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Bleached lac — Specification

Gomme laque blanche — Spécifications

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FOREWORD

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Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

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It has been approved by the Member Bodies of the following countries :

Bulgaria	Netherlands	Thailand
Egypt, Arab Rep. of	Poland	United Kingdom
India	Portugal	U.S.A.

No Member Body expressed disapproval of the document.

This International Standard cancels and replaces ISO Recommendation R 57-1957, of which it constitutes a technical revision.

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Bleached lac — Specification

0 INTRODUCTION

0.1 This International Standard covers bone-dry bleached lac, an intermediate surface-dry (air-dry) bleached lac, and wet bleached lac, the three differing in their requirements in the moisture content. No distinction is sought to be introduced between bone-dry, kiln-dry or vac-dry bleached lac or between the various designations of the intermediate type covering dried, crushed hanks, or flats in granules or flakes, or between wet-bleached lac in hank, bar or any other form. Only three conditions, i.e. bone-dry, surface-dry (air-dry) and wet, and two types in each condition, namely a) regular bleached lac (cloudy or waxy), and b) refined bleached lac (transparent or wax-free), more briefly indicated as "regular" and "refined" are recognized.

0.2 No limit has been specified for the chlorine content of bleached lac. Normally the chlorine content of bleached lac varies between 1,5 and 4,5 % in moisture-free material, but ISO/TC 50 has decided to place it on record that it is desirable to maintain it at a low value (say at 3 %, maximum).

0.3 Likewise, no limit has been specified for the acid value of bleached lac. This depends on the methods of bleaching. The acid value of a good bleached lac is normally between 65 and 100 on the moisture-free material. ISO/TC 50 considers it desirable to retain the acid value at as low a value as possible below 105.

0.4 Similarly the mineral acid content of bleached lac should also be as low as possible, requiring for neutralization under the conditions specified in annex K not more than 82 ml of 0,1 N sodium hydroxide per 100 g of the moisture-free material which is equivalent to 0,4 % of mineral acid calculated as sulphuric acid (H_2SO_4).

0.5 The maximum limit for the volatile matter (moisture) in the bone-dry material has been specified as a mandatory requirement, i.e. a maximum of 6 % (see clause 5). In so far as surface-dry (air-dry) and wet bleached lacs are concerned, the actual limits have been made the subject of agreement between purchaser and vendor. The normal moisture content of the surface-dry (air-dry) material does not exceed 12 %; that of wet bleached lac does not exceed 30 %.

0.6 The mesh sizes of sieves given in this International Standard have been indicated in terms of aperture dimensions, and a note, giving number designations of approximately equivalent sieves according to ISO 565 and according to the national standards of the U.S.A., the United Kingdom, France, Germany and India, has been added for the sake of convenience.

0.7 For the purpose of deciding whether a particular requirement of this International Standard is complied with, the final value observed or calculated, expressing the result of test or analysis, shall be rounded off to the same number of places as that in the specified value; it being always understood that the analyst will carry out his determination to at least one place more than in the specified value.

1 SCOPE AND FIELD OF APPLICATION

1.1 This International Standard specifies the requirements and methods of test for bleached lac in any form that may be agreed upon between the purchaser and the vendor.

1.2 This International Standard is intended chiefly to cover the technical provisions for guiding the purchase of the material, but does not include all the necessary provisions of a contract.

1.3 The limits specified in this International Standard are not to be exceeded.

2 DEFINITIONS

For the purposes of this International Standard, the following definitions apply :

2.1 sticklac : The natural product of lac insects.

2.2 seedlac : The product obtained by washing crushed sticklac.

2.3 shellac : The product obtained by refining seedlac by heat processes or by both heat and solvent processes.

2.4 bleached lac : The product obtained by subjecting seedlac or shellac in solution to a process of bleaching and then recovering the product in a solid form.

2.5 regular (cloudy or waxy) **bleached lac** : The ordinary type of bleached lac from which wax has not been removed.

2.6 refined (transparent or wax-free) **bleached lac** : The type of bleached lac from which wax has been removed during the process of manufacture.

2.7 approved sample : The sample agreed upon between the purchaser and the vendor as the standard for colour and appearance.

3 FORM

The form of bleached lac is subject to agreement between the purchaser and the vendor.

4 CONDITIONS AND TYPES

4.1 Three conditions of bleached lac are specified, namely :

- a) bone-dry,
- b) surface-dry (air-dry) and
- c) wet.

4.2 Two types are specified for each of these conditions, namely :

- a) regular (cloudy or waxy), and
- b) refined (transparent or wax-free).

5 VOLATILE MATTER (MOISTURE)

5.1 Bone-dry bleached lac shall contain not more than 6 % of volatile matter (moisture) as determined by the method described in annex A.

5.2 The percentage of volatile matter (moisture) present in surface-dry (air-dry) bleached lac shall be subject to agreement between the purchaser and the vendor and shall be determined by the method described in annex A (see 0.5).

5.3 The percentage of volatile matter (moisture) in wet bleached lac shall be subject to agreement between the purchaser and the vendor and shall be determined by the method described in annex A (see 0.5).

6 MATTER INSOLUBLE IN HOT ALCOHOL

Bleached lac shall not contain matter insoluble in hot alcohol, computed on the basis of moisture-free material, in excess of the limits given below :

- regular : 1,1 %
- refined : 0,2 %

Matter insoluble in hot alcohol shall be determined by either of the methods described in annex B, as agreed between the purchaser and the vendor.

7 COLOUR

The appearance and colour of bleached lac shall not be inferior to that of the approved sample when judged by visual examination. Alternatively the colour in solution may be tested by either of the methods described in annex C, as agreed between the purchaser and the vendor.

8 WAX

Bleached lac shall not contain wax, as determined by the appropriate method described in annex D and computed on the basis of moisture-free material, in excess of the limits given below :

- regular : 5,5 %
- refined : 0,2 %

9 ASH

Bleached lac shall not leave ash, as determined by the method described in annex E and computed on the basis of moisture-free material, in excess of the limits given below :

- regular : 1,0 %
- refined : 0,5 %

10 ROSIN AND COPALS

10.1 Bleached lac shall contain no rosin, as tested by the method described in annex F.

10.2 Bleached lac shall contain no copals, as tested by the method described in annex G.

11 MATTER SOLUBLE IN WATER

Bleached lac shall not contain matter soluble in water, as determined by the method described in annex H and computed on the basis of moisture-free material, in excess of the limits given below :

- regular : 1,0 %
- refined : 0,3 %

12 CHLORINE CONTENT

The chlorine content of bleached lac shall be subject to agreement between the purchaser and the vendor and, when specified, it shall be determined by the method described in annex J (see 0.2).

13 ACID VALUE AND MINERAL ACID

13.1 The acid value of bleached lac shall be subject to agreement between the purchaser and the vendor and, when specified, it shall be determined by the method described in annex K (see 0.3).

13.2 The mineral acid content of bleached lac shall be subject to agreement between the purchaser and the vendor and, when specified, it shall be determined by the method described in annex L (see 0.4).

14 FREE CHLORINE OR PEROXIDES

A requirement for the absence of free chlorine or peroxides shall be subject to agreement between the purchaser and the vendor. When specified, the aqueous extract of the material shall not show the presence of free chlorine or peroxides when tested by the method described in annex M.

15 ARSENIC

The arsenic content of bleached lac shall be subject to agreement between the purchaser and the vendor and, when specified, it shall be determined by the method described in annex N.

16 LEAD

The lead content of bleached lac shall be subject to agreement between the purchaser and the vendor and, when specified, it shall be determined by the method described in annex P.

17 REQUIREMENTS

The requirements for bleached lac are given in table 1.

The optional requirements are subject to agreement between the purchaser and the vendor.

TABLE 1 — Requirements for bleached lac

Reference	Character of requirement	Characteristic	Maximum limits for type		Method of testing : reference to annex
			Regular	Refined	
5	Essential	Volatile matter (moisture) % Bone-dry Other conditions	6,0	6,0	A
			As agreed between purchaser and vendor		A
6	Essential	Matter insoluble in hot alcohol, % ¹⁾	1,1	0,2	B
7	Essential	Colour	Close visual match to the approved sample		C
8	Essential	Wax, % ¹⁾	5,5	0,2	D
9	Essential	Ash, % ¹⁾	1,0	0,5	E
10.1	Essential	Rosin	Nil	Nil	F
10.2	Essential	Copals	Nil	Nil	G
11	Essential	Matter soluble in water, % ¹⁾	1,0	0,3	H
12	Optional	Chlorine content ¹⁾	As agreed between purchaser and vendor (see 0.2)		J
13.1	Optional	Acid value ¹⁾	As agreed between purchaser and vendor (see 0.3)		K
13.2	Optional	Mineral acid ¹⁾	As agreed between purchaser and vendor (see 0.4)		L
14	Optional	Free chlorine or peroxides	Absent	Absent	M
15	Optional	Arsenic ¹⁾	As agreed between purchaser and vendor		N
16	Optional	Lead ¹⁾	As agreed between purchaser and vendor		P

1) To be calculated on a moisture-free basis.

18 TESTS

18.1 Except where otherwise indicated, calculations regarding bleached lac in any form or condition shall be made in terms of the moisture-free material.

18.2 All analytical work on bleached lac except the determination of volatile matter (moisture) content shall be carried out on the "test sample" obtained as described under Q.3.1 (annex Q).

18.3 The volatile matter (moisture) content of the "test sample" shall be determined by the method described in annex A and other than for volatile matter (moisture), this figure shall be used to correct the analytical results on the basis of the moisture-free material.

NOTE — During the analyses specified in the annexes, use only reagents of recognised analytical grade, and only distilled water or water of equivalent purity.

19 SAMPLING

Samples shall be taken in the manner described in annex Q.

ANNEX A
(See clause 5)

DETERMINATION OF VOLATILE MATTER (MOISTURE)

A.1 PRINCIPLE

A.1.1 The volatile matter (moisture) content of bleached lac is determined in two stages, the first stage being by drying a weighed specimen of the "sample as received" marked "for the determination of volatile matter (moisture) content" by keeping it over concentrated sulphuric acid in vacuo for 12 to 24 h. In the case of bone-dry bleached lacs, this first stage may be omitted.

A.1.2 For the second stage, the partially dried material thus obtained is ground to the specified size, and a portion is dried further by heating it in a well-ventilated oven maintained at a temperature of $41 \pm 2^\circ\text{C}$ for 18 h.

A.2 PROCEDURE

A.2.1 Use a portion of the "sample as received" (see Q.1.5, Q.1.6 and Q.1.7) and crush, if necessary, into granules using a heavy pestle and mortar, keeping the latter covered as far as possible during the process. Weigh a clean, dry, flat-bottomed dish of about 100 mm diameter, provided with a glass cover. Transfer approximately 10 g of the ground sample to the dish as rapidly as possible, cover it with the glass cover and reweigh. The difference gives the mass of test portion.

A.2.2 Transfer the dish and contents to a vacuum desiccator containing concentrated sulphuric acid and remove the cover of the dish. Immediately evacuate the desiccator and keep the sample, uncovered, in vacuo for not less than 12 h and not more than 24 h. Remove the dish, replace the cover and weigh. The difference between this mass and the mass of the dish is the mass of the partially dried test portion. Grind it until it passes a sieve having a nominal aperture of 0,425 mm (see Q.4).

A.2.3 Weigh approximately 5 g of the ground material, to an accuracy of 1 mg, into a covered tared dish of the type described in A.2.1 and transfer to a well-ventilated oven

maintained at a temperature of $41 \pm 2^\circ\text{C}$ for 18 h, the cover of the dish being removed during the drying process. At the conclusion of the heating period, replace the cover and transfer the covered dish to a desiccator; weigh when cool. This mass minus the mass of the dish is the mass of the completely dried test portion.

A.3 CALCULATION

A.3.1 The volatile matter (moisture) in the original sample, as a percentage by mass, is given by the formula

$$100 \left(1 - \frac{m_4 m_2}{m_3 m_1} \right)$$

where

m_1 is the mass, in grams, of the test portion taken for drying in vacuo;

m_2 is the mass, in grams, of the partially dried test portion;

m_3 is the mass, in grams, of the part of the partially dried, ground test portion taken for oven drying;

m_4 is the mass, in grams, of the test portion after oven drying.

A.3.2 If the first drying stage (see A.2.2) is omitted, the volatile matter (moisture) in the original sample, as a percentage by mass, is given by the formula

$$100 \left(1 - \frac{m_2}{m_1} \right)$$

where

m_1 is the mass, in grams, of the test portion taken for oven drying;

m_2 is the mass, in grams, of the test portion after oven drying.