भारतीय मानक IS 2542 (Part 1/Sec 11) : 2023

Indian Standard

जिप्सम प्लास्टर, कंक्रीट और उत्पाद — परीक्षण पद्धति

भाग 1 प्लास्टर और कंक्रीट

अनुभाग 11 लकड़ी फाइबर जिप्सम प्लास्टर में लकड़ी फाइबर की मात्रा का निर्धारण

(दूसरा पुनरीक्षण)

Gypsum Plaster, Concrete and Products — Methods of Test

Part 1 Plaster and Concrete

Section 11 Determination of Wood Fibre Content in Wood Fibre Gypsum Plaster

(Second Revision)

ICS 91.100.10

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

August 2023 **Price Group 5**

Building Limes and Gypsum Products Sectional Committee, CED 04

FOREWORD

This Indian Standard (Part 1/Sec 11) (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, drywall, 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) References to various Indian Standards have been updated.

In this revision, IS 2542 (Part 1) is split into separate sections adding two new parts. This standard (Part 1/Sec 11) covers wood fibre content in wood fibre 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 6	Determination of soundness 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 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 11 DETERMINATION OF WOOD FIBRE CONTENT IN WOOD FIBRE GYPSUM PLASTER

(Second Revision)

1 SCOPE

This standard (Part 1/Sec 11) covers the procedure for determining wood fibre content in wood fibre plaster.

2 REFERENCES

The standards given below 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 edition of these standards:

IS No.	*Title*
IS 460 (Part 1) : 2020	Test sieves — Specification: Part 1 Wire cloth test sieves (*fourth Revision*)
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 wood fibre content in wood fibre gypsum plaster.

5 APPARATUS

5.1 Balance — capable of weighing at least 1 000 g at an accuracy of minimum ± 0.1 g.

5.2 Drying Oven — capable to maintain 45 °C ± 3 °C.

5.3 Sieves as per IS 460 (Part 1).

5.4 The stopwatch is capable of reading to the nearest 0.2 s or better. The timer shall be accurate to 1 percent or better over time intervals of up to 300 s.

6 SAMPLE PREPARATION

Weigh a sample of not less than 500 g of the material as received and spread it out in thin layer in a suitable vessel. Place in an oven and dry at 45 °C for 2 h, then cool in an atmosphere free from moisture. Reduce the sample to pass a 250 µm IS sieve, taking extreme care not to expose unduly the material to moisture or to overheating. Thoroughly remix the ground sample, and store it in an air-tight container until used.

7 PROCEDURE

7.1 Place a 100 g sample of wood fibre plaster prepared as described in **6** on a 600 µm IS Sieve nested over a 150 µm IS sieve. Wash the plaster on the 600 µm IS sieve with a stream of cold water, removing the 600 µm IS sieve when the fibre on it is practically or entirely free of plaster. Next, wash the material on the 150 µm IS sieve until the bulk of the plaster has been washed through the sieve and the residue is mainly fibre. Transfer the material retained on the 150 µm IS sieve to a 4 litres vitreous enamel lipped pan, adding the charge on the 600 µm IS sieve if the fibre contains any adhering particles of plaster. Elutriate the material in the pan (purify by washing and straining, effecting as clear a separation of fibre from plaster as is feasible), catching the elutriated fibres on a 150 µm IS sieve. To avoid loss of the fine particles of fibre, it may be necessary to make the transfer from the pan to the 150 µm IS sieve by several stages of washing, stirring the charge and quickly pouring upon the sieve the fibre floatations, repeating the elutriation procedure several times. Examine the fibre collected on the 150 µm IS sieve and repeat the elutriation if it seems desirable.

7.2 Dry the sieves (or sieve, as the case may be) and the residue contained therein in an oven maintained

at a temperature of 45 °C. Carefully invert the sieves over a piece of white paper, and transfer the residual material to the paper by brushing the bottom of the inverted sieve. Examine the transferred material visually, noting whether the separation of fibres from plaster has been completed. Then transfer the material to a weighed platinum crucible and dry it to constant weight at a temperature of 45 °C.

8 REPORT

If visual examination of the charge on the white paper showed that the fibre was practically free of particles of plaster, report as the percentage of fibre the mass of the fibre dried at 45 °C, divided by 100. If, on the other hand, the visual examination revealed the presence of an appreciable quantity of plaster associated with the fibre, carefully ignite the contents of the crucible to constant mass. In this case, report as the percentage of fibre the loss on ignition, divided by 100.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSTION

Building Limes and Gypsum Products Sectional Committee, CED 04

Organization	*Representative(s)*
School of Planning and Architecture, New Delhi	PROF ANURADHA CHATURVEDI **(*Chairperson*)**
AIMIL Ltd, New Delhi	SHRI ROHITASH BARUA SHRI MADAN KUMAR SHARMA (*Alternate*)
Archaeological Survey of India, New Delhi	SHRI R. S. JAMWAL
Building Materials & Technology Promotion Council, New Delhi	SHRI C. N. JHA
Central Public Works Department, New Delhi	SHRI M. K. MALLICK SHRI DIVAKAR AGARWAL (*Alternate*)
Central Soil & Materials Research Station, New Delhi	SHRI U. S. VIDYARTHI DR NEELAM PHOUGAT (*Alternate*)
CSIR - Central Building Research Institute, Roorkee	SHRI SOUMITRE MAITI
CTS Restoration Products India Private Limited, New Delhi	SHRI ROBERTO BELLO
Delhi Development Authority, New Delhi	SHRI U. C. CHANKKAR SHRI DEVENDAR SINGH (*Alternate*)
Diamond International Inex Pvt Limited, Gurugram	SHRI B. B. PURI SHRI RAMAN MEHTA (*Alternate*)
Directorate of Mines & Geology, Government of Rajasthan, Udaipur	SHRI S. G. BOHRA SHRI N. M. PITLIYA (*Alternate*)
Eshan Minerals Private Limited, Jalgaon	SHRI R. K. VISHAMBHARNATH AGRAWAL SHRI ESHAN AGRAWAL (*Alternate*)
Geological Survey of India, Kolkata	SHRI BONTHU AJAYA KUMAR
Gujarat Engineering Research Institute, Vadodara	SHRI N. R. MAKWANA SHRI K. R. PATEL (*Alternate*)
Hindalco Industries Limited, Mumbai	SHRI SELVAKUMAR RAMASAMY SHRI PAPPU LAL DHOBI (*Alternate*)
Housing and Urban Development Corporation Ltd, New Delhi	SHRI SAMIR MITRA SHRI RAJESH SHARMA (*Alternate*)
Indian Institute of Technology Madras, Chennai	DR A. MEHAR PRASAD DR DEVDAS MENON (*Alternate*)

Organization	*Representative(s)*
Indian National Trust for Art and Culture Heritage, New Delhi	SHRI DIVAY GUPTA SHRI RUKNUDDIN MIRZA (*Alternate*)
Institute for Solid Waste Research and Ecological Balance Inswared, Vizag	DR N. BHANUMATHI
Kesarjan Building Centre Private Limited, Ahmedabad	SHRI KEYUR SARDA
Knauf India Private Limited, Khushkhera	SHRI K. K. SIRPAL SHRIMATI NEHA SAINI (*Alternate*)
Military Engineer Services, Engineer-in-Chief's Branch, Integrated HQ of MoD (Army), New Delhi	SHRIMATI RIVOO MAHENDRU SHRI S. K. MISHRA (*Alternate*)
Ministry of Science and Technology, Department of Science & Technology, New Delhi	SHRI CHANDER MOHAN
National Council for Cement and Building Materials, Faridabad	DR PINKY PANDEY SHRI SURESH VANGURI (*Alternate*)
National Institute of Technology, Warangal	DR P. RATHISH KUMAR PROF G. RAJESH KUMAR (*Alternate*)
National Test House, Kolkata	SHRI S. MURALI SHRI ANIRBAN CHAKRABORTY (*Alternate*)
Netra NTPC Limited, Noida	DR M. MALIK SHRI P. D HIRANI (*Alternate*)
Public Works Department, Govt of NCT of Delhi, New Delhi	SHRI SHAILENDRA SHRI NITYANAND BHRAMAR (*Alternate*)
Rajasthan State Mines & Mineral Ltd, Bikaner	SHRI C. L. JAIN SHRI D. K. AGGARWAL (*Alternate*)
Rashtriya Chemicals and Fertilizers Ltd, Mumbai	SHRI V. K. AGRAWAL SHRI S. B. SAHANE (*Alternate*)
Saint-Gobain Gyproc India Limited, Mumbai	SHRI GIRISH DASH SHRI PRASHANT PATIL (*Alternate*)
School of Planning and Architecture, New Delhi	DR SHUVOJIT SARKAR
Shriram Institute for Industrial Research, Delhi	DR MUKESH GARG SHRI RAHUL (*Alternate*)
The Indian Institute of Architects, Mumbai	SHRI JATINDER SAIGAL SHRI JIT KUMAR GUPTA (*Alternate*)
The Institution of Engineers (India), Kolkata	REPRESENTATIVE
Ultratech Cement Ltd, Mumbai	SHRI ASHOK K. TIWARI SHRI RAHUL GOEL (*Alternate*)

Organization	*Representative(s)*
In Personal Capacity (*C/o Consultant Advisor Isha Consultants (P) Ltd D - 144, Ambedkar Colony Andheria Morh New Delhi — 110074*)	SHRI V. P. AGARWAL
In Personal Capacity (*163C, Express View Apartment, Sector 93, Noida — 201304*)	SHRI J. K. PRASAD
In Personal Capacity (*B-702, Saket Dham, Sector - 61, E-10, Near Sai Temple, Noida* — 201301)	DR C. L. VERMA
BIS Directorate General	SHRI ARUNKUMAR S., SCIENTIST 'E'/DIRECTOR AND HEAD (CIVIL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
DR MANOJ KUMAR RAJAK
SCIENTIST 'D'/JOINT DIRECTOR
(CIVIL ENGINEERING), BIS

(*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.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

Review of Indian Standards

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 website-www.bis.gov.in or www.standardsbis.in.

This Indian Standard has been developed from Doc No.: CED 04 (20524).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices:		*Telephones*
Central	: 601/A, Konnectus Tower -1, 6th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	2323 7617
Eastern	: 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	2367 0012 2320 9474
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	265 9930
Southern	: C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	2254 1442 2254 1216
Western	: Plot No. E-9, Road No.-8, MIDC, Andheri (East), Mumbai 400093	2821 8093

Branches : AHMEDABAD. BENGALURU. BHOPAL. BHUBANESHWAR. CHANDIGARH. CHENNAI. COIMBATORE. DEHRADUN. DELHI. FARIDABAD. GHAZIABAD. GUWAHATI. HIMACHAL PRADESH. HUBLI. HYDERABAD. JAIPUR. JAMMU & KASHMIR. JAMSHEDPUR. KOCHI. KOLKATA. LUCKNOW. MADURAI. MUMBAI. NAGPUR. NOIDA. PANIPAT. PATNA. PUNE. RAIPUR. RAJKOT. SURAT. VISAKHAPATNAM.

Published by BIS, New Delhi