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***भारतीय मानक***

***Indian Standard***

**IS 12770 : 2024**

**सीमेंट उत्पादन के लिए कोयला –– विशिष्टि**

*(पहला पुनरीक्षण)*

**COAL FOR CEMENT MANUFACTURE — SPECIFICATION**

*(First Revision)*

ICS 75.160.10

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भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

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**December 2024 Price Group X**

Solid Mineral Fuels and Solid Biofuels Sectional Committee, PCD 07

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Solid Mineral Fuels and Solid Biofuels Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

Coal being the main source of energy and one of the basic ingredients, its quality is very important for cement manufacture.

Cement plants all over the country receive slack coal, as per the linkage, from heterogeneous sources with varying ash content ranging from 28 percent to 30 percent to as high as 42 percent to 50 percent. The use of inconsistent quality of coal results in numerous operational problems such as reduced coal mill output rates and increased grinding energy, improper and inefficient combustion, increased fuel consumption and need for better quality, limestones, deterioration in clinker quality and inconsistent production, etc.

Separate standards have been evolved for coal preparation, methods of sampling and tests, etc., which are necessary to evaluate the quality of coal in a given consignment either at coal mines or at user’s end, as agreed to between the supplier and the buyer.

The quality requirement of coal for cement industry have been judiciously evolved in this specification keeping in view the mining bottlenecks at the coal reserves in the country and the optimum requirement of cement industry. Requirements have also been stipulated with the technical consideration that coal is used in rotary kilns by cement plants.

The present standard is expected to serve as a basis to aim for and achieve desired quality of coal in the interest of development of cement industry.

The standard was originally published in 1989. In view of revision of other referred standards, this (*first*) revision is taken up, and accordingly reference of clauses in column 4 of Table 1 has been modified.

The composition of the Committee responsible for 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.

Indian Standard

COAL FOR CEMENT MANUFACTURE –– SPECIFICATION

*(First Revision)*

**1 SCOPE**

This standard prescribes the requirements, methods of sampling and test for coal for cement manufacture in rotary kiln.

**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 editions of the standard given below:

|  |  |
| --- | --- |
| *IS No.* | *Title* |
| IS 436 (Part 1/Sec 1) : 2024 | Methods for sampling of coal and coke: Part 1 Sampling of coal; Section 1 Manual sampling (*second revision*) |
| IS 437 : 2020 | Size analysis of coal and coke for marketing *(fourth revision*) |
| IS 1350 | Methods of test for coal and coke |
| (Part 3) : 2022/ISO 334 : 2020 | Determination of total sulphur –– Eschka method (*second revision*) |
| (Part 5) : 2017 | Determination of special impurities (carbon present as carbonate, chlorine and phosphorus) (*second revision*) |
| Doc: PCD 07 (24223) F | Coal and Coke — Methods of test: Part 1 Proximate analysis [third revision of IS 1350 (Part 1)] |

**3 REQUIREMENTS**

**3.1** Coal shall comply with the requirements given in Table 1, when tested according to the methods referred in col (4) of Table 1. The samples shall be tested at 60 percent RH (relative humidity) and 40 °C for determination of moisture, volatile matter, ash, sulphur and chlorides.

**Table 1 Requirements for Coal for Cement Industry**

(*Foreword and Clause* 3.1)

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl No.** | **Characteristics** | **Requirement** | **Methods of Test, Ref to Clause** |
| (1) | (2) | (3) | (4) |
|  | Total moisture content (at 60 percent RH and 40 °C), percent by mass, *Max* | 8 | **7.2.3** of PCD 07 (24223) |
|  | Volatile matter (air dry basis), percent by mass, *Min* | 24 | **8** of PCD 07 (24223) |
|  | Ash, percent by mass, *Max*  a) dry process  b) wet process | 27  24 | **9** of PCD 07 (24223) |
|  | Sulphur, percent by mass, *Max* | 0.8 | IS 1350 (Part 3) |
|  | Chloride, percent by mass, *Max* | 0.01 | **7** of IS 1350 (Part 5) |
|  | Size, mm, *Max* | 250 | IS 437 |

**4 SAMPLING**

**4.1 Methods of Sampling**

Methods of sampling shall be as prescribed in IS 436 (Part 1/Sec 1).

**ANNEX A**

(*Foreword*)

**COMMITTEE COMPOSITION**

Solid Mineral Fuels & Solid Biofuels Sectional Committee, PCD 07

|  |  |
| --- | --- |
| *Organization* | *Representative(s)* |
| CSIR - Central Institute for Mining and Fuel Research, Dhanbad | PROF. ARVIND KUMAR MISHRA (***Chairperson***) |
| Bharat Coking Coal Limited, Dhanbad | SHRI SAMIR KUMAR KUNDU  SHRI G. VENUGOPAL (*Alternate*) |
| Bharat Heavy Electricals Limited, Tiruchirappalli | DR SIVAJI SEEPANA  SHRI MANDA TEJA TARAKESH (*Alternate* I)  SHRI AMAN SERAPHIM SURIN (*Alternate* II)  MS ARITRA CHAKRABORTY (*Alternate* III) |
| CSIR - Central Institute for Mining and Fuel Research, Dhanbad | DR ASHOK KUMAR SINGH  DR SUJAN SAHA (*Alternate*) |
| CSIR - Institute of Minerals and Materials Technology, Bhubaneswar | DR SUDDHASATWA BASU  DR D. S. RAO (*Alternate* I)  DR MANISH KUMAR (*Alternate* II) |
| CSIR - National Metallurgical Laboratory, Jamshedpur | DR SANCHITA CHAKRAVARTY  MS RUPA DAS BISWAS (*Alternate*) |
| Cement Manufacturers Association, New Delhi | SHRI RAJU GOYAL  SHRI VIPUL SINGH (*Alternate* I)  SHRI ASHUTOSH SHRIVASTAVA (*Alternate* II)  SHRI SHUBHO CHAKRAVARTY (*Alternate* III) |
| Central Electricity Authority, New Delhi | SHRI RAJEEV KUMAR MITTAL  MS RITA NAGDEVE (*Alternate*) |
| Central Mine Planning and Design Institute Limited, Ranchi | SHRI VIKASH RAJAK  SHRI PRIYANKAR UPADHYAY (*Alternate*) |
| Central Pollution Control Board, New Delhi | SHRI NAZIMUDDIN  SHRI GAURAV GEHLOT (*Alternate*) |
| Central Revenue Control Laboratory, New Delhi | SHRI V. SURESH  DR. MAHESH KUMAR (*Alternate*) |
| Coal Controller Organization, Kolkata | SHRI ANJANI KUMAR |
| Coal India Limited, Kolkata | SHRI SUBHASIS SAHU |
| Geological Survey of India, Kolkata | DR SUDIP BHATTACHARYYA |
| Hindalco Industries Limited, Ranchi | SHRI MIRAJUL HAQUE  DR RAHUL MITRA (*Alternate*) |
| Indian Council of Agricultural Research, New Delhi | DR PANNA LAL SINGH |
| Indian Institute of Technology (ISM), Dhanbad | DR S. BHATTACHARYA |
| Indian Metals and Ferro Alloys Limited, Bhubaneswar | SHRI DINESH KUMAR MOHANTY |
| Mahanadi Coal Field Limited, Burla | SHRI RAVIKESH KUMAR RAJU  SHRI NEERAJ KALLA (*Alternate*) |
| Ministry of Coal, New Delhi | SHRI ANANDI PRASAD |
| Ministry of Environment Forest and Climate Change, New Delhi | SHRI N. SUBRAHMANYAM |
| Ministry of New and Renewable Energy, New Delhi | SHRI HIREN CHANDRA BORAH  SHRI VIKRAM DHAKA (*Alternate*) |
| NLC India Limited, Chennai | SHRI R. SHANMUGASUNDARAM  SHRI G. THIRUMURUGAN (*Alternate*) |
| National Council for Cement and Building Materials, Faridabad | SHRI ANKUR MITTAL  SHRI GAURAV BHATNAGAR (*Alternate*) |
| National Test House, Kolkata | SHRI S. K. LAHA  SHRI RATUL BEZBARUAH (*Alternate*) |
| Northern Coalfields Limited, Singrauli | SHRI SATISH JHA |
| Steel Authority of India Limited (SAIL), Research & Development Centre for Iron & Steel, Ranchi | SHRI K.K. MANJHI  SHRI B. CHAKRABORTY (*Alternate*) |
| Tata Power Limited, Mumbai | SHRI PRAVASH SINHA |
| Tata Steel Limited, Kolkata | SHRI B. K. SINGH  SHRI H. N. PRASAD (*Alternate*) |
| The Energy and Resources Institute, New Delhi | SHRI SUNIL DHINGRA  SHRI N. K. RAM (*Alternate*) |
| The Singareni Collieries Company Limited, Kothagudem | SHRI SYED HABEEB HUSSAIN |
| BIS Director General | SHRI CHINMAY DWIVEDI, SCIENTIST ‘E’/ DIRECTOR AND HEAD (PETROLEUM, COAL AND RELATED PRODUCTS DEPARTMENT) [REPRESENTING DIRECTOR GENERAL (*Ex-Officio*)] |
| *Member Secretary*  MS ADITI CHOUDHARY  SCIENTIST ‘C’/DEPUTY DIRECTOR  (PETROLEUM, COAL AND RELATED PRODUCTS DEPARTMENT), BIS | |