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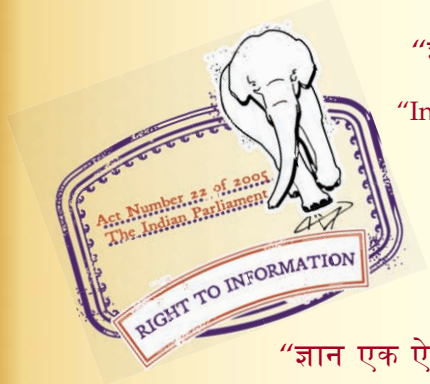
IS 428 (2000): Washable Distemper [CHD 20: Paints, Varnishes and Related Products]



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Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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IS 428 : 2000
Reaffirmed-2012

भारतीय मानक

धोने योग्य डिस्टैम्पर – विशिष्टि

(दूसरा पुनरीक्षण)

Indian Standard

WASHABLE DISTEMPER—SPECIFICATION

(Second Revision)

ICS 87.040

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

March 2000 Price Group 4

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Paints (Other than Industrial Paints) and Allied Products, Sectional Committee had been approved by the Chemical Division Council.

This standard was first published in 1953 and subsequently revised in the year 1969. The washable distemper is largely used for giving decorative finish on the inner surfaces of the building.

In this revision, the product has been classified into two types, namely oil emulsion and plastic, keeping in mind the availability of such a product in the market. While finalizing this document, the concerned committee felt that requirements like 'wet scrub test', 'washability' and 'cleanability' should also have been included in this revision. However, due to lack of quantitative data and non- availablity of reproducible methods of test, these requirements could not be incorporated. It has been, therefore, decided to review the position as and when appropriate reproducible methods are available.

In this version, requirement for 'consistency' has also been modified. Further, a new requirement for 'temperature stability' has been included and various amendments issued to this standard have been amalgamated.

A scheme for labelling environment friendly products known as ECO-Mark, has also been introduced at the instance of the Ministry of Environment and Forest (MEF). The ECO-Mark shall be administered by the Bureau of Indian Standards (BIS) under the *Bureau of Indian Standards Act,* 1986 as per the Resolution No. 71 dated 20 February 1991 published in the Gazette of the Government of India. For a product to be eligible for ECO-Mark, it shall carry standard mark of BIS for quality besides meeting additional environment friendly (EF) requirements.

The composition of technical committee responsible for the formulation of this standard is given in Annex G.

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 APRIL 2006
TO
IS 428: 2000 WASHABLE DISTEMPER — SPECIFICATION

[*Page 2, clause* **7.2.1**(e)] — Delete.

(CHD 20)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 1 JUNE 2003
TO
IS 428 : 2000 WASHABLE DISTEMPER — SPECIFICATION

(Second Revision)

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

(1)	(2)	(3)	(4)	(5)	(6)
i)	Drying time:				
	a) Surface dry	—	30 min	B	—
	b) Hard dry	16 h	4 h	B	—

[*Page* 2, *Table* 1, *Sl No.* (v), *col* 4] — Insert 'To pass the test'.

[*Page* 2, *Table* 1, *Sl No.* (vi), *col* 4] — Substitute '10' *for* '—'.

(CHD 20)

Reprography Unit, BIS, New Delhi, India

Indian Standard

WASHABLE DISTEMPER— SPECIFICATION

(Second Revision)

1 SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for washable distemper. The material is used as a flat finish for protection and interior decoration on building surfaces where frequent washing may become necessary.

2 REFERENCES

The Indian Standards given in Annex A contain provisions which through reference in this text, constitute provision of this stanard. 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.

3 TERMINOLOGY

3.1 For the purpose of this standard, the definitions given in IS 1303 shall apply.

3.2 In addition to that, following definitions shall apply:

3.2.1 *Ambient Temperature* — It is the temperature between 21°C and 38°C.

3.2.2 *Volatile Organic Compounds (VOC)* — The volatile matter content minus the water content in the distemper.

4 TYPES

4.1 Washable distemper shall be of two types:

Type 1 — Oil emulsion, and
Type 2 — Plastic (synthetic polymer emulsion based)

5 COMPOSITION

The material shall consist of pigments, suitable extenders and preservatives in a medium consisting of any suitable oil emulsion with other ingredients as may be necessary to produce a material so as to comply the requirements of this standard.

6 REQUIREMENTS

6.1 Form and Condition

The material shall be in the form of a homogeneous paste, free from lumps and skins. The material shall have no odour of purification as such and when mixed with water.

6.2 Thinning

The material when thinned with water, 50 percent by mass of paint, the material shall mix readily with minimum amount of foaming to a smooth and homogenous state.

6.3 Application

The material after recomended thinning shall be suitable for application by brush. The resulting film shall be smooth and uniform.

6.4 Keeping Properties

The material shall conform all the requirements as mentioned in **6.1**, **6.3, 6.4** and Table 1 for a minimum period of one year from the date of manufacture when stored in original sealed container at ambient temperature.

6.5 In addition to the above the material shall also comply the requirements as given in Table 1.

6.6 Additonal Optional Requirement for ECO-Mark

6.6.1 *General Requirements*

6.6.1.1 The product shall conform to the requirements for quality, safety and performance prescribed under **6.1** to **6.5.**

6.6.1.2 The manufacturer shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the provisions of *Water (Prevention and Control of Pollution) Act,* 1974 and *Air (Prevention and Control of Pollution) Act,* 1981 along with the authorization, if required under the *Environment (Protection) Act,* 1986 and rules made there under, while applying for ECO-Mark.

6.6.2 *Specific Requirements*

6.6.2.1 The product shall contain not more than 5 percent, by mass, volatile organic compounds, when tested according to the method prescribed in IS 101 (Part 2/Sec 1) and IS 101 (Part 2/Sec 2).

6.6.2.2 The product shall not contain more than 0.1 percent by mass (as metal), of any toxic metals such as lead, cadmium, chromium (VI) and their compounds when tested by the relevant Atomic Absorption Spectrophotometric methods.

Table 1 Requirement for Washable Distamper

(Clause 6.5)

SL No.	Characteristic	Requirement		Method of Test, Ref to	
		Type 1	Type 2	Annex	IS 101
(1)	(2)	(3)	(4)	(5)	(6)
i)	Drying time, Surface dry, *Min*	—	30	B	—
	Hard dry, h	16	4	B	—
ii)	Consistency	Smooth and uniform paste suitable for application by brushing after thinning	Smooth and uniform paste suitable for application by brushing after thinning	—	Part 1/Sec 5
iii)	Finish	Smooth and matt	Smooth and matt	—	Part 3/Sec 4
iv)	Colour	Close match to the colour as agreed between purchaser and supplier	Close match to the colour as agreed between purchaser and supplier	—	Part 4/Sec 2
v)	Fastness to light	To pass the test		—	Part 4/Sec 3
vi)	Residue on sieve, percent by mass, *Max*	1.0	—	C	—
vii)	Recoating properties	To pass the test	To pass the test	D	—
viii)	Resistance to alkali	do	do	E	—
ix)	Temperature stability	do	do	F	—

6.6.2.3 The product shall not be manufactured from any carcinogenic ingredients.

NOTE — The Central Drugs Research Institute and Industrial Toxicological Research Centre would furnish a list of carcinogenic ingredients to BIS and would also keep BIS informed about the changes therein

7 PACKING AND MARKING

7.1 Packing

Unless otherwise agreed to between the purchaser and the supplier, the material shall be packed in suitable metal or plastic containers.

7.1.1 The ECO-Marked product shall be packed in such packages which shall be recyclable/reusable or biodegradable. It shall be accompanied with instructions for proper use so as to maximize product performance and minimize wastage.

NOTE - Subsequently the parameters evolved for packaging material/packages for ECO-Mark, which are being separately notified/circulated, shall also apply.

7.2 Marking

7.2.1 The container shall be marked as follows:

(a) Indication of the source of manufacture;
(b) Type and mass of the material;
(c) Batch No. or Lot No. and validity period;
(d) Month and year of manufacture;and
(e) Recommended stoving schedule.

7.2.2 The product may also be marked with the Standard Mark.

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

7.2.3 In case of products certified for ECO-Mark, three major ingredients and hazardous chemicals shall be marked on the container.

7.2.3.1 The criteria for which the product has been labelled as ECO-Mark may also be marked on the container.'

8 SAMPLING

8.1 Sampling should be made as per IS 101 (Part 1/ Sec 1).

8.2 Number of Tests

Test for all characteristics specified shall be conducted on the composite sample.

8.3 Criteria for Conformity

The lot shall be considered as conforming to the requirements of this standard, if the test result of the composite sample satisfy all the requirements specified in the standard.

9 TEST METHODS

9.1 Tests shall be conducted as prescribed in various parts of IS 101 and Annexes B to F. References to annexes and relevant parts of IS 101 are given in col 5 and 6 of Table 1.

9.2 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

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*	*IS No.*	*Title*
101	Methods of sampling and test for paints varnishes and related products:	(Part 4/Sec 3): 1988	Optical test on paint films, Section 3 Light fastness test *(third revision)*
(Part 1/Sec 1): 1986	Test on liquid paints (general and physical), Section 1 Sampling *(third revision)*	Part 8/Sec 2 : 1990	Tests for pigments and other solids, Section 2 Pigments and non-volatile matter *(third revision)*
(Part 1/Sec 5): 1987	Test on liquid paints (general and physical), Section 5 Consistency *(third revision)*	109 : 1968	Ready mixed paint, brushing, priming, plaster to Indian Standard Colour No. 361 and 631 White and Off-white *(first revision)*
(Part 1/Sec 7): 1987	Test on liquid paints (general and and physical), Section 7 Mass per 10 litres *(third revision)*	1070 : 1992	Water for general laboratory use *(second revision)*
(Part 3/Sec 4): 1987	Test of paint film formation, Section 4 Finish *(third revision)*	1303 : 1983	Glossary of terms relating to paints *(second revision)*
(Part 4/Sec 2): 1989	Optical test on paint films, Section 2 Colour *(third revision)*	1407 : 1980	Round paint tins *(second revision)*
		2096: 1992	Asbestos cement flat sheets *(first revision)*

ANNEX B

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

DETERMINATION OF DRYING TIME

B-0 OUTLINE OF THE METHOD

An asbestos cement panel is evenly coated with the material by appropriate method and air-dried for a specified time. Another coat is applied at the end of the specified time. The panel is examined for drying time.

B-1 PROCEDURE

B-1.1 Apply by appropriate method one coat of the material to give a wet film thickness of 50 microns on a 150 mm × 100 mm asbestos cement panel *(see* IS 2096) primed with primer *(See* IS 109) and air dry for specified time period in a well ventilated room in a horizontal position. During drying protect the film from direct sunlight.

B-1.2 The material shall be deemed to have complied with the requirements of this standard for drying if the film becomes surface dry at the end of specified time limit and a second coat of the material can be applied satisfactorily at the end of prescribed time limit.

ANNEX C

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

DETERMINATION OF RESIDUE ON SIEVE

C-0 OUTLINE OF THE METHOD

The material is made into a thin paste with water and passed through a 63-micron IS Sieve.

C-1 PROCEDURE

C-1.1 Weigh accurately not less than 50 g of the sample and transfer to a 250-ml beaker. Mix the material to a thin paste with water. After this thoroughly mix the contents of the beaker, and break up all lumps with the flattened end of a stirring rod without grinding action. Then transfer the contents of the beaker to a 63- micron IS sieve, using a wash-bottle containing water. Remove with a camel-hair brush any small particles of the material that may be retained on the stirring rod or the sides of the beaker. Wash the residue left on the sieve with water and gently brush with a camel-hair brush until the water passing over the residue and through the sieve is clear and free from solid particles. When washing is complete, dry the sieve for 1 hour at 100 ± 2°C, cool and then weigh the residue.

C-1.2 Calculate and express the result as percent by mass of the material taken for the test.

ANNEX D

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

DETERMINATION OF RECOATING PROPERTIES

D-0 OUTLINE OF THE METHOD

The material is converted into brushing consistency and a coat applied on a neat cement block. After allowing to dry for a specified time, a second coat is applied to test the ability of the material to take the second coat.

D-1 PROCEDURE

D-1.1 Mix the material with water to produce material of a suitable consistency for application by brushing. Apply one coat of the mixed material on a clean 150 mm × 100 mm neat cement block of thickness 6 ± 1 mm and allow to air-dry for prescribed time for hard dry. Apply a second coat at the end of this period.

D-1.2 The requirement of the standard shall be taken as having been satisfied if it is possible to apply the second coat without lifting or working up of the first coat. The paint system shall not exhibit colour separation, sagging, etc.

ANNEX E

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

TEST FOR RESISTANCE TO ALKALI

E-0 OUTLINE OF THE METHOD

The material is converted into brushing consistency and applied on a 1:1:6 Portland cement, lime and sand plaster of specified thickness. The coat of the material thus prepared is subjected to a corrosion cabinet test for a specified period after which it is tested for any change in colour.

E-1 PREPARATION OF SUBSTRATUM

E-1.1 This consists of a 150 mm × 150 mm × 0.8 mm block of 1:1:6 cement, lime and sand, prepared as described in **E-1.1.1.**

E-1.1.1 The run lime from slaked quick lime is allowed to mellow for 10 days. The supernatant liquid is then allowed to run off and the top layer of lime putty skimmed and well mixed with a mixture of fine sand (passing 2 mm sieve) and Portland cement in the proportion of 1:1:6 (1 part Portland cement, 1 part lime putty and 6 part sand). This mixture is gauged with water (15 percent by mass of the mixture) and block is cast. This is allowed to cure first at 100 percent, relative humidity for 24 hours and then for 6 days under water. The block is air-dried and used within one month. Before application of the material the block should be soaked in water for 24 h and brought to surface dry condition by exposure to air.

NOTE — On rewetting, the panel surface will regain its alkaline conditions even after a considerable period of storage.

E-2 PROCEDURE

E-2.1 The material is mixed with water to produce a suitable consistency for application by brushing. The prepared cement block is coated with a uniform normal coat commensurate with satisfactory coverage and appearance of the mixed material. Allow this to air-dry in a vertical position for 24 hours. Then suspend this block vertically in a closed corrosion chest of the type described in **2.1.2** of IS 101 (Part 6/Sec 1). Examine the block daily for a period of 7 days.

E-2.2 The requirement of the standard shall be taken as having been satisfied if the film of the material shows no change in colour.

ANNEX F

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

TEMPERATURE STABILITY TEST

F-0 OUTLINE OF THE METHOD

The material is subjected to higher temperature and then tested for thinning and application properties.

F-1 PROCEDURE

Fill clean, dry 500 ml metal container *(see* IS 1407) with the material leaving the usual spillage and seal tightly. Keep it at 55 ± 2°C for 48 hours. Keep the same at room temperature for 24 hours thereafter. Subsequently examine the material in the container.

The material shall be deemed to have passed this test if it is free from lumps, skins and is capable of thinning suitably for application by appropriate method.

ANNEX G

(Foreword)

COMMITTEE COMPOSITION

Paints (Other than Industrial Paints) and Allied Products Sectional Committee, CHD 20

Chairman	*Representing*
DR GAUTAM RAY	Jenson and Nicholson (India) Ltd, Calcutta
Members	
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SHRI M A KHAN *(Alternate)*	

(Continued on page 7)

(Continued from page 6)

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Additional Director (Chem), BIS

Methods of Test Subcommittee, CHD 20:1

Convener

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc: No. CHD 20 (607).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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