



CORPORATE PURCHASING SPECIFICATION

AA53301

Rev No.03

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REFRACTORY BRICKS - MAGNESITE

1.0 GENERAL:

This specification governs the requirements of Magnesite Bricks for use in electric furnaces.

2.0 APPLICATION:

Used for lining of the electric arc furnaces in steel melting shops.

3.0 COMPLIANCE WITH NATIONAL STANDARDS:

The material shall comply, in general, with the requirements of the following National standards and also comply with the requirements of this specification.

IS 1749-2005 : Burnt Magnesite Refractories

4.0 DIMENSIONS AND TOLERANCES:

Shape and Size: As per BHEL order/drawing.

Tolerances: $\pm 1.5\%$ or 1 mm whichever is greater on both warpage and shrinkage

5.0 FREEDOM FROM DEFECTS:

The refractories shall be free from cracks and broken corners and edges. They shall be of homogenous texture and shall have good surface finish.

6.0 TEST SAMPLE: As per IS: 1528

7.0 CHEMICAL COMPOSITION

The chemical composition of the material, when analysed in accordance with IS 1760 shall be as follows.

Element	Minimum %	Maximum %
MgO	85	-
SiO ₂	-	5
CaO	-	3
Al ₂ O ₃	-	5
Fe ₂ O ₃	-	3.5

Revisions:
IS: 1749 Year corrected to 2005

APPROVED:
INTERPLANT MATERIAL RATIONALISATION
COMMITTEE – MRC(FN)

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CFFP, Haridwar

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8.0 PROPERTIES:

When tested in accordance with the relevant clauses of IS: 1528, mentioned against each, the test sample shall show the following values.

- | | | | |
|-----|---|---|--------------------------------|
| 8.1 | Refractoriness Under Load (Part 2) | : | 1600° C, minimum |
| 8.2 | Cold Crushing strength (Part 4) | : | 35 N/mm ² , minimum |
| 8.3 | Apparent Porosity (Part 8) | : | 22%, maximum |
| 8.4 | Bulk Density (Part 12) | : | 2.85 g/cc, minimum |
| 8.5 | Thermal Expansion upto 1400°C (Part 19) | : | 2%, maximum |

9.0 INSPECTION AT SUPPLIER'S WORKS:

- 9.1 BHEL reserves the right to witness the testing of the material at supplier works and therefore the supplier shall notify the readiness of the material in advance.
- 9.2 BHEL may also opt for third party inspection. If so, BHEL may either specify a third party or else give a list of third party inspection agencies, out of which supplier may select one of his choice.
- 9.3 The supplier shall offer BHEL's representative all reasonable facilities, without charge to satisfy the latter that the material is being furnished in accordance with this specification. The supplier shall prepare and provide necessary test specimens for testing to be carried out at his premises. If facilities are not available at his works, the supplier shall make necessary arrangements for carrying out the prescribed tests elsewhere.
- 9.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.
- 9.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.
- 9.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.
- 9.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.
- 9.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained.

10.0 TEST CERTIFICATES:

Unless and otherwise stated, one original and three copies of certificates from the original manufacturer shall be supplied along with each consignment.

In addition the supplier shall ensure to enclose one copy of test certificate along with the despatch documents to facilitate quick clearance of the material.

Manufacturer supplying material directly to BHEL should include BHEL PO No. in the Test Certificate. Any other supplier should provide a covering letter along with original manufacturer Test Certificate as above mentioning BHEL PO No.

The test certificates shall bear the followings information:

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Manufacturer's/ Supplier's Name.

Trade mark, if any

Batch No.

Size and Quantity Supplied.

Dimensional inspection as per clause 4.0

Test Results of clauses 7.0 and 8.0

11.0 PACKING AND MARKING:

The material shall be suitably packed to avoid damage during transit.

Each consignment shall be legibly marked or labelled with the following information.

AA53301: REFRACTORY BRICKS - MAGNESITE

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark if any.

Batch/ Lot No.

Size and Quantity supplied

Date of manufacture

12.0 Referred Standards (Latest publications including amendments):

1) IS 1528

2) IS 1760