भारतीय मानक

Indian Standard

IS 3339 : 2024

ढलाई के लिए सिलिका पाउडर — विशिष्टि

(दूसरा पुनरीक्षण)

Silica Flour for Use in Foundries — Specification

(Second Revision)

ICS 77.140.80

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

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Price Group 4

Foundry and Steel Casting Sectional Committee, MTD 14

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standard, after the draft finalized by the Foundry and Steel Casting Sectional Committee had been approved by the Metallurgical Engineering Division Council.

This standard was first published in 1965 and subsequently revised in 1975. This revision has been brought out to bring the standard in the latest style and format of the Indian Standards. In addition, the following changes have been made:

a) Reference clause has been added;

b) Notes under **8** for grain fineness has been modified; and

c) Marking clause has been modified;

This standard has been prepared to specify the requirements of foundries for silica flour, keeping in view the quality of raw materials available in the country.

Silica flour is a good refractory material for moulding work. It is used particularly in the steel foundry as dressing for moulds and cores and also for adding to moulding sand mixtures. Silica flour is also used to obtain elevated temperature strength, high density and resistance to metal penetration in cores.

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

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

SILICA FLOUR FOR USE IN FOUNDRIES — SPECIFICATION

(Second Revision)

1 SCOPE

This standard covers the requirements for silica flour for use in foundries.

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 edition of these standards.

3 SUPPLY OF MATERIAL

General requirements relating to the supply of silica flour for use in foundries shall be as laid down in IS 1387.

4 SAMPLING

Representative samples shall be drawn according to the scheme of sampling given in IS 181l.

5 MANUFACTURE

Silica flour shall be produced by crushing, washing and grading the high grade quartz, quartzitic rocks or from white silica sand or other deposits sufficiently pure to get the desired material.

6 CHEMICAL COMPOSITION

The silica flour, when analysed in accordance with IS 1917 (Part 1) and (Part 3), shall conform to the following requirements:

Sl No.	*Characteristic*	*Requirement*
(1)	(2)	(3)
i)	Silica, percent by weight, *Min*	98.0
ii)	Moisture, percent by weight, *Max*	1.0

7 FUSION POINT

When tested in accordance with the method given in IS 1918, the fusion temperature of silica flour shall be not below 1 700 °C.

8 GRAIN FINENESS

When tested in accordance with the method given in IS 1918, 100 percent of silica flour shall pass through 150 micron IS Sieve (*see* IS 460) and at least 95 percent shall pass through 75 micron IS Sieve.

NOTES

1 The sieve analysis of the material shall be carried out in accordance with IS 5461. The size distribution shall be mutually agreed upon between the purchaser and the manufacturer.

2 The test sieves used shall be in accordance with sizes specified in IS 460 (Part 1) and IS 460 (Part 2). The standard test sieve will, after period of time, become less accurate. The sieve shall, therefore, be periodically checked according to IS 460 (Part 3) and the correction factor to be applied to the result shall be determined.

3 If required, silica flour of coarser variety may also be supplied subject to the agreement between the purchaser and the manufacturer.

9 PACKING

Unless specified otherwise, silica flour shall be supplied in polyethene lined gunny bags each containing 50 kg.

10 MARKING

10.1 Each container of powder shall be suitably marked with the following information:

a) Manufacturer's name or trade-mark;
b) Batch number;
c) Date of manufacture; and
d) Quantity.

10.2 BIS Certification Marking

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

ANNEX A

(*Clause* 2)

LIST OF REFERRED STANDARDS

IS No.	*Title*
IS 460	Test sieves — Specifications
(Part 1) : 2020	Wire cloth test sieve (*fourth revision*)
(Part 2) : 2020	Perforated plate test sieves (*fourth revision*)
(Part 3) : 2020	Methods of examination of apertures of test sieves (*fourth revision*)
IS 1387 : 1993	General requirements for the supply of metallurgical materials (*second revision*)
IS 1811 : 1984	Methods of sampling foundry sand (*first revision*)
IS 1917	Chemical analysis of quartzite and high silica sand
(Part 1) : 1991	Determination of loss on ignition (*first revision*)
(Part 3) : 1992	Determination of silica (*first revision*)
IS 1918 : 1966	Methods of physical tests for foundry sands
IS 5461 : 1984	Method for sieve analysis of metal powders (*first revision*)

ANNEX B

(*Foreword*)

COMMITTEE COMPOSITION

Foundry and Steel Castings Sectional Committee, MTD 14

Organization	*Representative(s)*
BHEL (CFFP), Haridwar	SHRI V. K. RAIZADA **(*Chairperson*)**
Bharat Heavy Electricals Ltd, HPEP, Hyderabad	SHRI ABHINAV AGRAWAL
BHEL, Haridwar	SHRI A. N. SUDHAKAR SHRI RANJITH LAKRA (*Alternate*)
Bhilai Engineering Corporation Limited, Bhilai	SHRI AKHIL DUBEY SHRI SHIV DUTT MISHRA (*Alternate*)
CSIR - Central Mechanical Engineering Research Institute, Durgapur	DR SUDIP SAMANTHA
CSIR - National Institute for Interdisciplinary Science and Technology (NIIST), Thiruvananthapuram	DR TPD RAJAN DR M. RAVI (*Alternate*)
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Forace Polymers Private Limited, Haridwar	SHRI D. K. GHOSH
Hindustan Aeronautics, Foundry and Forge Division, Bengaluru	SHRI K. SATYENDRA KUMAR
Indian Institute of Technology, Kharagpur	PROF SARAT PANIGRAHI PROF RAHUL MITRA (*Alternate*)
Indian Ordnance Factory Board, Kolkata	SHRI G. JHA SHRI A. K. LALA (*Alternate*)
Indian Register of Shipping, New Delhi	DR K. K. DHAWAN SHRI S. VELMURUGAN (*Alternate*)
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Leader Valves Ltd, Jalandhar	SHRIMATI PURNIMA BERI SHRI SARABJIT SINGH (*Alternate*)
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Ministry of Science & Technology, New Delhi	MS TAMANNA ARORA SHRI K. S. P. RAO (*Alternate*)
National Institute of Foundry & Forging Technology, Ranchi	DR KAMLESH KUMAR SINGH DR AMITESH KUMAR (*Alternate*)

Organization	*Representative(s)*
National Metallurgical Laboratory, Jamshedpur	DR D. N. PASWAN MS MINAL SHAH (*Alternate*)
NIT Manipur, Langol, Imphal	PROF (DR) GOUTAM SUTRADHAR DR ANIL KUMAR BIRRU (*Alternate* I) DR SABINDRA KACHHAP (*Alternate* II)
Steel Cast Ltd, Bhavnagar	SHRI V. K. MODI SHRI B. C. ROUTRAY (*Alternate*)
Tata Motors, Jamshedpur	SHRI S. KUMAR DR D. S. PADAN (*Alternate*)
The Institute of Indian Foundry Men, New Delhi	SHRI DINESH GUPTA SHRI SANJEEV KUMAR (*Alternate*)
The Wesman Engineering Co Pvt Ltd, Kolkata	SHRI RANJAN GUHA SHRI ASHUTOSH MONDAL (*Alternate* I) SHRI PARTHA CHATTERJEE (*Alternate* II)
Versatile Equipments Pvt Ltd, Kolhapur	SHRI PUSHKRAJ JANWADKAR SHRI KIRAN PANDI (*Alternate*)
BIS Directorate General	SHRI SANJIV MAINI, SCIENTIST 'F'/SENIOR DIRECTOR AND HEAD (METALLURGICAL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI KUNAL KUMAR
SCIENTIST 'D'/JOINT DIRECTOR
(METALLURGICAL ENGINEERING), BIS

Bureau of Indian Standards

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This Indian Standard has been developed from Doc No.: MTD 14 (21999).

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	: Manakalya, 5th Floor/MTNL CETTM, Technology Street, Hiranandani Gardens, Powai Mumbai 400076	25700030 25702715

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