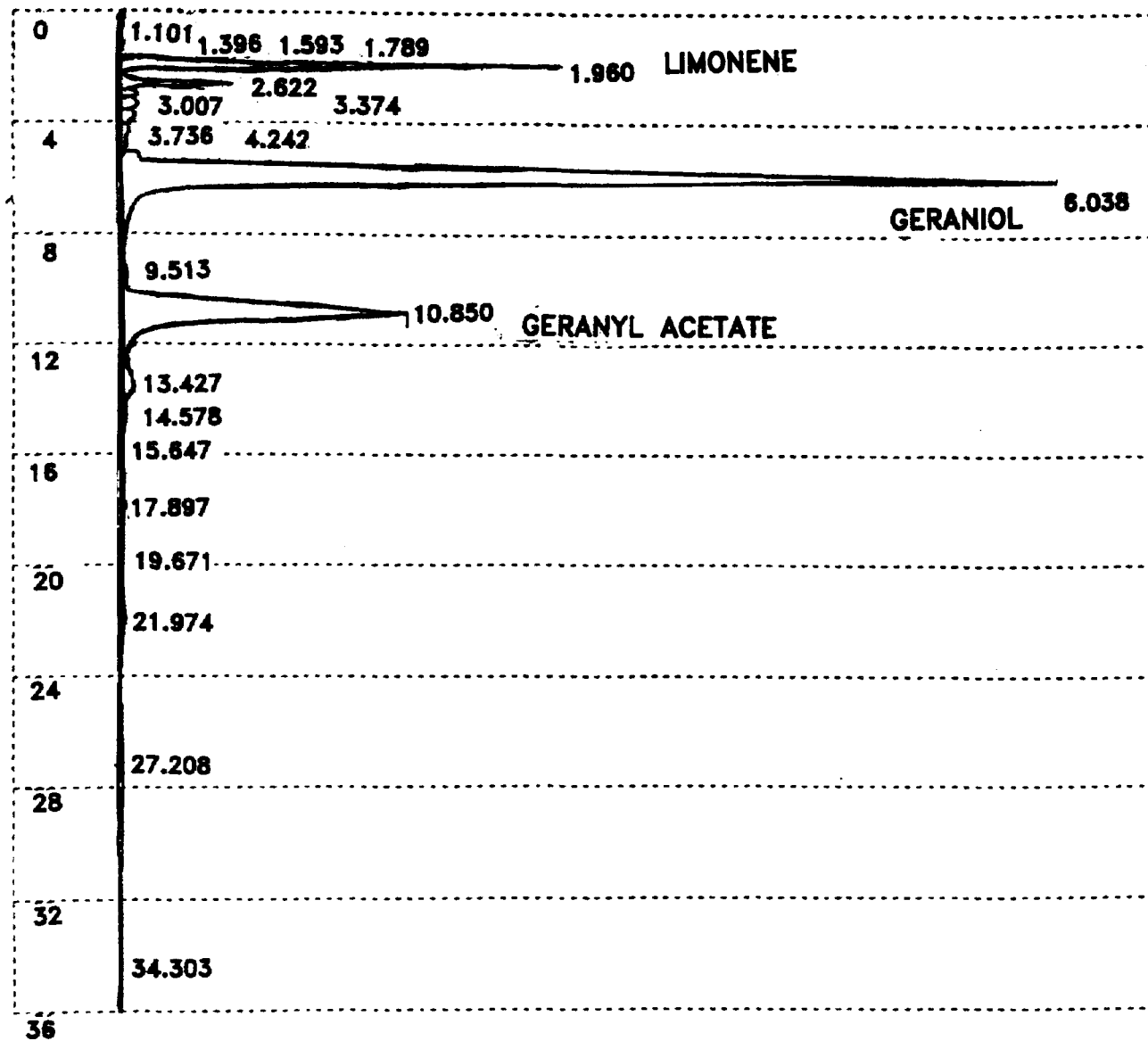


FIG. 1 TYPICAL CHROMATOGRAM OF JAMROSA OIL

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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