भारतीय मानक
Indian Standard

IS 10999 : 2021

कुमकुम पाउडर — विशिष्टि

(दूसरा पुनरीक्षण)

Kum Kum Powder — Specification

(Second Revision)

ICS 71.100.70

भारतीय मानक ब्यूरो
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February 2021 **Price Group 5**

Cosmetics Sectional Committee, PCD 19

FOREWORD

This Indian Standard (Second 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.

The requirements of liquid bindi (a synonym of liquid *KUM KUM*) and powder *KUM KUM* are presently covered under separate standards namely, IS 10998 : 1984 'Specification for bindi (liquid)' and IS 10999 : 1999 '*KUM KUM* — Specification (*first revision*)'. While reviewing these standards, it was decided to update these standards, amalgamating IS 10998 with IS 10999, to make it user friendly. Consequently, this draft standard will supersede IS 10998.

The proposed revision thus covers two forms of *KUM KUM* that is, powder and liquid. The Committee also decided to incorporate the following requirements in the standard:

a) Compliance with IS 4011 for safety evaluation of novel ingredients;

b) Prohibition regarding use of lead oxide; and

c) Introduction of requirements and limits for gram negative pathogens.

KUM KUM is considered to be very auspicious by Indians and thus, used for various purposes on special occasions like wedding and festivals. It is generally used by ladies of all age groups in India. It is available in two different forms namely, powder and liquid.

Powder *KUM KUM* is a homogeneous fine powder consisting of natural/synthetic pigments/colours in a medium having natural ingredients such as turmeric, starch (potato, maize, tapioca etc.) and/or semi synthetic/synthetic ingredients like magnesium stearate, talc, zinc stearate, light calcium carbonate etc. together with some perfume. It is generally applied on the forehead with a finger tip. Generally available in red shades.

Liquid *KUM KUM* consists of homogeneous suspension of pigment in emulsion or suspension medium. It is applied through an applicator and is available in various colours.

No stipulations have been made in this draft standard regarding definite composition of *KUM KUM*. However, it is necessary that concentration of the raw materials used in the formulation of finished product should be free from any harmful effects. It shall be the responsibility of the manufacturers of *KUM KUM* to satisfy themselves of the dermatological and microbiological safety of their formulation before releasing the product for sale.

Indian Standard

KUM KUM POWDER — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes the requirements and methods of sampling and test for *KUM KUM* (powder and liquid).

2 REFERENCES

The standards which are necessary adjuncts to this draft standard are listed below. 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 standard:

IS No.	*Title*
264 : 2005	Nitric acid — Specification (*third revision*)
266 : 1993	Sulphuric acid — Specification (*third revision*)
323 : 2009	Rectified spirit for industrial use — Specification (*second revision*)
460 (Part 1) : 1985	Specification for test sieves: Part 1 Wire cloth test sieves (*third revision*)
695 : 1986	Specification for acetic acid (*third revision*)
1070 : 1992	Reagent grade water — Specification (*third revision*)
3958 : 1984	Methods of sampling cosmetics (*first revision*)
4011 : 2018	Methods of test for safety evaluation of cosmetics (*second revision*)
4707	Classification of cosmetics raw materials and adjuncts
(Part 1) : 2020	Colourants (*third revision*)
(Part 2) : 2017	List of raw materials generally not recognized as safe for use in cosmetics (*fourth revision*)
5296 : 1995	Chloroform, pure and technical — Specification (*second revision*)
14648 : 2011	Microbiological examination of cosmetics and cosmetic raw materials — Methods of test (*second revision*)

3 TYPES

Depending upon the form in which it is manufactured, *KUM KUM* shall be categorized in two types, namely powder and liquid.

4 REQUIREMENTS

4.1 Description

KUM KUM shall be a homogeneous in nature. It shall not leave any stain on the skin after washing with water. It should have an attractive appearance and pleasant agreeable odour.

4.2 Lead oxide must not form part of the composition of *KUM KUM*.

4.3 For safety evaluation of novel ingredients used in its formulation, *KUM KUM* shall comply to IS 4011.

4.4 Ingredients

4.4.1 Unless specified otherwise, all the raw materials used in the manufacture of *KUM KUM* shall conform to the requirements prescribed in the relevant Indian Standards wherever they exist.

4.4.2 The dyes, colours and pigments used in the manufacture of *KUM KUM* shall comply with IS 4707 (Part 1) subject to provision of schedule Q of drugs and cosmetic rules, issued by Government of India. Other ingredients shall comply with the provisions of IS 4707 (Part 2).

4.5 The material shall also comply with the requirements given in Table 1 when tested as prescribed in col 5 and 6 of the Table 1.

Table 1 Requirements for *KUM KUM*

(*Clause* 4.5)

Sl No.	Characteristic	Requirements for		Method of Test, Ref to	
		Powder	Liquid	Annex	IS No.
(1)	(2)	(3)	(4)	(5)	(6)
i)	Fineness, residue on 75 micron IS sieve, percent by mass, *Max*	1.5	–	A	
ii)	Total solids, percent by mass, *Min*	–	5	B	
iii)	Viscosity, seconds	–	100 to 200	C	
iv)	Stability at 45 ºC	–	To pass the test	D	
v)	*p*H	5.5-9.0	6.0-8.5	E	
vi)	Drying time, minutes, *Max*	–	5.0	F	
vii)	Heavy metals as lead (Pb), parts per million, *Max*	20	20	G	
viii)	Arsenic (as As_2O_3), parts per million, *Max*	2	2	H	
ix)	Microbial count, CFU/g or CFU/ml[1]:				14648
	a) Total viable count, *Max*	1 000	1 000		
	b) Gram negative pathogens:				
	1) Pseudomonas Aeruginosa	Absent	Absent		
	2) Escherichia Coli	Absent	Absent		
	3) Staphylococcus Aureus	Absent	Absent		
	4) Candida	Absent	Absent		

[1] CFU/g = for solids; CFU/ml = for liquids.

5 PACKING AND MARKING

5.1 *KUM KUM* shall be packed in suitable containers like plastic bottles, sachets or other suitable dispensing systems. When packed in containers, the containers shall be properly sealed and have a leak-proof cap or closure. The containers, if necessary, may further be packed in cartons or any other suitable packaging material.

5.2 *KUM KUM* containers and the cartons shall be legibly marked with the following information:

a) Name and type of *KUM KUM*;
b) Manufacturer's name and/or his recognized trade-mark, if any;
c) Net mass or volume of *KUM KUM* in the container;
d) Batch or lot number in code or otherwise;
e) Shade name or shade number, if any;
f) Month and year of manufacture;
g) List of key ingredients[1];
h) 'Best use before .....' (month and year to be declared by manufacturer)[2];
j) Instructions for use; and
k) Any other information required by statutory authorities.

[1] This is exempted in case of pack sizes of 30 g/60 ml or less.

[2] This is exempted in case of pack size of 10 g/25 ml or less and if the shelf life of the product is more than 24 months.

5.2.1 *BIS Certification Marking*

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

6 SAMPLING

6.1 Representative samples of the material shall be drawn as prescribed in IS 3958.

6.2 The lot shall be declared as conforming to requirements of the specification, if all the test results on each individual samples meet the requirements prescribed in **4.1** to **4.5**.

7 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.* (i)]

DETERMINATION OF FINENESS

A-1 REAGENT

A-1.1 Rectified Spirit — Filtered (*see* IS 323).

A-2 PROCEDURE

Place about 10 g of the material, accurately weighed, in the specified IS Sieve [*see* IS 460 (Part 1)] and wash by means of a slow stream of running tap water and finally with fine stream from a wash bottle until as much material as would pass through the sieve has passed. In case the material is not easily wetted by water, the washing could be started with a slow stream of filtered rectified spirit. Let the water drain from the sieve and then dry the sieve containing the residue on a steam bath. Transfer the residue on to a tarred watch glass carefully and dry it to constant mass at (105 ± 2) °C.

A-3 CALCULATION

$$\text{Residue on the specified sieve} = \frac{100 \times M_1}{M}$$

where

M_1 = mass in g, of the residue retained on the specified sieve; and

M = mass in g, of the material taken for the test.

ANNEX B

[*Table* 1, *Sl No.* (ii)]

DETERMINATION OF TOTAL SOLIDS

B-1 PROCEDURE

Take about 2 g of the material, accurately weighed, in a tarred porcelain basin of 7.5 cm diameter and evaporate to near dryness on water-bath. Then remove the basin to an air-oven maintained at (105 ± 2) °C. Cool in a desiccator and weigh. Repeat the operation till constant mass is obtained.

B-2 CALCULATION

$$\text{Total solids, percent by mass} = \frac{100 \times M_1}{M}$$

where

M_1 = mass in g, of the residue; and

M = mass in g, of the material taken for the test.

ANNEX C

[*Table* 1, *Sl No.* (iii)]

DETERMINATION OF VISCOSITY

C-1 OUTLINE OF THE METHOD

The viscosity is determined at (27 ± 1) °C in Ford cup viscometer No. 4.

C-2 APPARATUS

C-2.1 Ford Cup Viscometer No. 4 — It shall be essentially of the form and dimensions as shown in Fig. 1.

C-2.1.1 Material of Construction — A cup made of any non-ferrous material is suitable. This may be plated. The finish shall be smooth.

C-2.1.2 The jet may be either bored directly or constructed separately of stainless steel and force fitted. Care is essential in order to avoid damage to the lower apex of the cup. A protective skirt which does not interfere with the flow may be provided.

C-2.2 Thermometer — Accurate to 0.5 °C.

C-2.3 Stop Watch or Stop-Clock

C-2.4 Stand — Provided with levelling screws.

C-2.5 Spirit Level

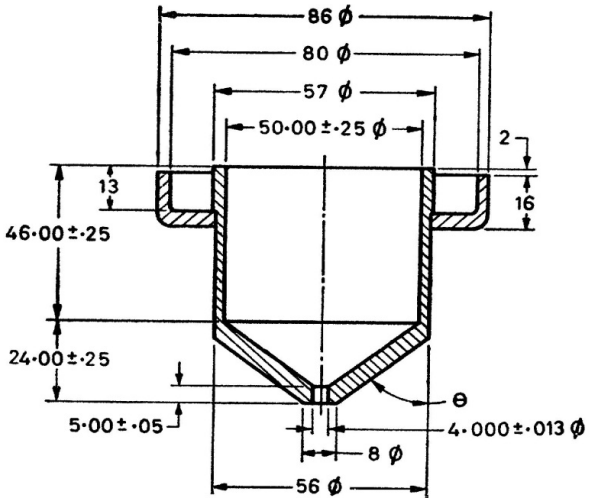


FIG. 1 FORD CUP VISCOMETER

C-2.6 Straight-edged Scraper — For the top of the cup.

C-3 PROCEDURE

C-3.1 Place the flow cup on the stand in a place free from draught, preferably with the air temperature within the range (27° ± 2) °C. Level by the use of a spirit level placed on the rim.

C-3.2 With the orifice closed by the finger, fill the cup with the bubble-free sample until it just begins to overflow into the gallery, pouring slowly to minimize the formation of air bubbles. If bubbles are present, allow them to rise and then remove them from the surface.

C-3.3 Check that the temperature of the material in the cup is within 1 °C of the test temperature, the cup may beat a temperature different from that of the sample and it is recommended that a minute or so be allowed to elapse before checking the temperature.

C-3.4 Place the scraper on the rim of the cup and draw it firmly across until the excess of the sample has flowed into the gallery. Place the receiver under the cup. Remove the finger and simultaneously start the stop-watch, watch the stream of liquid flowing from the orifice. At the first evidence of a break of the stream into droplets, stop the stop-watch. The time taken is recorded in seconds as time of flow in flow cup. Take average of two readings. This average time gives viscosity in seconds.

ANNEX D

[*Table* l, *Sl No.* (iv)]

TEST FOR STABILITY

D-1 PROCEDURE

D-1.1 Take 10 ml of the material in a test tube properly closed and keep it in an incubator maintained at a temperature of (45 ± 2) °C for 24 h.

D-1.2 The material shall be taken to have passed the test if there is no appreciable separation or sedimentation of the solid contents.

ANNEX E

[*Table* 1, *Sl No.* (v)]

DETERMINATION OF *p*H

E-1 APPARATUS

E-1.1 *p*H meter — Provided with glass and calomel electrodes.

E-2 PROCEDURE

E-2.1 For Powder

Take 10 g of the material in a 150 ml beaker and add 90 ml of distilled water. Stir well to make a thorough suspension. Determine the *p*H of the suspension using a *p*H meter within 5 min of making the suspension at (27 ± 2) °C. In case of a material which does not wet, the *p*H shall be determined on the filtrate.

E-2.2 For Liquid

Take 50 ml of the sample and determine its *p*H at (27 ± 2) °C using the *p*H meter.

ANNEX F

[*Table* l, *Sl No.* (vi)]

DETERMINATION OF DRYING TIME

F-1 Wash hands with soap and water and allow the hands to dry completely. Take a little *KUM KUM* with applicator, from the container and apply on the back of hand just below the thumb inside the palm in the same normal way of applying on the forehead. Start the stop watch. Note the time of drying in minutes, when the *KUM KUM* has completely dried.

ANNEX G

[*Table* 1, *Sl No.* (vii)]

TEST FOR HEAVY METALS

G-1 OUTLINE OF THE METHOD

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

G-2 APPARATUS

G-2.1 Nessler Cylinders, 50 ml capacity.

G-3 REAGENTS

G-3.1 Dilute Hydrochloric Acid, approximately 5 N.

G-3.2 Dilute Acetic Acid, approximately 1 N.

G-3.3 Dilute Ammonium Hydroxide, approximately 5 N.

G-3.4 Hydrogen Sulphide Solution, standard.

G-3.5 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).

G-4 PROCEDURE

Weigh about 2.000 g of material in a crucible and heat on a hot plate and then in a muffle furnace to ignite it at 600 °C to constant mass. Add 3 ml of dilute hydrochloric acid, warm (wait till no more dissolution occurs) and make up the volume to 100 ml. Filter the solution**.** Transfer 25 ml of the filtrate into a Nessler's cylinder. In the second Nessler's cylinder, add 2 ml of dilute acetic acid, 1.0 ml of standard lead solution and make up the volume with water to 25 ml.

Add 10 ml of hydrogen sulphide solution to each Nessler cylinder and make up the volume with water to 50 ml. Mix and allow to stand for 10 min. Compare the colour produced in the two Nessler's cylinders. Blank determination without samples are recommended to avoid errors arising out of reagents.

G-5 RESULT

The sample may be taken to have passed the test, if the colour developed in the sample solution is less than that of standard solution.

ANNEX H

[*Table* 1, *Sl No.* (viii)]

TEST FOR ARSENIC

H-1 REAGENTS

H-1.1 Concentrated Sulphuric Acid

H-1.2 Concentrated Nitric Acid

H-1.3 Lead Acetate Cotton — Immerse absorbent cotton in a mixture of 10 volumes of lead acetate solution and 1volume of 2 M acetic acid. Drain off the liquid by placing it on several layers of filter paper without squeezing the cotton. Allow to dry at room temperature. Store in tightly-closed containers.

H-1.4 Potassium Iodide (1M Solution) — Dissolve 166.00 g of Potassium iodide in water to make 1000 ml solutions.

H-1.5 Zinc As T — Granulated zinc which complies with the following additional test:

To 10 g, add 15 ml of stannous chloride solution As T and 5 ml of 0.1M potassium iodide. Use the apparatus as in Fig. 2, but continue the action for 1 h no visible stain is produced on the mercuric chloride paper. Repeat the test with the addition of 0.1 ml of arsenic standard solution (10 ppm), a faint but distinct stain is produced.

H-1.6 Mercuric Chloride Paper — Smooth white filter paper, not less than 25 mm in width, soaked in a saturated solution of mercuric chloride, pressed to remove superfluous solution and dried at about 60 ºC in the dark. The grade of filter paper is such that the weight is between 65 and 120 g/m^2; the thickness in mm of 400 papers is approximately equal, numerically, to the weight in g/m^2. Store in a stoppered bottle in the dark. The paper which has been exposed to sunlight or to the vapour of ammonia affords a lighter stain or no stain at all when employed in the limit test for arsenic.

H-1.7 Stannous Chloride Solution As T — Prepared from stannous chloride solution (dissolve 330 g of stannous chloride in 100 ml of hydrochloric acid and add sufficient water to produce 1 000 ml) by adding an equal volume of hydrochloric acid, boiling down to the original volume, and filtering through a fine-grain filter paper.

H-2 PROCEDURE

H-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 that stage, add 20 ml of water and again boil to fuming. Ensure removal of all nitric acid. Make up the volume to 20 ml.

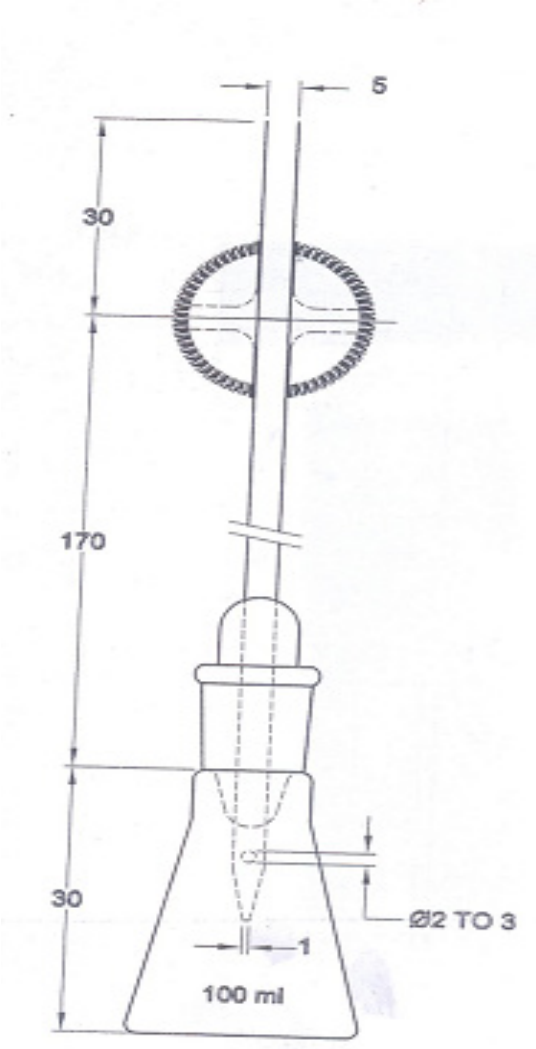
H-2.2 Carry out the test for arsenic with the solution prepared in **H-2.1**.

H-2.3 The apparatus (*see* Fig. 2) consists of a 100 ml bottle or conical flask closed with a rubber or ground-glass stopper through which passes a glass tube (about 20 cm × 5 mm). The lower part of the tube is drawn to an internal diameter of 1.0 mm and 15 mm from its tip is a lateral orifice 2 to 3 mm in diameter. When the tube is in position in the stopper the lateral orifice should be at least 3 mm below the lower surface of the stopper. The upper end of the tube has a perfectly flat surface at right angles to the axis of the tube. A second glass tube of the same internal diameter and 30 mm long, with a similar flat surface, is placed in contact with the first and is held in position by two spiral springs or clips. Into the lower tube insert 50 or 60 mg of lead acetate cotton, loosely packed, or a small plug of cotton and a rolled piece of lead acetate paper weighing 50 to 60 mg. Between the flat surfaces of the tubes place a disc or a small square of mercuric chloride paper large enough to cover the orifice of the tube. (15 mm × 15 mm).

H-2.4 Method

Into the bottle or conical flask introduce the test solution prepared as given in **H-2.1**, add 5 ml of 1M potassium iodide and 10 g of zinc As T. Immediately assemble the apparatus and immerse the flask in a water-bath at a temperature such that a uniform evolution of gas

is maintained. After 40 min any stain produced on the mercuric chloride paper is not more intense than that obtained by treating in the same manner 1.0 ml of arsenic standard solution 10 ppm As) diluted to 50 ml with water and using 20 ml of the above solution.



All dimensions in millimemetres

FIG. 2 APPARATUS FOR TEST FOR ARGENIC

ANNEX J

(*Foreword*)

COMMITTEE COMPOSITION

Cosmetics Sectional Committee, PCD 19

Organization	*Representative(s)*
Drugs Controller General (INDIA), Delhi	Dr V. G. Somani (***Chairman***)
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Organization	*Representative(s)*
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Essential Oil Association of India (EOAI), Noida	Shri Yogesh Dubey Shri Pradeep Kumar Jain (*Alternate*)
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Review of Indian Standards

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