*भारतीय मानक* IS 2542 (Part 1/Sec 6) : 2023

*Indian Standard*

# जिप्सम प्लास्टर, कंक्रीट और उत्पाद — परीक्षण पद्धति

## भाग 1 प्लास्टर और कंक्रीट

## अनुभाग 6 जिप्सम प्लास्टर के साउंडनेस का निर्धारण

*( दूसरा पुनरीक्षण )*

# Gypsum Plaster, Concrete and Products — Methods of Test

## Part 1 Plaster and Concrete

### Section 6 Determination of Soundness of Gypsum Plaster

*( Second Revision )*

ICS 91.100.10



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Building Limes and Gypsum Products Sectional Committee, CED 04

FOREWORD

This Indian Standard (Part 1/Sec 6) (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Building Limes and Gypsum Products Sectional Committee had been approved by the Civil Engineering Division Council.

Over the last few years, the consumption of gypsum and gypsum based product has increased. Gypsum is utilized in the manufacture of cement, plaster of Paris, dry wall, etc. The major source of supply of gypsum in the country is from the state of Rajasthan. It is also mined in Tamil Nadu, Uttar Pradesh and to a smaller extent in Gujarat, Jammu and Kashmir, and Maharashtra.

Calcined gypsum is used in the plasters and manufacture of plaster of Paris. It is also used in the manufacture of partition blocks, sheets and tiles, plaster and insulating boards, and for stucco and lattice works. Gypsum in crushed condition is utilized in Portland cement manufacture, where it acts as a retarder, controlling the setting time of cement. Gypsum blocks are also used as building stones. Ground gypsum, as filler, is utilized in paint, paper, rubber, textiles, etc. In pottery, gypsum is used for moulding purposes. Besides, gypsum rock is used as a flux in the smelting of nickel ores and in tin plate industry for polishing plates.

A number of Indian Standards on gypsum building materials covering specifications, code of practices, etc have been prepared with a view to assisting the gypsum industry in its development. In line with that, methods of test for gypsum plaster, concrete and products, IS 2542 was prepared in two parts in the year 1964 and revised subsequently in 1978.

Part 1 of IS 2542 covered, the methods of test for gypsum plaster and gypsum concrete, and Part 2 of IS 2542 covered, the methods of test for gypsum products.

In this revision it was decided to review and update the various existing test methods of gypsum, taking into consideration the latest international practices and developments in this field and the current practices in the country. The significant changes incorporated in this revision of IS 2542 (Part 1) are as follows:

a) New test method for determination of free water has been introduced;
b) New test method for determination of fineness has been introduced;
c) Test specimen clause has been elaborated;
d) Clause relating to the reporting of test results has been described separately; and
e) Reference to various Indian Standards has been updated.

In this revision, IS 2542 (Part 1) is split into separate sections adding two new parts. This standard (Part 1/ Section 6) covers soundness of gypsum plaster. The other standards in the series are:

| | |
|---|---|
| Section 1 | Determination of normal consistency of gypsum plaster |
| Section 2 | Determination of normal consistency of gypsum concrete |
| Section 3 | Determination of setting time of plaster and concrete |
| Section 4 | Determination of transverse strength of gypsum plaster |
| Section 5 | Determination of compressive strength and dry set density of gypsum plaster |
| Section 7 | Determination of impact resistance of gypsum plaster by dropping ball test |
| Section 8 | Determination of mass from coarse particles |
| Section 9 | Determination of expansion of gypsum plaster |
| Section 10 | Determination of sand in set gypsum plaster |
| Section 11 | Determination of wood fibre content in wood fibre gypsum plaster |
| Section 12 | Determination of dry bulk density |
| Section 13 | Determination of free water |
| Section 14 | Determination of fineness |

(*Continued on third cover*)

*Indian Standard*

# GYPSUM PLASTER, CONCRETE AND PRODUCTS — METHODS OF TEST

## PART 1 PLASTER AND CONCRETE

### SECTION 6 DETERMINATION OF SOUNDNESS OF GYPSUM PLASTER

*( Second Revision )*

**1 SCOPE**

This standard (Part 1/Sec 6) covers the procedure for determining the soundness of gypsum plaster.

**2 REFERENCES**

The standard given below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated was 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 edition of this standard:

| *IS No.* | *Title* |
|---|---|
| IS 2469 : 2023 | Glossary of terms relating to gypsum (*second revision*) |

**3 TERMINOLOGY**

For the purpose of this standard, the definitions given in IS 2469 shall apply.

**4 OBJECTIVE**

This test method is intended to determine the soundness of gypsum plaster.

**5 APPARATUS**

**5.1 Mould** — about 100 mm ± 1 mm in diameter and 6 mm ± 0.2 mm deep.

**6 SAMPLE PREPARATION**

**6.1** The soundness shall be determined by steaming six parts of neat plaster prepared as described in **6.2**. The moulds should be well-greased before use and resting on well-greased non-porous base plates.

**6.2** Plaster of Paris shall be gauged with the appropriate amount of water to produce a smooth cream, anhydrous gypsum plaster, retarded hemihydrate gypsum plaster and Keene's plaster with the appropriate amount of water to produce a stiff plastic paste convenient for filling the moulds. The flat parts shall be formed by pouring or pressing the material into the moulds in such a manner as to avoid air bubbles and smoothing off level with the top edge of the mould with a broad flexible palette-knife or the like.

**7 PROCEDURE**

The pats shall be allowed to set undisturbed in air of at least 80 percent relative humidity for about 16 h to 24 h in case of plaster of Paris and retarded hemihydrate and for three days in the case of anhydrous gypsum plaster and Keene's plaster and then subjecting them to action of saturated steam at atmospheric pressure for a period of 3 h without removing from the moulds and finally examining in a good light for signs of disintegration, popping or pitting. The steamer shall be arranged so that condensed water cannot drip back onto the face of the pats.

**8 REPORT**

Whether the set plaster pats show signs of disintegration, popping or pitting shall be reported.

**ANNEX A**

(*Foreword*)

**COMMITTEE COMPOSITION**

Building Lime and Gypsum Products Sectional Committee, CED 04

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(*Continued from second cover*)

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

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.

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This Indian Standard has been developed from Doc No.: CED 04 (20519).

## Amendments Issued Since Publication

| Amend No. | Date of Issue | Text Affected |
|---|---|---|
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