भारतीय मानक

Indian Standard

IS 419 : 2023

खिड़की के फ्रेम पर उपयोग के लिए पुट्टी — विशिष्टि

(दूसरा पुनरीक्षण)

Putty for Use on Window Frames — Specification

(Second Revision)

ICS 87.040

भारतीय मानक ब्यूरो
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FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Paints, Varnishes, and Related Products Sectional Committee had been approved by the Chemical Division Council.

The standard for putty was initially published in 1953 and covered putty for use on wooden frames. In 1967, during the first revision of the standard, the decision was made to expand its scope to include putty for use on metal frames as well. Prior to that revision, there existed a separate standard titled 'IS 420 : 1953 Specification for Putty, for use on metal frames,' which was superseded by the first revision of the original standard. As a result, the earlier standard for putty on metal frames, 'IS 420 : 1953,' was withdrawn.

Additionally, in the first revision, adequate consideration was given to stipulate various requirements independent of approved sample. Performance test for consistency was improved by making it more objective. All other changes found necessary as a result of experience gained through the use of the standard were also incorporated.

This revision has taken up in order to bring out the standard in the latest style and format of the Indian Standards. It also incorporates 5 amendments issued to the last version of standard. In addition, the following changes have been made:

a) The maximum limit for lead has been specified considering its adverse impact on human health;
b) A suitable precautionary note has been added in the marking clause in order to prevent unforeseen events; and
c) References of Indian Standards have been updated wherever required.

The composition of the Committee, responsible for the formulation of this standard is given in Annex D.

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 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. 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

PUTTY FOR USE ON WINDOW FRAMES — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for putty for use in fixing glass panes on wood and metal frames and for filling splits, cracks and holes in wood or metal.

2 REFERENCES

The standards listed in Annex A 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 these standards.

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1303 and the following shall apply:

3.1 Setting Time — The time taken for the putty to convert itself into cohesive mass which does not yield to specified pressure applied after a specified drying time.

4 REQUIREMENTS

4.1 Form and Condition

The material shall be homogeneous paste and shall be free from grit and other visible impurities.

4.2 Composition

The material shall consist of mainly whiting and linseed oil (*see* IS 75) if necessary, varnish and suitable additives may be added in the formulation of putty. The material shall be mixed in such proportions as to form a paste which shall comply with the requirements of this standard.

4.2.1 The calcium carbonate content of extracted pigment, from putty, shall be not less than 80 percent when tested as per Annex B.

4.3 Consistency

The material after thorough working in hands shall have good plastic quality without sliminess or stickiness that would render it difficult to handle and apply.

4.3.1. In addition, it shall work readily and smoothly under a palette knife without crumbling or cracking and, after being moulded in place, it shall convert itself into a cohesive mass which does not yield to specified pressure applied after 72 h as prescribed in Annex C.

4.4 Lead Restriction

The material shall not contain lead or compounds of lead or mixtures of both, as metallic lead more than 90 ppm, when tested for restriction from lead in accordance with IS 101 (Part 8/Sec 5).

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

4.6 Keeping Properties

When stored under cover in a dry place in the original sealed containers under normal temperature conditions, the material shall retain the properties prescribed in **4.1, 4.2, 4.3**, **4.4,** and Table 1 for a period of minimum six months after the date of manufacture.

Table 1 Requirements for Putty for use on Window Frames

(*Clauses* 4.5, 4.6 *and* 7.1)

Sl No.	Characteristic	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Residue on sieve, percent by mass, *Max*	5.0	IS 101 (Part 8/Sec 1)
ii)	Water content, percent by mass, *Max*	1.5	IS 101 (Part 2/Sec l)

5 PACKING AND MARKING

5.1 Packing

The material shall be suitably packed as agreed to between the purchaser and the supplier. The packing is subject to the provisions of the law in force in the country at that time.

5.2 Marking

Each container shall be marked with the following particulars:

a) Name and type of the material;
b) Name of the manufacturer or his recognized trade-mark, if any;
c) Volume of the material;
d) Batch No. or lot No. in code or otherwise;
e) Month and year of manufacture;
f) Lead content, maximum, as declared; and
g) A cautionary note as below:
    1) Keep out of reach of children;
    2) Dried film of this paint may be harmful if eaten or chewed; and
    3) This product may be harmful if swallowed or inhaled.

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

5.2.2 *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

Representative samples of the material shall be drawn as prescribed in IS 101 (Part 1/Sec 1).

7 TEST METHODS

7.1 Tests shall be conducted as prescribed in **4.2.1**, **4.3.1**, **4.5**, Annex A, Annex B and the test methods referred 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 the test.

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

ANNEX A

(*Clause* 2)

LIST OF REFERRED STANDARDS

IS No.	*Title*
IS 33 : 1992	Inorganic pigments and extenders for paints — Methods of sampling and test (*third revision*)
IS 63 : 2006	Whiting for paint and putty — Specification (*third revision*)
IS 75 : 1973	Specification for linseed oil, raw and refined (*second revision*)
IS 101	Methods of sampling and test for paints, varnishes and related products:
(Part 1/Sec 1) : 2023	Tests on liquid paints (general and physical), Sec 1 Sampling (*fourth revision*)
(Part 2/Sec 1) : 2018	Test on liquid paints (chemical examination), Sec 1 water content (*fourth revision*)
(Part 8)	Tests for pigments and other solids,
(Sec 1) : 1989	Residue on sieve (*third revision*)
(Sec 5) : 2022	Lead restriction test (*fifth revision*)
IS 265 : 2021	Hydrochloric acid — Specification (*fifth revision*)
IS 266 : 1993	Sulphuric acid — Specification (*third revision*)
IS 1070 : 2023	Reagent grade water — Specification (*fourth revision*)
IS 1303 : 1983	Glossary of terms relating to paints (*second revision*)
IS 2316 : 1990	Methods of preparation of standard solutions for colorimetric and volumetric analysis (*second revision*)

ANNEX B

(*Clause* 4.2.1)

DETERMINATION OF CALCIUM CARBONATE CONTENT

B-1 GENERAL

B-1.1 Outline of the Method

The calcium carbonate content is determined volumetrically, using standard potassium permanganate solution.

B-2 REAGENTS

B-2.1 Standard Potassium Permanganate Solution — (0.1 N) (*see* **54** of IS 2316)

B-2.2 Bromine Water

B-2.3 Ammonium Oxalate Solution — Saturated

B-2.4 Dilute Hydrochloric Acid

Add one volume of concentrated hydrochloric acid (*see* IS 265) to four volumes of water.

B-3 PROCEDURE

Transfer about 0.2 g of accurately weighed whiting, dried as described in IS 33 to a beaker. Dissolve the whiting in about 20 ml of dilute hydrochloric acid. Digest for 10 min on a steam bath, dilute to 1.50 ml, filter and wash the residue with water. Add a few ml of bromine water, heat to boiling and make the boiling solution ammoniacal. Filter off the residue, wash it thoroughly and reduce the filtrate by evaporation to 200 ml. To the slightly ammoniacal solution, heated to boiling, add an excess of hot ammonium oxalate solution. Continue boiling till the precipitate becomes granular. Allow to stand for 1 h, filter and wash with hot water. Pierce the apex of the filter paper with a stirring rod and wash the precipitate into beaker with hot water. Pour warm dilute sulphuric acid through the paper and wash it a few times with warm acid. Add about 30 ml of dilute sulphuric acid, dilute to about 250 ml, heat to 60 °C and titrate with standard potassium permanganate solution.

B-4 CALCULATION

$$\text{Calcium carbonate, percent by mass} = \frac{5\,004 \times V}{M}$$

where

V = volume, in ml, of 0.1 N potassium permanganate solution used for titration; and

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

ANNEX C

(*Clause* 4.3.1)

DETERMINATION OF SETTING TIME

C-1 GENERAL

C-1 Outline of the Method

The putty applied to a specified thickness over a metal panel is subjected to pressure test after stipulated period and layers examined for deformity.

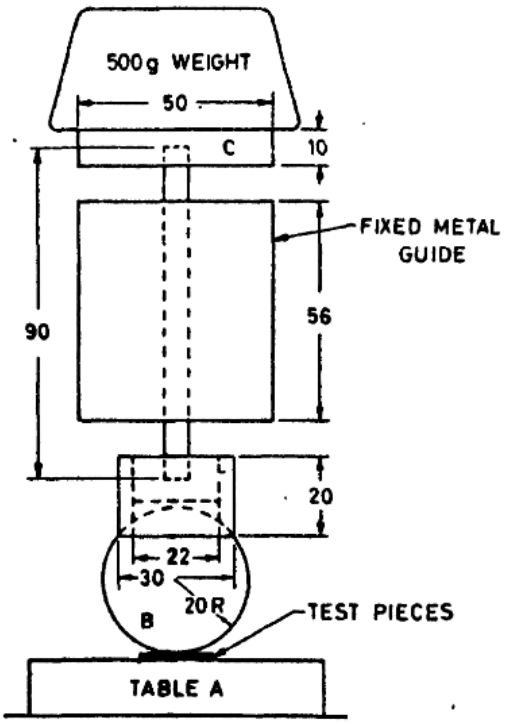
C-2 APPARATUS

C-2.1 Apparatus for setting time test, as shown in Fig. 1.

C-3 PROCEDURE

C-3.1 Apply the material on two clean metal panels of 60 mm × 60 mm size to give a thickness of 5 mm. Allow the putty to dry for 72 h. At the end of this period, superimpose the two panels, so that the putty layers are under contact and place on table A. Lower the steel ball B and plunger C to the centre of the metal panels and place a weight of 500 g on top of the plunger. Maintain the pressure on the plunger for 5 min. At the end of the 5 min period, separate the panels and examine for deformation.

C-3.1.1 The material shall be deemed to have passed the test if putty layers do not get deformed under this load.



All dimensions in millimetres.

FIG. 1 APPARATUS FOR SETTING TIME TEST

ANNEX D

(*Foreword*)

COMMITTEE COMPOSITION

Paints, Varnishes and Related Products Sectional Committee, CHD 20

Organization	*Representative(s)*
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Review of Indian Standards

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