IS 9245 (1994): Nail polish (nail enamel) [PCD 19: Cosmetics]

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भारतीय मानक

नाखून पोलिश — विशिष्टि

(पहला पुनरीक्षण)

Indian Standard

NAIL POLISH (NAIL ENAMEL) — SPECIFICATION

(First Revision)

UDC 665'584'72

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

February 1994

Price Group 2

Cosmetics Sectional Committee, PCD 19

FORFWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Cosmetics Sectional Committee, had been approved by the Petroleum, Coal and Related Products Division Council

Nail polishes, nail enamels or nail lacquers are coloured or colourless and/or pearly viscous liquids, composed of nitrocellulose, synthetic resins, plasticizers and organic solvents In addition, they include suitable pigments as colouring agents

The synthetic resins used for the purpose often include polyvinyl acetate, sulphonamide formaldehyde, etc The solvents used are generally esters, ketones, primary alcohols, aromatic hydrocarbons, etc, and their mixtures

Some nail polishes contain a small percentage of guanine crystals (natural pearl essence) extracted from the scales of some species of fish, or bismuth oxychloride or titanium dioxide deposited on mica

This Indian Standard was first issued in 1979 In this revision, requirement for non-volatile matter is being modified from 25 percent minimum to 20 percent minimum in order to enable the manufacturers to produce varied coloured nail polishes ranging from very light to very dark shades. Procedure for conducting blush test and scratch test have also been modified in this revision

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

AMENDMENT NO. 2 JULY 1998
TO
IS 9245 : 1994 NAIL POLISH (NAIL ENAMEL) — SPECIFICATION

(First Revision)

[*Page* 1, *clause* 4.2(d)] — Insert '(e)' after '(d)'.

'e) Best use before . . . . . (Month and year to be declared by the manufacturer)'.

(PCD 19)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 3 FEBRUARY 2001
TO
IS 9245 : 1994 NAIL POLISH (NAIL ENAMEL) — SPECIFICATION

(First Revision)

[*Page* 1, *clause* 4.2(e) (*see also Amendment No.* 2)] — Substitute the following for the existing:

'e) Best use before . (Month and year to be declared by the manufacturer)

NOTE — This is exempted in case of pack sizes of 10 g/25 ml or less and if the shelf life of the product is more than 24 months

f) List of key ingredients

NOTE — This is exempted in case of pack sizes of 30 g/60 ml or less '

[*Page* 2, *Table* 1, *Sl No.*(i)] — Substitute the following for the existing matter

Sl No	Characteristic	Requirement	Method of Test (Ref to Cl No in Annex A)
i)	Non-volatile matter percent by mass, *Min*	10	A-2

(PCD 19)

Reprography Unit, BIS, New Delhi, India

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AMENDMENT NO. 2 JULY 1998
TO
IS 9245 : 1994 NAIL POLISH (NAIL ENAMEL) — SPECIFICATION

(First Revision)

[*Page* 1, *clause* 4.2(d)] — Insert '(e)' after '(d)':

'e) Best use before . . . . . (Month and year to be declared by the manufacturer)'

(PCD 19)

Reprography Unit, BIS, New Delhi, India

Indian Standard

NAIL POLISH (NAIL ENAMEL) — SPECIFICATION

(First Revision)

1 SCOPE

This standard prescribes the requirements and the method of sampling and test for nail polishes used for cosmetic purposes.

2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard

IS No	*Title*
264 : 1976	Nitric acid (*second revision*)
265 : 1987	Hydrochloric acid (*third revision*)
226 : 1977	Sulphuric acid (*third revision*)
1070 : 1992	Reagent grade water — Specification (*third revision*)
2088 : 1983	Methods for determination of arsenic (*first revision*)
3958 : 1984	Methods of sampling cosmetics (*first revision*)
4707	Classification of cosmetic raw materials and adjuncts
(Part 1) : 1988	Dyes, colour and pigments (*first revision*)
(Part 2) : 1993	List of raw materials generally not recognized as safe for use in cosmetics (*first revision*)
10332 : 1982	Hydrofluoric acid, aqueous
13262 : 1992	Pressure sensitive adhesive tapes with plastic base — Specification

The above-mentioned standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions 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 above.

3 REQUIREMENTS

3.1 Composition

3.1.1 The pigments used in the manufacture of nail polish shall comply with the provisions of IS 4707 (Part 1) : 1988 subject to the provisions of Schedule Q of Drugs and Cosmetics Act And Rules 1945, issued by the Government of India.

3.1.2 Ingredients other than pigments shall comply with the provisions of IS 4707 (Part 2) : 1993

3.2 Nail polish shall be glossy on the nails after complete drying Evaluation shall be made visually. Moreover, it shall not leave a stain on the nails after being removed with the aid of nail polish remover

3.3 The material, when tested according to the methods prescribed in Annex A, shall conform to the requirements given in Table 1. erence to the relevant clauses of Annex A is g in Col 4 of the Table 1.

4 PACKING AND MARKING

4.1 Packing

The material shall be packed in suitable air-tight containers as agreed between the purchaser and the supplier The cap shall carry a brush to apply the material on the nails

4.2 Marking

Each container shall be suitably marked with the following information:

a) Name of the mater

b) Net volume in ml;

c) Indication of source of manufacture,

d) Batch number, in code of otherwise, to enable the lot of manufacture to be traced back from records

4.2.1 The container may also be marked with the Standard Mark

5 SAMPLING

5.1 Representative samples of the material shall be drawn as prescribed in IS 3958 : 1984.

5.2 Tests for all characteristics shall be carried out on the composite sample.

5.3 The material shall be taken to have conformed to the specification if the composite sample passes all the tests.

Table 1 Requirements for Nail Polish (Nail Enamel)
(*Clause* 3.3)

Sl No.	Characteristic	Requirement	Method of Test (Ref to Cl No. in Annex A)
(1)	(2)	(3)	(4)
i)	Non-volatile matter, percent by mass, *Min*	20	A-2
ii)	Drying time, in minutes, *Max*	6	A-3
iii)	Adhesion test	To pass the test	A-4
iv)	Scratch test	To pass the test	A-5
v)	Blush test	To pass the test	A-6
vi)	Heavy Metal* as (Pb), ppm, *Max*	20	A-7
vii)	Arsenic* as (As_2O_3), ppm, *Max*	2	A-8

*NOTE — If all the raw materials requiring test for heavy metals have been so tested and comply with the requirements, then the manufacturers may not test the finished cosmetic for heavy metals.

ANNEX A
(*Clause* 3.3)

METHODS OF TEST FOR NAIL POLISH (NAIL ENAMEL)

A-1 QUALITY OF REAGENTS

A-1.1 Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070 : 1992) shall be used in tests.

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

A-2 DETERMINATION OF NON-VOLATILE MATTER

A-2.1 Apparatus

A-2.1.1 *Flat Glass Petri-Dish* — 8 cm diameter.

A-2.2 Procedure

Weigh accurately 1.000 ± 0.2 g of the material in the petri-dish and place it in an oven at 105 ± 2°C for one hour. Cool to room temperature and weigh the dish. Repeat the process to bring it to constant mass.

A-2.3 Calculation

$$\text{Non-volatile matter, percent by mass} = \frac{(M_2 - M_1)}{M} \times 100$$

where

M = mass in g of the material taken,

M_1 = mass in g of the dry and empty petri-dish; and

M_2 = mass in g of the petri-dish and dried material.

A-3 DETERMINATION OF DRYING TIME

A-3.1 Apparatus

A-3.1.1 *Stop-Watch*

A-3.2 Procedure

Apply the material on the nail of the thumb with the help of a nail polish brush in the usual manner. Start the stop-watch. Touch the film with the finger tip at frequent intervals, when the film feels dry on touch, stop the watch and note the time. The time recorded is taken as the drying time of the material. The test shall be conducted away from direct drought of air.

A-4 ADHESION TEST

A-4.1 Apparatus

A-4.1.1 *Microscopic Glass Slide*

A-4.1.2 *Cellophane Adhesive Tape* — *see* IS 13262 : 1992.

A-4.2 Procedure

Make a film of 1 × 2.5 cm area on the glass slide, cleaned with toluene or xylene, taking one drop and spreading it with a nail polish brush. Place the slide in a horizontal position and allow it to dry at room temperature for 24 hours. After drying, press the pressure sensitive adhesive cellophane tape over the film so as to cover the entire film. Pull the tape of the film immediately

The material shall be taken to have passed the test if not more than 10 percent of the film is peeled off.

A-5 SCRATCH TEST

A-5.0 Principle of the Method

It is a measure of the resistance of the dried film against a scratch, under a specified load

A-5.1 Apparatus

A-5.1.1 *Stainless Steel Spatula* — 15 × 2·5 cm.

A-5.1.2 *Scratch Test Apparatus*

The apparatus is as shown in Fig. 1. The end of the hard steel needle is hemispherical and 1 mm in diameter

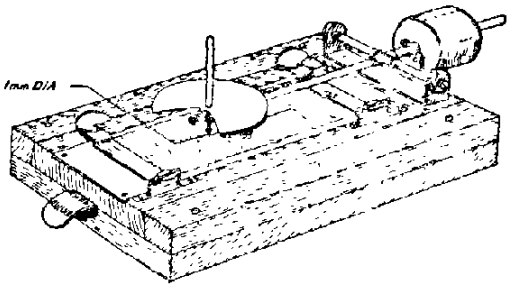

FIG 1 APPARATUS FOR DETERMINING SCRATCH HARDNESS AND STRIPPING TEST

A-5.2 Procedure

Pour nail polish over the plate, allow it to spread evenly and keep it inclined for 24 hours at room temperature so that uniform dry film is produced. After the film is dried, place the spatula in the apparatus. Fix the needle at the end of the counterpoise, keeping it horizontal by adjusting the length of the needle Slowly draw the base holding the spatula Subject the needle under a load of 200 g and draw a scratch along full length of the film The material shall be considered to have passed the test if the pilot lamp does not glow throughout scratching of the film

A-6 BLUSH TEST

A-6.1 Apparatus

A-6.1.1 *Tinplate* — 5 × 15 cm

A-6.1.2 *Beaker* — 250 ml capacity.

Procedure

Pour nail polish over plate and allow it to spread into a uniform film. Drain the excess Dry the plate over 24 hours at ambient conditions Fill a beaker to half its level with ordinary tap water. Dip the plate in water in the beaker such that half the coating is in water and the remaining portion above water. Let it stand for four hours. Remove the plate, dry it with tissue paper. Allow it to further dry at ambient conditions for four hours. Check for blush. The material can be taken to have passed if it has no or slight whitishness The film should not show any blistering or peeling off.

A-7 DETERMINATION OF HEAVY METALS

A-7.1 Outline of the Method

The colour produced with hydrogen sulphide solution is matched against that obtained with standard lead solution.

A-7.1 Apparatus

A-7.1.1 *Nessler Cylinders* — 50 ml capacity.

A-7.2 Reagents

A-7.2.1 *Concentrated Hydrochloric Acid* — *see* IS 265 : 1987

A-7.2.2 *Concentrated Nitric Acid* — *see* IS 264 : 1976.

A-7.2.3 *Dilute Acetic Acid* — 6 percent acetic acid (60 ml diluted to 1 000 ml with water)

A-7.2.4 *Hydrogen Sulphide Solution* — saturated.

A-7.2.5 *Hydrofluoric Acid* — *see* IS 10332 : 1982.

A-7.2.6 *Standard Lead Solution*

Dissolve 1 600 g of lead nitrate in water and make up the solution to 1 000 ml Pipette out 10 ml of the solution and dilute again to 1 000 ml with water. One millilitre of this solution contains 0 01 mg of lead (as Pb)

A-7.3 Procedure

A-7.3.1 Place 2 g of sample accurately weighed in a platinum dish and incinerate for about 2 hours at 525 to 550°C. Cool and add 1 to 2 ml of hydrochloric acid and 0 5 ml nitric acid and evaporate to dryness on the steam bath Dissolve the residue in 5 ml hot water, evaporate to dryness and treat it with hydrofluoric acid Evaporate again to dryness. Dilute it with water (about 50 ml) Filter the solution, if necessary, with suction through a fine fritted glass filter and dilute the filtrate and washing to 100 ml in a graduated flask This solution shall be used for test given in A-7.3.2

A-7.3.2 Transfer 50 ml of sample solution prepared in **A-7.3.1** in a Nessler cylinder washing it with water and add 1 ml of dilute acetic acid In the second Nessler cylinder place 1 ml dilute acetic acid and 2 ml of standard lead solution.

Add to each cylinder 10 ml of hydrogen sulphide solution and make up the volume with water to 100 ml. Mix, allow to stand for 10 minutes and then compare the colour produced in the two Nessler cylinders

A-7.3.3 The limit prescribed in Table 1 shall be taken as not having been exceeded if the intensity of colour produced in the test with the material is not greater than that produced in the second Nessler cylinder which is a control test

A-8 TEST FOR ARSENIC

A-8.1 Reagents

A-8.1.1 *Concentrated Sulphuric Acid — see* IS 266 : 1977.

A-8.1.2 *Concentrated Nitric Acid — see* IS 264 : 1976.

A-8.2 Procedure

A-8.2.1 *Preparation of Sample*

Weigh 2·000 g of the sample in a Kjeldahl flask of 500-ml capacity Add 15 ml of concentrated sulphuric acid followed by 4 ml of concentrated nitric acid. Heat cautiously Add drop by drop more nitric acid, if required, from a pipette to speed up the oxidation of the sample. The total amount of nitric acid shall be noted for use in the control test. When oxidation is complete, the solution is clear and faint yellow; at this stage, add 20 ml of water and again boil to fuming Ensure removal of nitric acid completely Make up the volume to 100 ml.

A-8.2.2 Carry out the test for arsenic with 10 ml sample solution prepared in A-8.2.1 as given in IS 2088 . 1983. Compare the stain obtained with that produced with 0·004 mg of arsenic trioxide.

Bureau of Indian Standards

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