



Eol for Development of Indigenous manufacturer Vendors for supply of high temperature refractory items to BHEL FSIP Industrial Area Jagdishpur - Amethi (UP) Pin-227817

Ref. FSIP/EOL/REF/2025-26-001

Date: 26.09.2025

Expression of Interest

Subject: Development of Vendors (Indian manufacturers) for the supply of high temperature refractory items at FSIP, BHEL, Jagdishpur Amethi

This has reference to the Expression of Interest (Eol) published on BHEL's website www.bhel.com for Vendor development for the supply of high temperature refractory items as per the requirement placed by BHEL.

1) Introduction:

This Expression of Interest (Eol) seeks responses from prospective **Indian Manufacturers** fulfilling all the requirements of this Eol, and are willing to be associated with Bharat Heavy Electricals Limited (BHEL) for the supply of the supply of high temperature refractory items.

About Bharat Heavy Electrical Ltd (BHEL):

BHEL is a leading state-owned company, wherein the Government of India is holding majority shares. BHEL is an integrated power plant equipment manufacturer and one of the largest engineering and manufacturing organization in India, catering to the core infrastructure sectors of Indian economy viz. energy, transportation, and heavy engineering industry, and defense, renewable and non-conventional energy. The energy sector covers generation, transmission and distribution equipment for thermal, gas, and hydro, nuclear and solar photovoltaic. BHEL has been in this business for more than 50 years and has supplied equipment's accounting for more than 57% (approx. 180 GW) of the total thermal generating capacity in India. BHEL is also listed in Indian stock exchanges. BHEL has 16 manufacturing units, 4 power sector regions, 8 service centers and 15 regional offices besides host of project sites spread all over India and abroad. BHEL has its footprint in all the inhabited continents with references in 88 countries including Malaysia, Oman, Iraq, Syria Sudan, Libya, Cyprus, Malta, Afghanistan, Bangladesh, Bhutan, New Zealand etc. with cumulative overseas installed capacity of BHEL manufactured power plants nearing 10,000 MW. BHEL's highly skilled and committed manpower of approx. 30000; state-of-the-art manufacturing, R&D facilities and latest technologies helped to deliver a consistent track record of performance since long. To position leading state-owned companies as Global Industrial giant and as a recognition for exemplary performance, Government of India categorized BHEL as "Maharatna Company" in 2013.

The high level of quality & reliability of BHEL products is due to adherence to international standards by acquiring and adapting some of the best technologies from leading companies in the world, together with technologies developed in its own R&D centers. For more details about BHEL, please visit our website <http://www.bhel.com>.

3) About Fabrication Stamping & Insulator Plant (FSIP) unit of BHEL

BHEL FSIP, Jagdishpur is spread in about 150 Acre area, located in Amethi District of Uttar Pradesh, 80 Kms away from Lucknow on Lucknow-Varanasi National high-way and is well connected by railroad and air as well.

FSIP unit involve in the manufacturing of Power plant Structures, Stamping for traction motors & generators and High tension Porcelain Insulators, Ceramic wear resistant lined components & liners.



Eoi for Development of Indigenous manufacturer Vendors for supply of high temperature refractory items to BHEL FSIP Industrial Area Jagdishpur - Amethi (UP) Pin-227817

FSIP has well-established manufacturing systems and procedures and has the requisite skilled and experienced manpower. The Units are certified for the Quality Management System against ISO9001:2015 and Health, Safety & Environmental Management (HSE) System for ISO-14001:2015 & ISO45001:2018. The products of FSIP are tested and certified with respect to relevant National & Inter National standards at reputed laboratories. The operations of FSIP are supported by BHEL Corporate R&D. FSIP is also GreenCO certified plant.

4) Present Expression of Interest:

BHEL is looking for **Indian manufacturers** who can supply of the supply of high temperature refractory items to FSIP as per the requirements.

BHEL shall receive applications pursuant to this Eoi in accordance with the terms set forth herein, as modified, altered, amended, and clarified from time to time by BHEL, and all Applications shall be prepared and submitted in accordance with such terms. This is an Open Ended EOI unless until superseded and interested manufacturers may approach BHEL FSIP Jagdishpur at any working day.

5) Scope of Supply:

BHEL seeks prospective **Indian manufacturers for supply of the supply of high temperature refractory items** to FSIP as per the requirements. **Average annual requirement is attached with this EOI** and it may change depending upon requirement of BHEL and market scenario.

6) Obligations of Prospective Vendor(s):

The obligations of the selected vendor (s), inter alia, shall be as below:

- A) Any kind of CAPEX deployment to meet the BHEL requirements will be done by Vendor only. BHEL will not be responsible for any kind of capital expense.
- B) Vendor should be Indian manufacturer.
- C) The Prospective Vendor is required to confirm that in case of getting shortlisted as a result of this Eoi process, the following support shall necessarily be provided to BHEL.
 - i The vendor needs to qualify the **Sample of refractory items** at FSIP, Jagdishpur
 - ii Sample required for qualification shall be provided free of cost to FSIP, Jagdishpur FOR basis. Samples once submitted shall be used for testing & qualification and shall not returned.
 - iii Vendor may submit fresh samples with necessary improvements for further evaluations.
 - iv BHEL may place developmental orders based on suitability of initial samples. These developmental orders will not have any liquidated damage, risk& cost clauses. Vendor assures to execute the developmental order in full earnest.
 - v After Sample qualification/ acceptance of material supplied against developmental order, such vendors whose samples/material are qualified, need to participate in tender for placement of PO. Vendors need to supply refractory items as per specification/drawing as applicable within the specified time as per the PO requirements
 - vi Any other statutory requirement felt necessary as per the various notifications issued by the Central Govt or State Govt agencies.



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Above mentioned requirements are only indicative in nature, however, any other document/information/input required by BHEL, shall have to be provided by the prospective vendor.

7) Selection of Prospective Vendor(s):

Based on the information provided under this EoI, the prospective vendor(s) shall be shortlisted on the basis of the Details/Information specified in **Annexure-1. BHEL may place developmental order as deemed fit by BHEL to prospective vendor based on their company background, technical capabilities /features/sample trial, commitment made for development of indigenous manufacturing capacity. However BHEL is not bound to release developmental order to any or all participants of this EOI.**

8) Brief Description of the EOI Process:

The interested prospective vendor(s) shall ensure that their response(s), along with details requested as per the Annexures of this EoI. The response(s) shall necessarily be accompanied by details on the company background, technical features/ product catalog/ sample for trial, reference list, annual audited financial reports for the last 3 (three) years including auditor's report and other enclosures as required under the present EoI. The responding prospective vendors(s), on submission of their response(s), can be called for further discussions at a short notice.

Date of commencement of the EOI: 16.09.2025

Date of End of the EOI: open ended

The respondent shall submit their responses with all Annexures duly signed. In case any further information is needed, kindly feel free to contact us. In case any amendment/ corrigendum is issued to this EoI, it shall be notified only at www.bhel.com.

9) Contact details:

The respondent shall submit/send their offer with all annexures duly signed at the following addresses:

Raj Kumar

Pankaj Kumar Mishra

Engineer-Supplier Development Cell

Manager-Material Management

Email: rajkumar@bhel.in

Email: pankajkumar.mishra@bhel.in

Mob- +91 8737820278

Mob- +91 7351561122

10) Miscellaneous:

A. Right to accept or reject any or all Applications:

1) Notwithstanding anything contained in this EoI, BHEL reserves the right to accept or reject any Application and to annul the EoI Process and reject all Applications, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons thereof. In the event that BHEL rejects or annuls all the Applications, it may, at its discretion, invite all eligible manufacturers/Suppliers to submit fresh applications.



EoI for Development of Indigenous manufacturer Vendors for supply of high temperature refractory items to BHEL FSIP Industrial Area Jagdishpur - Amethi (UP) Pin-227817

- 2) BHEL reserves the right to disqualify any Applicant during or after completion of EoI process, if it is found there was a material misrepresentation by any such Applicant or the Applicant fails to provide, within the specified time, supplemental information sought by BHEL.
- 3) BHEL reserves the right to verify all statements, information and documents submitted by the Applicant in response to the EoI. Any such verification or lack of such verification by BHEL shall not relieve the Applicant of his obligations or liabilities here under nor will it affect any rights of BHEL.
- 4) The qualification of any vendor doesn't obligate BHEL for placing a P.O or any other type of the financial obligations.
- 5) Specification, drawing and tentative annual requirement are enclosed with EOI.

B. Governing Laws & Jurisdiction

The EoI process shall be governed by, and construed in accordance with, the laws of India, and the Courts at Sultanpur (UP) shall have exclusive jurisdiction over all disputes arising under, pursuant, to and/ or in connection with the EoI process.

Annexure-1

Details/Information required from prospective Vendor

Experience & Qualification

S No.	Item	Requirement	Confirmation
1	Experience	The prospective vendor should be Indian manufacturer of the refractory items	Yes/No
2	Manufacturing Capacity	Vendor to submit manufacturing capacity details for products / key machinery details / any other manufacturing details relevant for high temperature refractory items	Yes/No
3	Financials	Annual audited financial reports for the last 3 (three) years	Yes/No

**Relevant documentary evidence to substantiate the fulfilment of the above requirements is to be furnished along with the response.*



Eol for Development of Indigenous manufacturer Vendors for supply of high temperature refractory items to BHEL FSIP Industrial Area Jagdishpur - Amethi (UP) Pin-227817

Disclaimer:

The information contained in this Expression of Interest document (the “Eol”) or subsequently provided to Applicant(s), whether verbally or in documentary or any other form, by or on behalf of BHEL or any of its employees or advisors, is provided to Applicant(s) on the terms and conditions set out in this Eol and such other terms and conditions subject to which such information is provided.

This Eol is not an agreement. The purpose of this Eol is to provide interested prospective Vendors with information that may be useful to them in the formulation of their application for qualification pursuant to this Eol.

BHEL also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Applicant upon the statements contained in this Eol.

The issue of this Eol does not imply that BHEL is bound to select and shortlist Applicants for the next stage or to enter into any technology tie-up agreements with shortlisted Applicants

Item Name	Spec No./Drawing No.	Size	Qty Req.
2 nd LAYER CAR BASE BRICK FOR	JP53361	As per Spec.	200 Nos.
BENCH BRICK -2 (1 st layer from kiln wall)	JP53362		250 Nos.
BENCH BRICK -1 (2 nd layer from kiln wall)	JP53363		250 Nos.
ANCHORING BRICK FOR WALL_Bickley	JP53364		50 Nos.
Kiln Car FeMale Brick Opposite Side_Bickley	JP53365		30 Nos.
Kiln Car Male Brick Opposite Side_Bickley	JP53366		30 Nos.
Kiln Car Corner FeMale Brick_Bickley	JP53367		30 Nos.
Kiln Car Corner Male Brick_Bickley	JP53368		30 Nos.
Kiln Car Side Brick_Bickley	JP53369		200 Nos.
BEAM FOR HTK/BICKLEY	JP53370		30 Nos.
Side Brick for Car Base_HTK	JP53372		150 Nos.
Kiln Car Block (For HTK Car Base)	JP53373		200 Nos.
Kiln Car Top Block For Bickley	JP53374		200 Nos.
Bickley Arch Brick	JP53375	305*115*75/63	500 Nos.
Bickley Arch Brick	JP53375	305*130*75/70	500 Nos.
Bickley Arch Brick	JP53375	305*170*75/63	500 Nos.
Mulite HF Tiles	JP53380	As per Spec.	10000 Nos.
Pillars for High Temperature Kiln	JP53379	50x90x100	500 Nos.
Pillars for High Temperature Kiln	JP53379	90x90x100	500 Nos.
Refractory Castable	JP53389	As per Spec.	2.5 MT
Refractory Mortar	JP53388	As per Spec.	2 MT
Ceramic Fiber Blanket	JP53371	As per Spec.	15 ROL
End Arch Brick	HTK/2009/01/Rev.01	As per Drawing	500 Nos.
Double Groove Brick	HTK/2009/03/Rev.01	As per Drawing	1000 Nos.
Skew brick	HTK/2009/07/Rev.01	As per Drawing	50 Nos.
Single Groove Brick	HTK/2009/02/Rev. 01	As per Drawing	1000 Nos.



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53389

Rev No.00

PREFACE SHEET

Refractory Castable HT-A

1 SCOPE

This specification governs the requirements of high alumina castable for High Temperature Kiln.

2 APPLICATION

Used as a lining material for repair of refractory in furnaces.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

4 Properties

4.1 General Properties:

Service Temperature: 1850 °C Max.

Maximum Grain Size : 6 MM

Water for Trowelling Consistency : 8 – 10 %

CHEMICAL ANALYSIS, %

	Range
Al ₂ O ₃ (Minimum)	97.0
Fe ₂ O ₃ (Maximum)	0.25

PHYSICAL PROPERTIES:

	Range
% Retained Above Maximum Grain Size	0.0 - 5.0

THERMAL PROPERTIES

	Range
PLC%, heating at 1550°C/3 hrs	+0.80 to -0.80

The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.

Approved by:

Head- Cer.Mfg. & NBD-Cer. & Comp

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
22/06/2024

Dt:

Dt:

Year:

Manager (CER.MFG.)

Manager (NBD)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53389

Rev No.00

PREFACE SHEET

5 FREEDOM FROM DEFECTS:

Material shall be free from external impurities which can deteriorate the performance of material in actual use.

6 INSPECTION

7.1 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.

7.2 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.

7.3 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.

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

7.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.

7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

7 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.

Revisions:			Approved by:		
Rev No.00	Amd No.	Reaffirmed	Head- Cer.Mfg. & NBD-Cer. & Comp		
Dt:	Dt:	Year:	Prepared by	Checked by	Dt. of 1 st Issue 22/06/2024
			Manager (CER.MFG.)	Manager (NBD)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53389

Rev No.00

PREFACE SHEET

The test certificates shall bear the followings information:

JP53389: Refractory Castable HT-A

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

8 PACKING AND MARKING

The material shall be suitably packed in HDPE or gunny bags of 25/50 Kg each to avoid damage during transit. Each consignment shall be legibly marked or labelled with the following information.

JP53389: Refractory Castable HT-A

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Quantity supplied

Date of manufacture

9 REJECTION AND REPLACEMENT

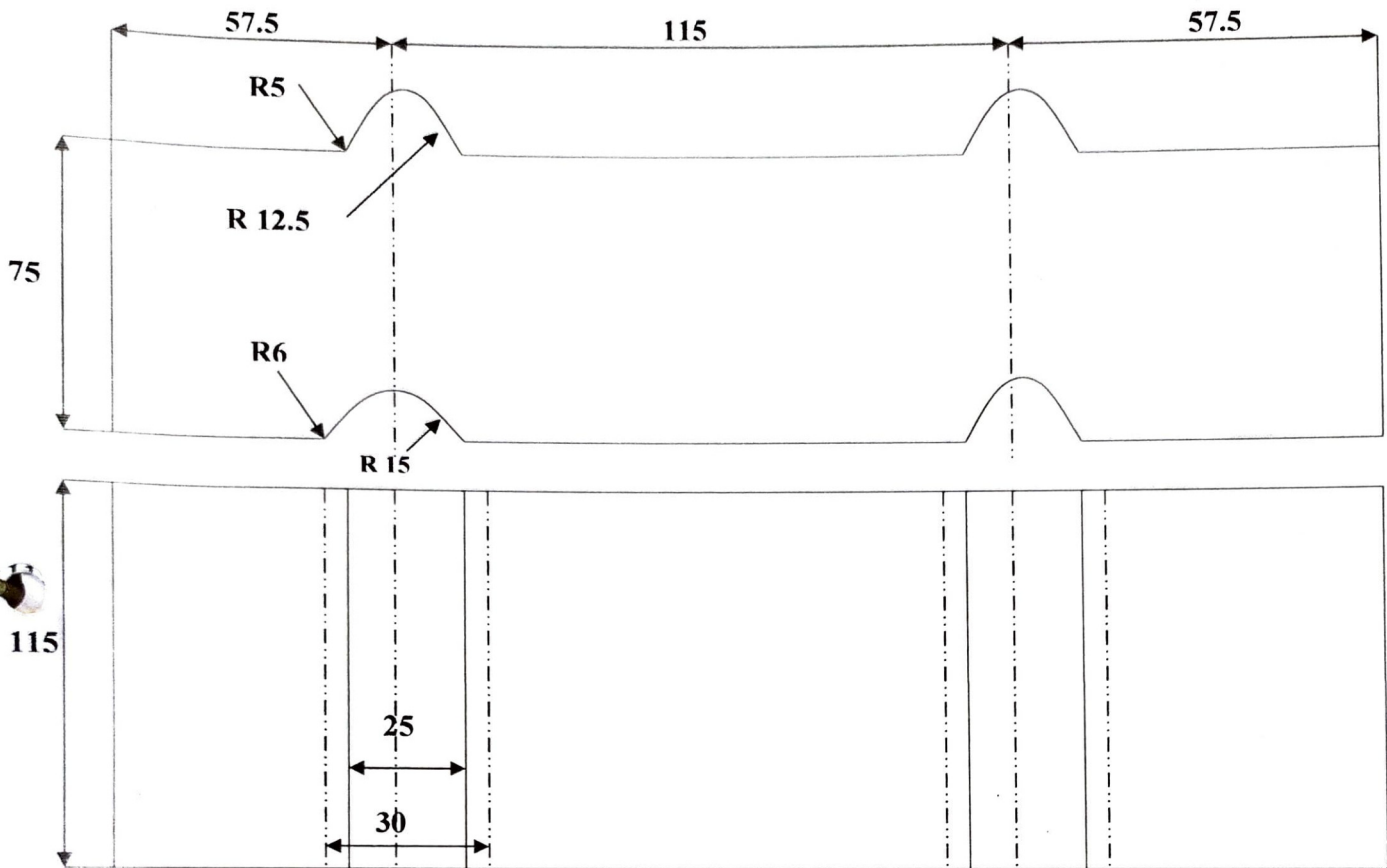
If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

10 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:			Approved by:		
			Head- Cer.Mfg. & NBD-Cer. & Comp		
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue 22/06/2024
Dt:	Dt:	Year:	Manager (CER.MFG.)	Manager (NBD)	

Double Groove Brick



Specification for Double grove brick (Bubble Alumina)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °C Min.
2	Bulk density	1.35 Gms/CC Min.
3	Cold crushing strength	90 Kg/Cm ² Min.
4	Thermal Conductivity (W/m °k)	
	At 800 °C	1.5 Max.
	At 1000 °C	1.3 Max.
	At 1200 °C	1.3 Max.
5	Reheat change for 24 Hrs at 1650 °C	0.5 % Max.
6	Chemical Analysis	
	Al ₂ O ₃	88 % Min.
	SiO ₂	09 % Max.
	Fe ₂ O ₃	0.2 % Max.

Note: - Entire dimensions are in mm & Dimensional tolerance is ± 1
DRG NO. - HTK/2009/03/Rev.01

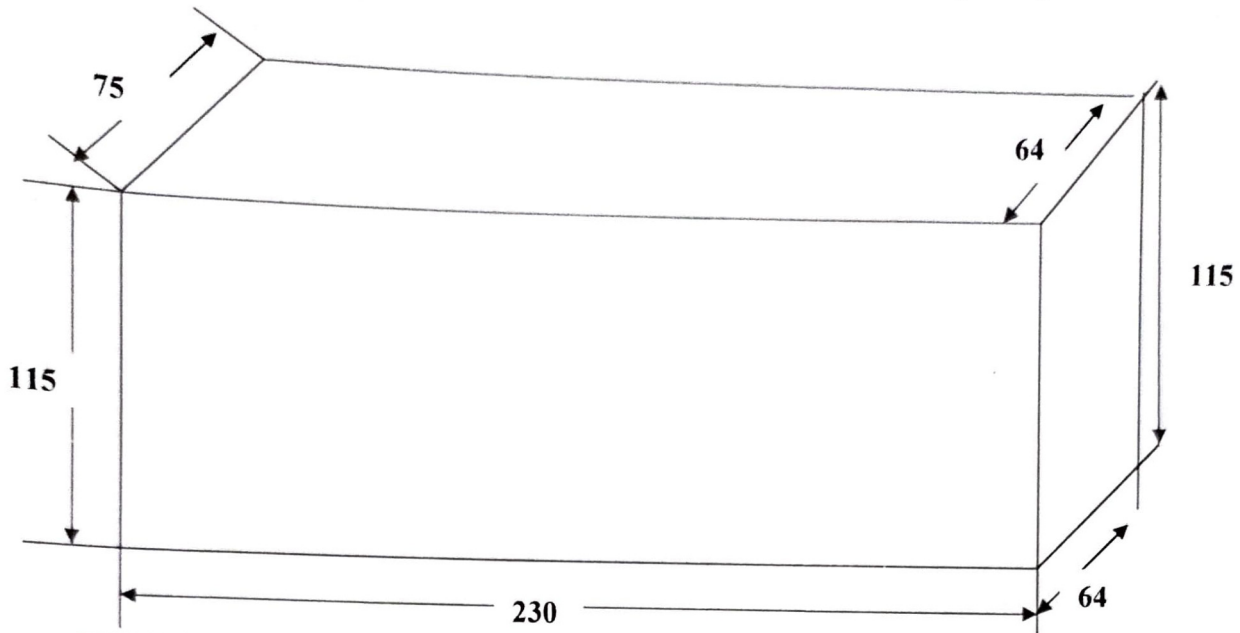
Prepared by :

(Surendra Kumar)
 Sr.Engineer(Kilns & Glazing)

Approved by :

(C.S.Pandey)
 3-5-16
 Sr.Mgr(Kilns, Glazing & Drying)

End Arch Brick (230*115*75/64)



Specification for Kiln End Arch Brick (Bubble Alumina)

Sl. No.	Parameter	Value
1	Service temperature	1750 °C Min.
2	Bulk density	1.35 Gms/CC Min.
3	Cold crushing strength	90 Kg/Cm ² Min.
4	Thermal Conductivity (W/m °k)	
	At 800 °C	1.5 Max.
	At 1000 °C	1.3 Max.
	At 1200 °C	1.3 Max.
5	Reheat change for 24 Hrs at 1650 °C	0.5 % Max.
6	Chemical Analysis	
	Al ₂ O ₃	88 % Min.
	SiO ₂	09 % Max.
	Fe ₂ O ₃	0.2 % Max.

Note : Entire dimensions are in mm and tolerance is ± 2 mm

DRAWING No. - HTK/2009/01/Rev.01

Prepared by :

(Vikrma Jeet)
Sr.Engineer(Ceralin)

Approved by :

(Tejvir Singh)
Sr.Mgr(Ceralin)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53361

Rev No.00

PREFACE SHEET

2ND LAYER CAR BASE BRICK

1 SCOPE

This specification governs the requirements of 2ND LAYER CAR BASE BRICK IN High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying bottom structure of kiln car for High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

4 COMPOSITION

Specification (Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm2 Min.
	At 1350 °c	100 Kg/Cm2 Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.

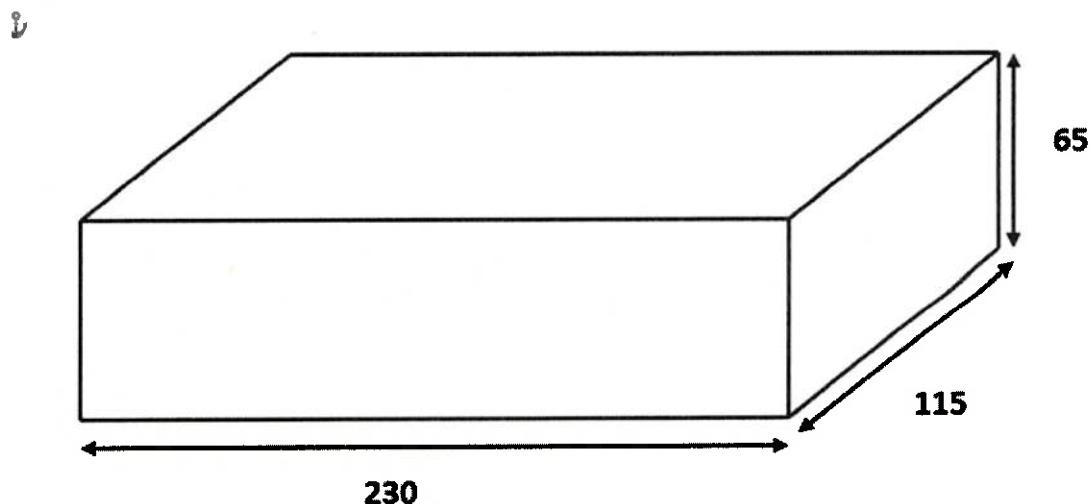
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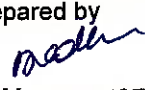
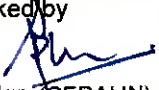
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5 DIMENSIONS AND TOLERANCES:

5.1 Shape and Size:



5.2 Tolerances: $\pm 0.5\%$ or 1 mm whichever is greater

Revisions:			Approved by: 		
Rev No.00	Amd No.	Reaffirmed	SDGM/Cer. Mfg		
Dt:	Dt:	Year:	Prepared by 	Checked by 	Dt. of 1 st Issue 05/03/2025
			Dy. Manager (CERALIN)	Sr. Mgr. (CERALIN)	

	PLANT PURCHASING SPECIFICATION JAGDISHPUR	JP53361
		Rev No.00
		PREFACE SHEET

6 FREEDOM FROM DEFECTS:


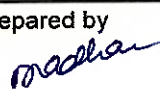

The refractories shall be free from cracks and broken corners and edges. They shall be of homogenous texture and shall have good surface finish.

7 INSPECTION

7.1 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.

7.2 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.

7.3 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.

Revisions:			Approved by:  SDGM/Cer. Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue 05/03/2025
Dt:	Dt:	Year:	 Dy. Manager (CERALIN)	 Sr. Mgr. (CERALIN)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53361

Rev No.00

PREFACE SHEET

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

7.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.

7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

8 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:

JP53361: 2ND LAYER CAR BASE BRICK

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
05/03/2025

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53361

Rev No.00

PREFACE SHEET

9 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.

JP53361: 2ND LAYER CAR BASE BRICK

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
05/03/2025

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53362

Rev No.01

PREFACE SHEET

BENCH BRICK - II

1 SCOPE

This specification governs the requirements of BENCH BRICK – II in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying structure of High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

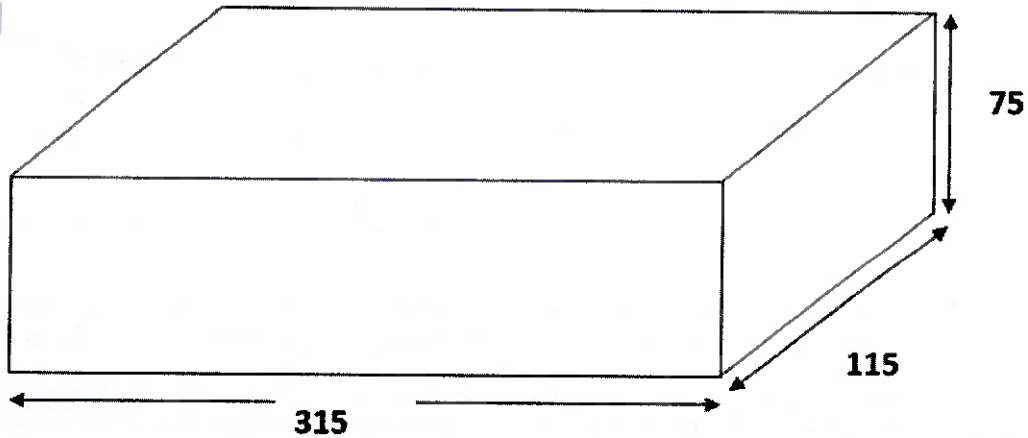
4 COMPOSITION

Specification (Bubble Alumina)

Sl. No.	Parameter	Value
1	Service temperature	1750 °C Min.
2	Bulk density	1.35 to 1.45 Gms/CC
3	Cold crushing strength	90 Kg/Cm ² Min.
4	Thermal Conductivity (W/m °k)	
	At 800 °C	1.5 Max.
	At 1000 °C	1.3 Max.
	At 1200 °C	1.3 Max.
5	Reheat change for 24 Hrs at 1650 °C	0.5 % Max.
6	Chemical Analysis	
	Al ₂ O ₃	88 % Min.
	SiO ₂	09 % Max.
	Fe ₂ O ₃	0.2 % Max.

5 DIMENSIONS AND TOLERANCES:**Shape and Size:**

All Dimensions in mm

**Tolerances:** 0.5% or ± 1 mm whichever is higher

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Revisions:
Change in Composition Point no. 4

Approved by:

[Signature]
SDGM/Cer.Mfg

Rev No.01	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue
Dt: 10/04/2025	Dt:	Year:	<i>[Signature]</i> Dy.Manager (CERALIN)	<i>[Signature]</i> Sr.Mgr. (CERALIN)	05/03/2025



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53362

Rev No.01

PREFACE SHEET

6 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.

7 INSPECTION

7.1 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.

7.2 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.

7.3 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.

Revisions:
Change in Composition Point no. 4

Approved by:

[Signature]
SDGM/Cer.Mfg

Rev No.01	Amd No.	Reaffirmed	Prepared by <i>[Signature]</i>	Checked by <i>[Signature]</i>	Dt. of 1 st Issue 05/03/2025
Dt: 10/04/2025	Dt:	Year:	Dy.Manager (CERALIN)	Sr.Mgr. (CERALIN)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53362

Rev No.01

PREFACE SHEET

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

7.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.

7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

8 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:

JP53362: BENCH BRICK - II

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:
Change in Composition Point no. 4

Approved by:

SDGM/Cer.Mfg

Rev No.01

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
05/03/2025

Dt: 10/04/2025

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53362

Rev No.01

PREFACE SHEET

9 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.

JP53362: BENCH BRICK - II

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

Change in Composition Point no. 4

Approved by:

SDGM/Cer.Mfg

Rev No.01

Amd No.

Reaffirmed

Prepared by

Checked by

Dt: 10/04/2025

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)

Dt. of 1st Issue
05/03/2025



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53363

Rev No.01

PREFACE SHEET

BENCH BRICK - I

1 SCOPE

This specification governs the requirements of BENCH BRICK - I in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying structure of High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

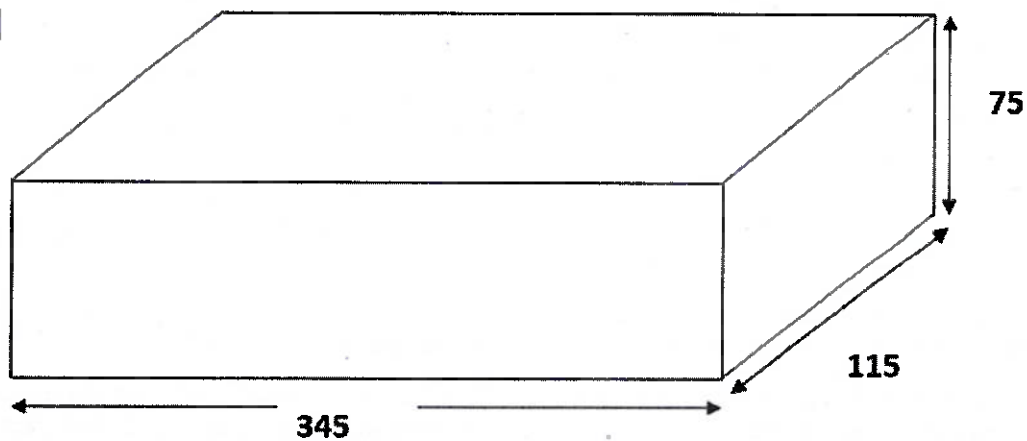
4 COMPOSITION

Specification (Bubble Alumina)

Sl. No.	Parameter	Value
1	Service temperature	1750 °C Min.
2	Bulk density	1.35 to 1.45 Gms/CC
3	Cold crushing strength	90 Kg/Cm ² Min.
4	Thermal Conductivity (W/m °k)	
	At 800 °C	1.5 Max.
	At 1000 °C	1.3 Max.
	At 1200 °C	1.3 Max.
5	Reheat change for 24 Hrs at 1650 °C	0.5 % Max.
6	Chemical Analysis	
	Al ₂ O ₃	88 % Min.
	SiO ₂	09 % Max.
	Fe ₂ O ₃	0.2 % Max.

5 DIMENSIONS AND TOLERANCES:**Shape and Size:**

All Dimensions in mm

**Tolerances:** 0.5% or ± 1 mm whichever is higher

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Revisions:
Change in Composition Point no. 4

Approved by:

MM/ndy
SDGM/Cer.Mfg

Rev No.01	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue
Dt: 10/04/2025	Dt:	Year:	<i>modhan</i> Dy.Manager (CERALIN)	<i>[Signature]</i> Sr.Mgr. (CERALIN)	05/03/2025



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53363

Rev No.01

PREFACE SHEET

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

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7.1 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.

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Revisions:
Change in Composition Point no. 4

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05/03/2025



PLANT PURCHASING SPECIFICATION JAGDISHPUR

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Rev No.01

PREFACE SHEET

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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:

JP53363: BENCH BRICK - I

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:

Change in Composition Point no. 4

Approved by:

SDGM/Cer.Mfg

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PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53363

Rev No.01

PREFACE SHEET

9 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.

JP53363: BENCH BRICK - I

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

Change in Composition Point no. 4

Approved by:

SDGM/Cer.Mfg

Rev No.01

Amd No.

Reaffirmed

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Checked by

Dt. of 1st Issue
05/03/2025

Dt: 10/04/2025

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Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53364

Rev No.00

PREFACE SHEET

ANCHORING BRICK FOR WALL

1 SCOPE

This specification governs the requirements of ANCHORING BRICK FOR WALL in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying structure of High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

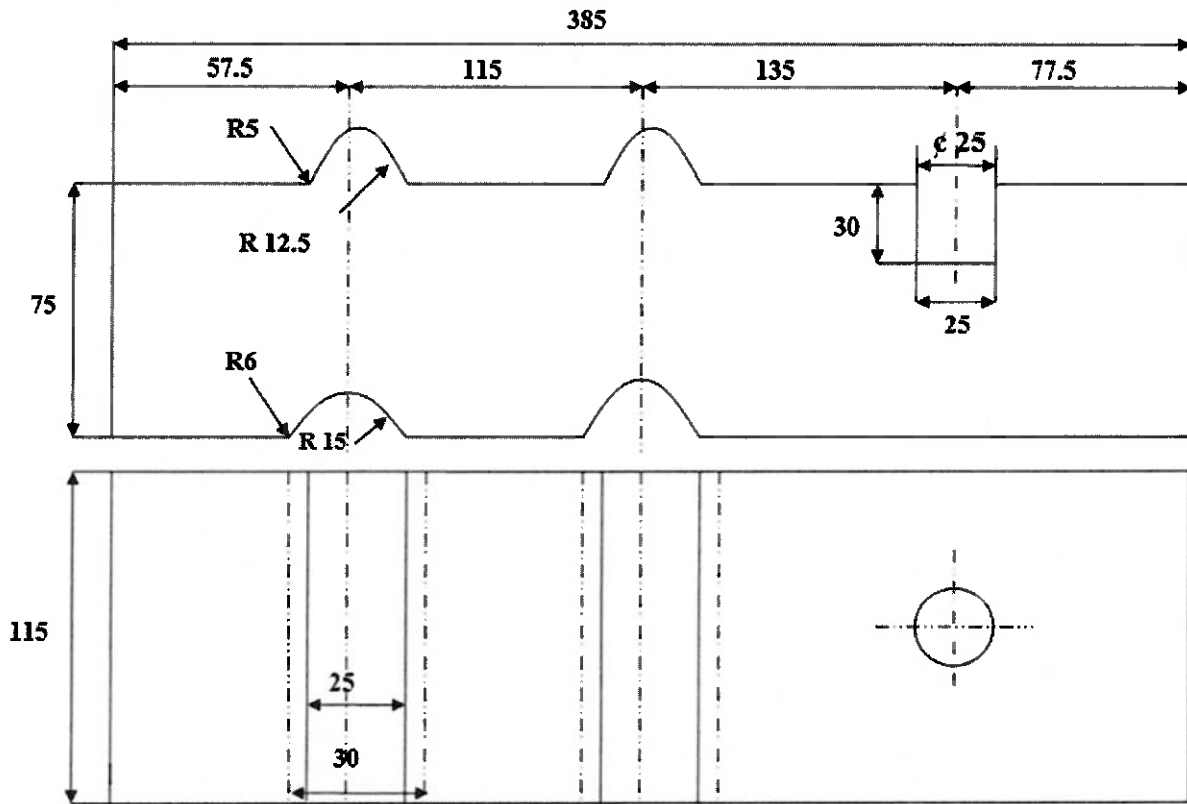
4 COMPOSITION

Specification(Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm ² Min.
	At 1350 °c	100 Kg/Cm ² Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.

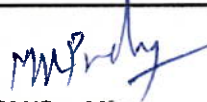
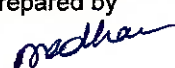

5 DIMENSIONS AND TOLERANCES:

Shape and Size:

All Dimensions in mm



Tolerances: 0.5% or ± 1 mm whichever is higher

Revisions:			Approved by:		
			 SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue 05/03/2025
Dt:	Dt:	Year:	 Dy.Manager (CERALIN)	 Sr.Mgr. (CERALIN)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53364

Rev No.00

PREFACE SHEET

6 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.

7 INSPECTION

7.1 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.

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JP53364

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PREFACE SHEET

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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:

JP53364: ANCHORING BRICK FOR WALL

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:

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PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53364

Rev No.00

PREFACE SHEET

9 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.

JP53364: ANCHORING BRICK FOR WALL

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFRRD STANDARDS (Latest Publications Including Amendments)

Nil

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Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53365

Rev No.00

PREFACE SHEET

KILN CAR CORNER FEMALE BRICK OPPOSITE SIDE

1 SCOPE

This specification governs the requirements of KILN CAR CORNER FEMALE BRICK OPPOSITE SIDE in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying bottom structure of kiln car for High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

4 COMPOSITION

Specification (Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm2 Min.
	At 1350 °c	100 Kg/Cm2 Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.

made

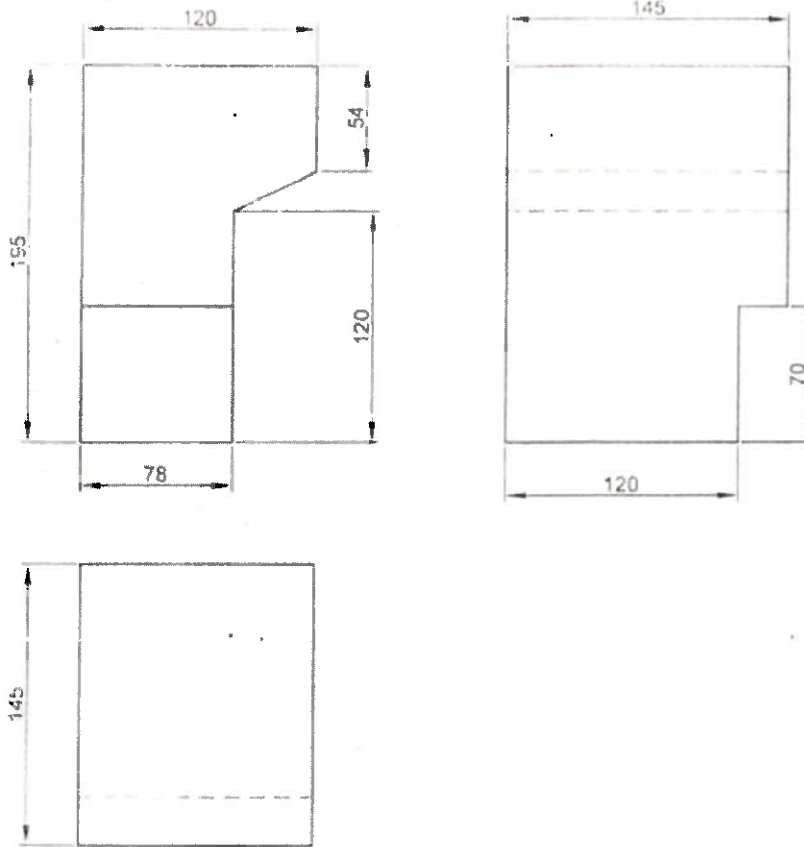
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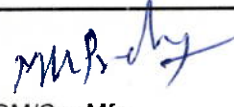


5 DIMENSIONS AND TOLERANCES:


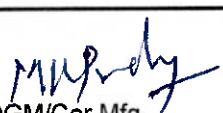


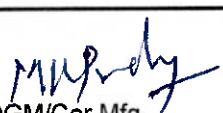


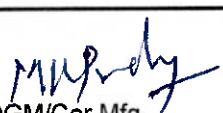


5.1 Shape and Size:


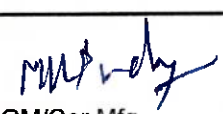
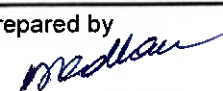
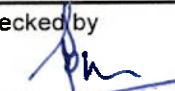
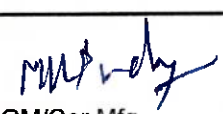
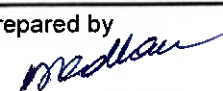
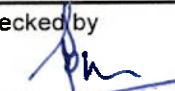
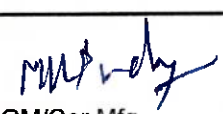
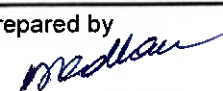
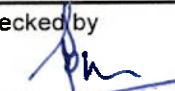
All Dimensions in mm



5.2 Tolerances: $\pm 0.5\%$ or 1 mm whichever is greater

Revisions:			Approved by:  SDGM/Cer.Mfg		
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	PLANT PURCHASING SPECIFICATION JAGDISHPUR	JP53365 Rev No.00 PREFACE SHEET																		
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3" style="height: 40px; vertical-align: top;"> Revisions: </td> <td colspan="3" style="height: 40px; vertical-align: top;"> Approved by: <div style="text-align: right;">  SDGM/Cer.Mfg </div> </td> </tr> <tr> <td style="width: 16.6%;">Rev No.00</td> <td style="width: 16.6%;">Amd No.</td> <td style="width: 16.6%;">Reaffirmed</td> <td style="width: 16.6%;">Prepared by</td> <td style="width: 16.6%;">Checked by</td> <td style="width: 16.6%;">Dt. of 1st Issue</td> </tr> <tr> <td>Dt:</td> <td>Dt:</td> <td>Year:</td> <td style="text-align: center;">  Dy. Manager (CERALIN) </td> <td style="text-align: center;">  Sr. Mgr. (CERALIN) </td> <td style="text-align: center;">05/03/2025</td> </tr> </table>			Revisions:			Approved by: <div style="text-align: right;">  SDGM/Cer.Mfg </div>			Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue	Dt:	Dt:	Year:	 Dy. Manager (CERALIN)	 Sr. Mgr. (CERALIN)	05/03/2025
Revisions:			Approved by: <div style="text-align: right;">  SDGM/Cer.Mfg </div>																	
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue															
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PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53365

Rev No.00

PREFACE SHEET

9 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.

JP53365: KILN CAR CORNER FEMALE BRICK OPPOSITE SIDE

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st issue
05/03/2025

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53366

Rev No.00

PREFACE SHEET

KILN CAR CORNER MALE BRICK OPPOSITE SIDE

1 SCOPE

This specification governs the requirements of KILN CAR CORNER MALE BRICK OPPOSITE SIDE in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying bottom structure of kiln car for High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

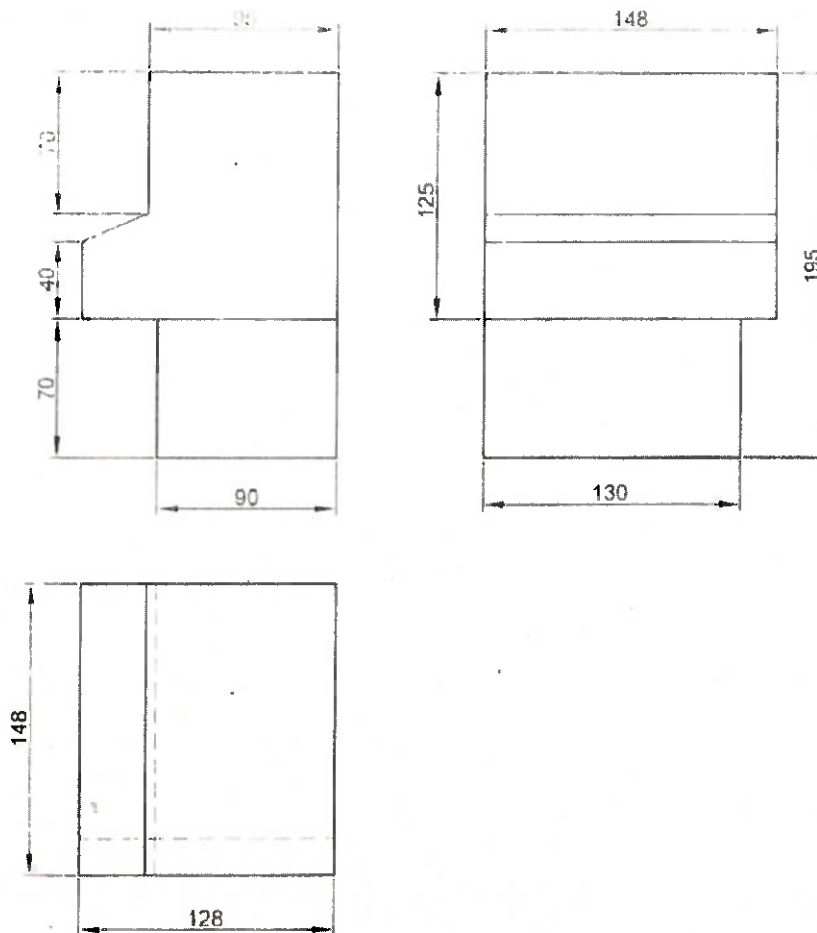
4 COMPOSITION

Specification (Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm2 Min.
	At 1350 °c	100 Kg/Cm2 Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.


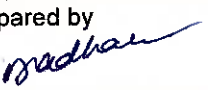

5 DIMENSIONS AND TOLERANCES:


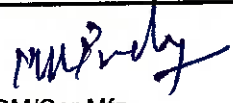
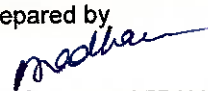

5.1 Shape and Size:

All Dimensions in mm



5.2 Tolerances: $\pm 0.5\%$ or 1 mm whichever is greater

Revisions:			Approved by:  SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by  Dy. Manager (CERALIN)	Checked by  Sr. Mgr. (CERALIN)	Dt. of 1 st Issue 05/03/2025
Dt:	Dt:	Year:			

	PLANT PURCHASING SPECIFICATION JAGDISHPUR			JP53366	
				Rev No.00	
				PREFACE SHEET	
<p>6 FREEDOM FROM DEFECTS:</p> <p>The refractories shall be free from cracks and broken corners and edges. They shall be of homogenous texture and shall have good surface finish.</p> <p>7 INSPECTION</p> <p>7.1 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.</p> <p>7.2 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.</p> <p>7.3 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.</p>					
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PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53366

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PREFACE SHEET

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

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7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

8 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:

JP53366: KILN CAR CORNER MALE BRICK OPPOSITE SIDE

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:

Approved by:

SDGM/Cer.Mfg

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Prepared by

Checked by

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05/03/2025

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PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53366

Rev No.00

PREFACE SHEET

9 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.

JP53366: KILN CAR CORNER MALE BRICK OPPOSITE SIDE

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

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Dy. Manager (CERALIN)

Sr. Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53367

Rev No.00

PREFACE SHEET

KILN CAR CORNER FEMALE BRICK

1 SCOPE

This specification governs the requirements of KILN CAR CORNER FEMALE BRICK in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying bottom structure of kiln car for High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

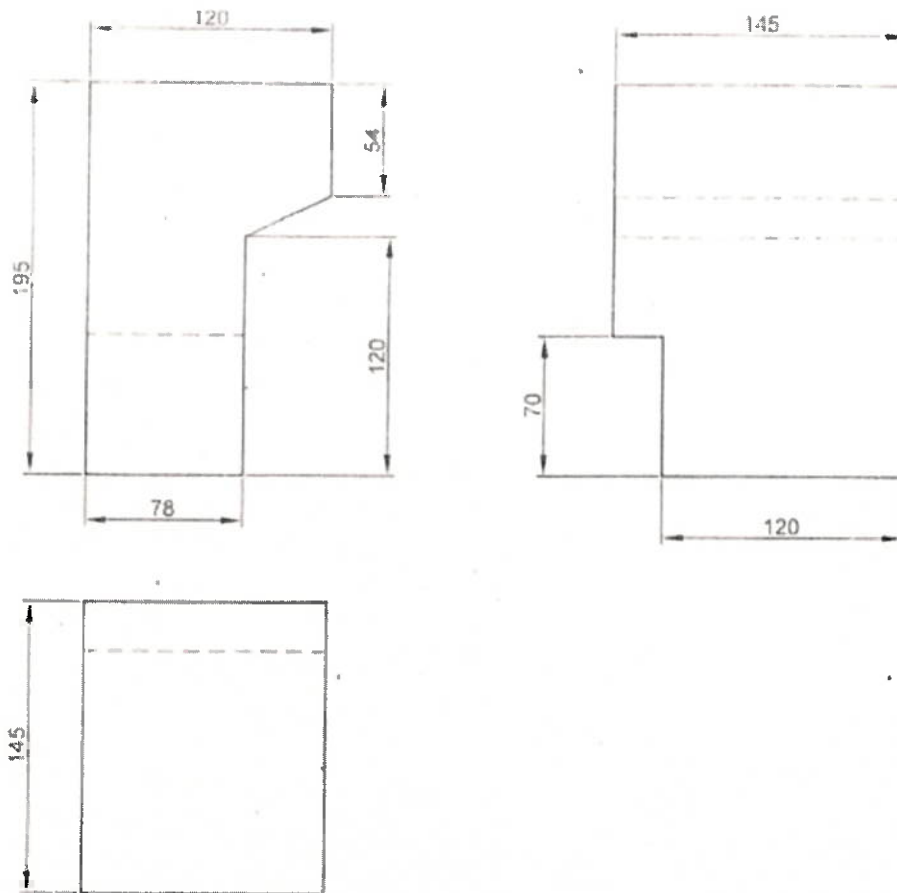
4 COMPOSITION

Specification (Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm2 Min.
	At 1350 °c	100 Kg/Cm2 Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.


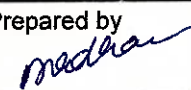

5 DIMENSIONS AND TOLERANCES:

5.1 Shape and Size:

All Dimensions in mm



5.2 Tolerances: $\pm 0.5\%$ or 1 mm whichever is greater

Revisions:			Approved by:		
			 SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue 05/03/2025
Dt:	Dt:	Year:	 Dy. Manager (CERALIN)	 Sr. Mgr (CERALIN)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53367

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PREFACE SHEET

6 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.

7 INSPECTION

7.1 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.

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Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53367

Rev No.00

PREFACE SHEET

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8 TEST CERTIFICATES

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

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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:

JP53367: KILN CAR CORNER FEMALE BRICK

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:			Approved by: SDGM/Cer.Mfg		
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PLANT PURCHASING SPECIFICATION JAGDISHPUR

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Rev No.00

PREFACE SHEET

9 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.

JP53367: KILN CAR CORNER FEMALE BRICK

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.


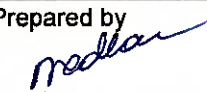

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:			Approved by:  SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by  Dy.Manager (CERALIN)	Checked by  Sr.Mgr. (CERALIN)	Dt. of 1 st Issue 05/03/2025
Dt:	Dt:	Year:			



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53368

Rev No.00

PREFACE SHEET

KILN CAR CORNER MALE BRICK

1 SCOPE

This specification governs the requirements of KILN CAR CORNER MALE BRICK in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying bottom structure of kiln car for High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

4 COMPOSITION

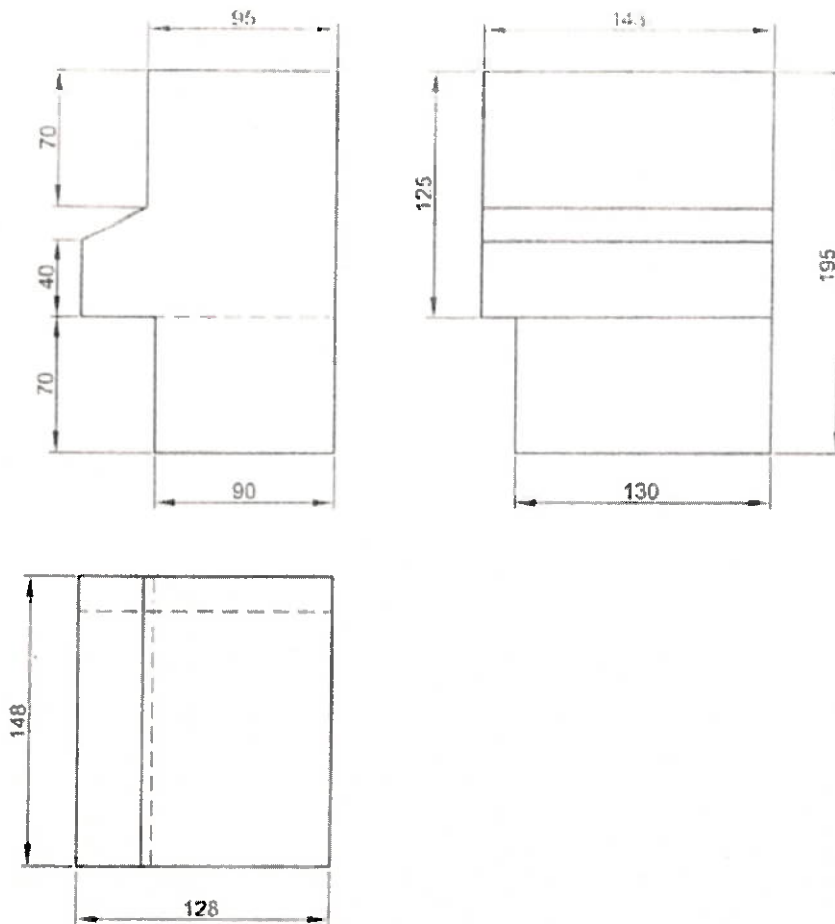
Specification (Mullite refractory)

Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm ² Min.
	At 1350 °c	100 Kg/Cm ² Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.




5 DIMENSIONS AND TOLERANCES:




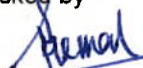
5.1 Shape and Size:

All Dimensions in mm



5.2 Tolerances: $\pm 0.5\%$ or 1 mm whichever is greater

Revisions:			Approved by:  SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by  Dy. Manager (CERALIN)	Checked by  Sr. Mgr. (CERALIN)	Dt. of 1 st Issue 16/10/2024
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	PLANT PURCHASING SPECIFICATION JAGDISHPUR			JP53368 <hr/> Rev No.00 <hr/> PREFACE SHEET	
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Revisions:			Approved by: <div style="text-align: right; margin-top: 10px;">  SDGM/Cer.Mfg </div>		
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue
Dt:	Dt:	Year:	 Dy.Manager (CERALIN)	 Sr.Mgr. (CERALIN)	16/10/2024



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53368

Rev No.00

PREFACE SHEET

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

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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:

JP53368: KILN CAR CORNER MALE BRICK

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

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Dt. of 1st Issue
16/10/2024

Dt:

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Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53368

Rev No.00

PREFACE SHEET

9 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.

JP53368: KILN CAR CORNER MALE BRICK

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

Approved by:

SDGM/Cer.Mfg

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16/10/2024

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Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53369

Rev No.00

PREFACE SHEET

KILN CAR SIDE BRICK

1 SCOPE

This specification governs the requirements of KILN CAR SIDE BRICK in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying bottom structure of kiln car for High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

4 COMPOSITION

Specification (Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm2 Min.
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6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.

rac

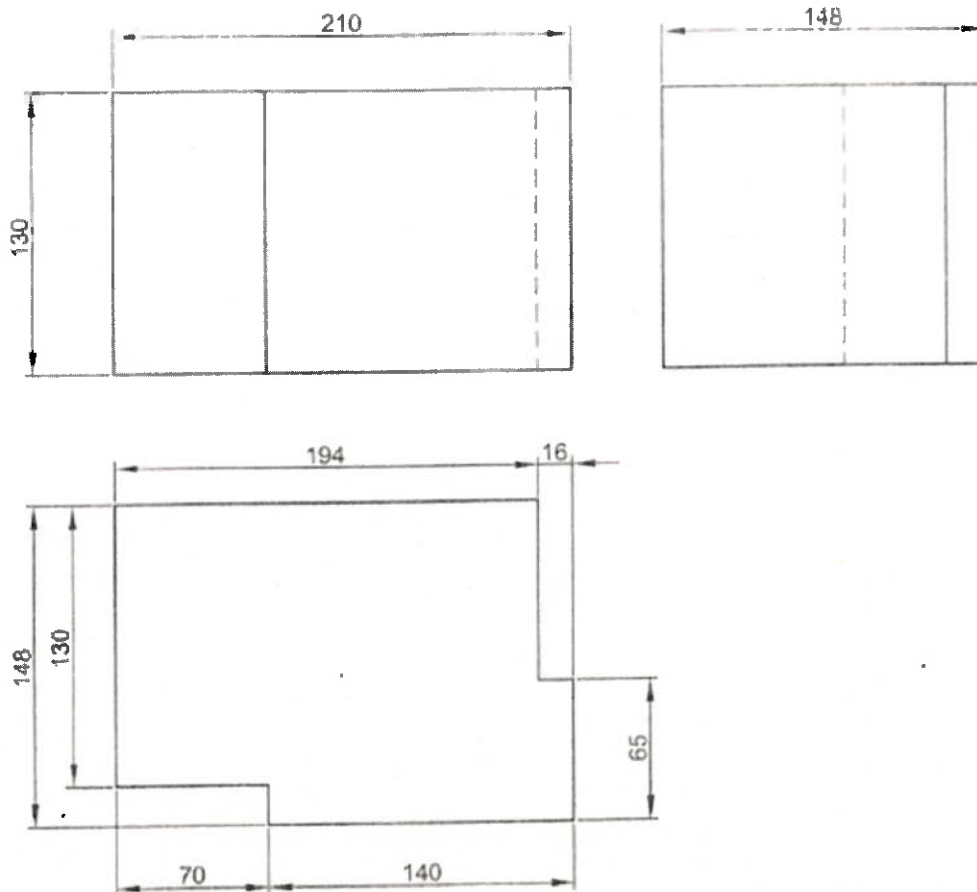
S. Prasad

mmf-dy

5 DIMENSIONS AND TOLERANCES:

5.1 Shape and Size:

All Dimensions in mm



5.2 Tolerances: $\pm 0.5\%$ or 1 mm whichever is greater

Revisions:			Approved by: SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by Dy.Manager (CERALIN)	Checked by Sr.Mgr. (CERALIN)	Dt. of 1 st Issue 16/10/2024
Dt:	Dt:	Year:			



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53369

Rev No.00

PREFACE SHEET

6 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.

7 INSPECTION

7.1 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.

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Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53369

Rev No.00

PREFACE SHEET

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

7.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.

7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

8 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:

JP53369: KILN CAR SIDE BRICK

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
16/10/2024

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53369

Rev No.00

PREFACE SHEET

9 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.

JP53369: KILN CAR SIDE BRICK

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st issue
16/10/2024

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53370

Rev No.00

PREFACE SHEET

BEAM FOR HTK/BICKLEY

1 SCOPE

This specification governs the requirements of BEAM FOR HTK/BICKLEY in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying structure of High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

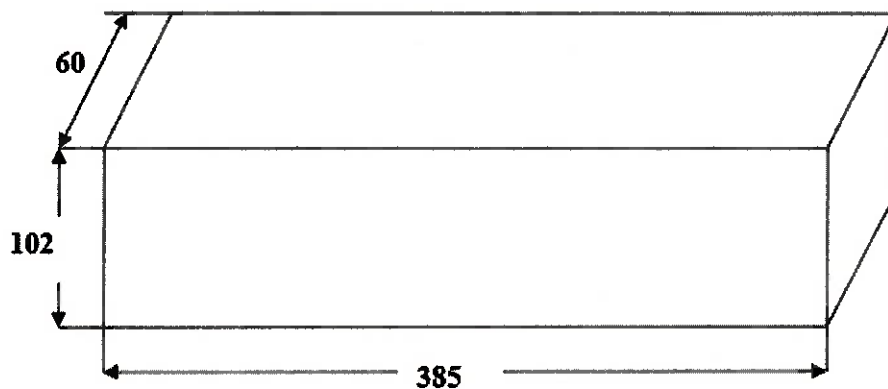
4 COMPOSITION

Specification(Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm2 Min.
	At 1350 °c	100 Kg/Cm2 Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.




5 DIMENSIONS AND TOLERANCES:


Shape and Size:

All Dimensions in mm



Tolerances: 0.5% or ± 1 mm whichever is higher

Revisions:			Approved by: 		
Rev No.00	Amd No.	Reaffirmed	SDGM/Cer. Mfg		
Dt:	Dt:	Year:	Prepared by  Dy. Manager (CERALIN)	Checked by  Sr. Mgr. (CERALIN)	Dt. of 1 st Issue 16/10/2024

	PLANT PURCHASING SPECIFICATION JAGDISHPUR			JP53370
				Rev No.00
				PREFACE SHEET

6 FREEDOM FROM DEFECTS:

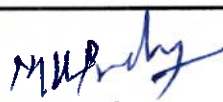
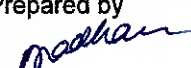

The refractories shall be free from cracks and broken corners and edges. They shall be of homogenous texture and shall have good surface finish.

7 INSPECTION

7.1 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.

7.2 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.

7.3 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.

Revisions:			Approved by: <div style="text-align: center;">  SDGM/Cer.Mfg </div>		
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue 16/10/2024
Dt:	Dt:	Year:	 Dy.Manager (CERALIN)	 Sr.Mgr. (CERALIN)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53370

Rev No.00

PREFACE SHEET

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

7.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.

7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

8 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:

JP53370: BEAM FOR HTK/BICKLEY

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
16/10/2024

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53370

Rev No.00

PREFACE SHEET

9 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.

JP53370: BEAM FOR HTK/BICKLEY

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.




Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:			Approved by:  SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by  Dy.Manager (CERALIN)	Checked by  Sr.Mgr. (CERALIN)	Dt. of 1 st Issue 16/10/2024
Dt:	Dt:	Year:			



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53371

Rev No.00

PREFACE SHEET

CERAMIC FIBER BLANKET

1 SCOPE

This specification governs the requirements of Ceramic Fiber Blanket in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying structure of High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

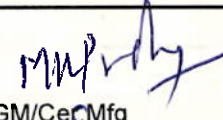
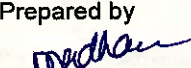

4 COMPOSITION

Specification(Ceramic Fiber Blanket)		
Sl. No.	Parameter	Value
1	Service temperature	1425 °c Min.
2	Bulk density	> 110 Kg/m ³
3	Thickness	25 mm
4	Permanent Linear Change(%) at 1400 Deg.C for 24 hrs	3.5 (Max.)
5	Chemical Analysis	
	Al ₂ O ₃	30% Min.
	SiO ₂	54% Max.
	ZrO ₂	13%Min.
	Fe ₂ O ₃	0.15% Max.
	Impurities (MgO,CaO,Na ₂ ,K ₂ O,TiO ₂)	1.0%Max.

5 DIMENSIONS AND TOLERANCES:

Size: Roll Length – 7.32 m, Roll width – 0.610 m

Tolerances: 0.5% or ± 1 mm whichever is higher

Revisions:			Approved by:  SDGM/Cer Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by  Dy. Manager (CERALIN)	Checked by  Sr. Mgr. (CERALIN)	Dt. of 1 st Issue 09/05/2025
Dt:	Dt:	Year:			



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53371

Rev No.00

PREFACE SHEET

The test certificates shall bear the followings information:

JP53371: Ceramic Fiber Blanket

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

9 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.

JP53371: Ceramic Fiber Blanket

BHEL Order No.

Trade mark, if any.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.



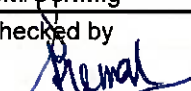
Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:			Approved by:  SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by  Dy. Manager (CERALIN)	Checked by  Sr. Mgr (CERALIN)	Dt. of 1 st Issue 09/05/2025
Dt:	Dt:	Year:			



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53371

Rev No.00

PREFACE SHEET

6 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.

7 INSPECTION

7.1 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.

7.2 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.

7.3 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.

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Revisions:			Approved by:		
			 SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue 09/05/2025
Dt:	Dt:	Year:	 Dy. Manager (CERALIN)	 Sr. Mgr. (CERALIN)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53372

Rev No.00

PREFACE SHEET

SIDE BRICK FOR HTK CAR BASE

1 SCOPE

This specification governs the requirements of SIDE BRICK FOR HTK CAR BASE in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying car structure of High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

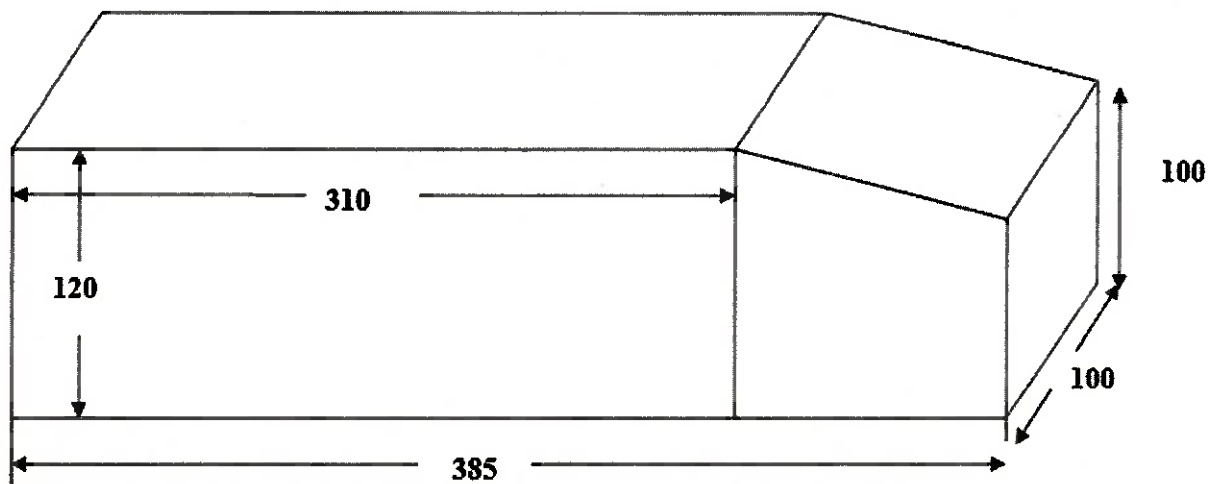
4 COMPOSITION

Specification(Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm2 Min.
	At 1350 °c	100 Kg/Cm2 Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.

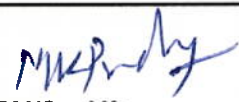


5 DIMENSIONS AND TOLERANCES:


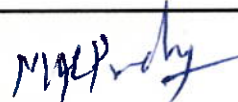


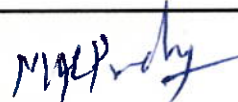


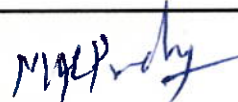


Shape and Size:

All Dimensions in mm



Tolerances: 0.5% or ± 1 mm whichever is higher

Revisions:			Approved by:		
			 SDGM/Cer. Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue 05/03/2025
Dt:	Dt:	Year:	 Dy. Manager (CERALIN)	 Sr. Mgr. (CERALIN)	

	PLANT PURCHASING SPECIFICATION JAGDISHPUR	JP53372 Rev No.00 PREFACE SHEET																		
<p>6 FREEDOM FROM DEFECTS:</p> <p>The refractories shall be free from cracks and broken corners and edges. They shall be of homogenous texture and shall have good surface finish.</p> <p>7 INSPECTION</p> <p>7.1 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.</p> <p>7.2 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.</p> <p>7.3 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.</p>																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3" style="height: 40px; vertical-align: top;"> Revisions: </td> <td colspan="3" style="height: 40px; vertical-align: top;"> Approved by: <div style="text-align: center;">  SDGM/Cer.Mfg </div> </td> </tr> <tr> <td style="width: 16.6%;">Rev No.00</td> <td style="width: 16.6%;">Amd No.</td> <td style="width: 16.6%;">Reaffirmed</td> <td style="width: 16.6%;">Prepared by</td> <td style="width: 16.6%;">Checked by</td> <td style="width: 16.6%;">Dt. of 1st Issue</td> </tr> <tr> <td>Dt:</td> <td>Dt:</td> <td>Year:</td> <td style="text-align: center;">  Dy. Manager (CERALIN) </td> <td style="text-align: center;">  Sr. Mgr. (CERALIN) </td> <td style="text-align: center;">05/03/2025</td> </tr> </table>			Revisions:			Approved by: <div style="text-align: center;">  SDGM/Cer.Mfg </div>			Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue	Dt:	Dt:	Year:	 Dy. Manager (CERALIN)	 Sr. Mgr. (CERALIN)	05/03/2025
Revisions:			Approved by: <div style="text-align: center;">  SDGM/Cer.Mfg </div>																	
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue															
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PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53372

Rev No.00

PREFACE SHEET

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

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7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

8 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:

JP53372: SIDE BRICK FOR HTK CAR BASE

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
05/03/2025

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53372

Rev No.00

PREFACE SHEET

9 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.

JP53372: SIDE BRICK FOR HTK CAR BASE

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
05/03/2025

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53373

Rev No.00

PREFACE SHEET

KILN CAR BLOCK (FOR HTK CAR BASE)

1 SCOPE

This specification governs the requirements of KILN CAR BLOCK (FOR HTK CAR BASE) in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying car structure of High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

4 COMPOSITION

Specification(Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm2 Min.
	At 1350 °c	100 Kg/Cm2 Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.

made

[Signature]

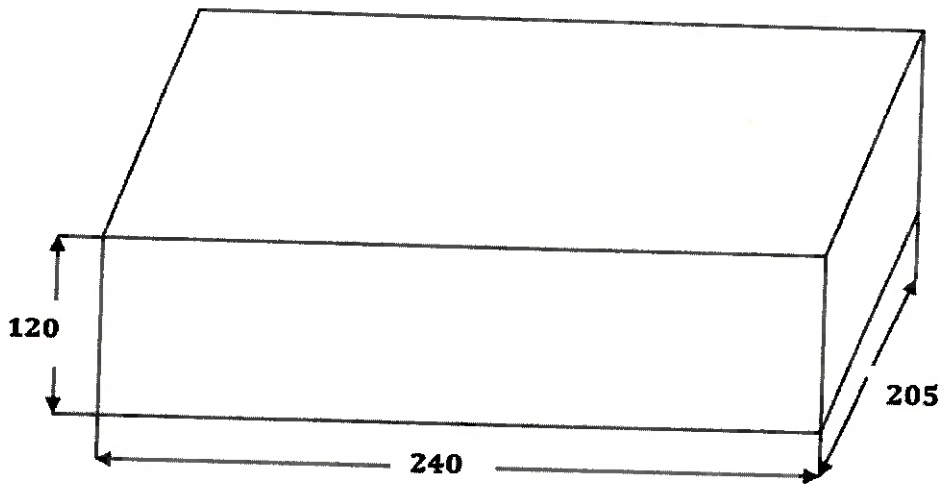
[Signature]

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It must not be used directly or indirectly in any way detrimental to the Interest of the company.

5 DIMENSIONS AND TOLERANCES:

Shape and Size:

All Dimensions in mm



Tolerances: 0.5% or ± 1 mm whichever is higher

Revisions:			Approved by: SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by Dy. Manager (CERALIN)	Checked by Sr. Mgr. (CERALIN)	Dt. of 1 st Issue 05/03/2025
Dt:	Dt:	Year:			



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53373

Rev No.00

PREFACE SHEET

6 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.

7 INSPECTION

7.1 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.

7.2 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.

7.3 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.

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

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Prepared by

Checked by

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)

Dt. of 1st Issue
05/03/2025



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53373

Rev No.00

PREFACE SHEET

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7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

8 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:

JP53373: KILN CAR BLOCK (FOR HTK CAR BASE)

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
05/03/2025

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53373

Rev No.00

PREFACE SHEET

9 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.

JP53373: KILN CAR BLOCK (FOR HTK CAR BASE)

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nii

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)

Dt. of 1st Issue
05/03/2025



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53374

Rev No.00

PREFACE SHEET

KILN CAR TOP BLOCK FOR BICKLEY

1 SCOPE

This specification governs the requirements of Kiln Car Top Block for Bickley High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying bottom floor structure of kiln car for High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

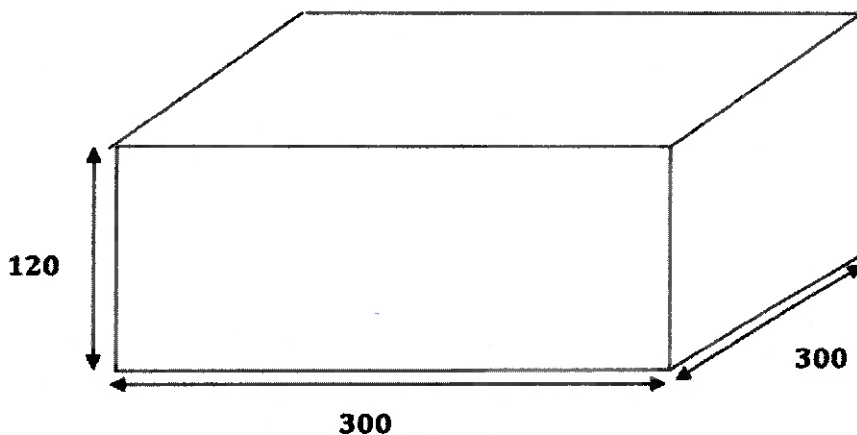
The material shall comply with the requirements of this specification.

4 COMPOSITION

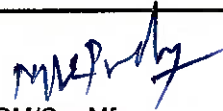


Specification (Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm2 Min.
	At 1350 °c	100 Kg/Cm2 Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.

5 DIMENSIONS AND TOLERANCES:

5.1 Shape and Size:



5.2 Tolerances: $\pm 0.5\%$ or 1 mm whichever is greater

Revisions:			Approved by:  SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by  Dy. Manager (CERALIN)	Checked by  Sr. Mgr. (CERALIN)	Dt. of 1 st Issue 05/03/2025
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	PLANT PURCHASING SPECIFICATION JAGDISHPUR	JP53374
		Rev No.00
		PREFACE SHEET

6 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.

7 INSPECTION

7.1 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.

7.2 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.

7.3 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.

Revisions:			Approved by:  SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue 05/03/2025
Dt:	Dt:	Year:	 Dy.Manager (CERALIN)	 Sr.Mgr. (CERALIN)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

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7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

7.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.

7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

8 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:

JP53374: KILN CAR TOP BLOCK FOR BICKLEY

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)

Dt. of 1st Issue
05/03/2025



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53374

Rev No.00

PREFACE SHEET

9 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.

JP53374: KILN CAR TOP BLOCK FOR BICKLEY

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)

Dt. of 1st Issue
05/03/2025



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53375

Rev No.00

PREFACE SHEET

BICKLEY ARCH BRICK

1 SCOPE

This specification governs the requirements of BICKLEY ARCH BRICK in High Temperature Kiln used to fire Ceramic Tiles.

2 APPLICATION

Used for laying roof structure of High Temperature Kiln.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

4 COMPOSITION

Specification (Bubble Alumina)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °C Min.
2	Bulk density	1.35 to 1.45 Gms/CC
3	Cold crushing strength	90 Kg/Cm ² Min.
4	Thermal Conductivity (W/m °k)	
	At 800 °C	1.5 Max.
	At 1000 °C	1.3 Max.
	At 1200 °C	1.3 Max.
5	Reheat change for 24 Hrs at 1650 °C	0.5 % Max.
6	Chemical Analysis	
	Al ₂ O ₃	88 % Min.
	SiO ₂	09 % Max.
	Fe ₂ O ₃	0.2 % Max.

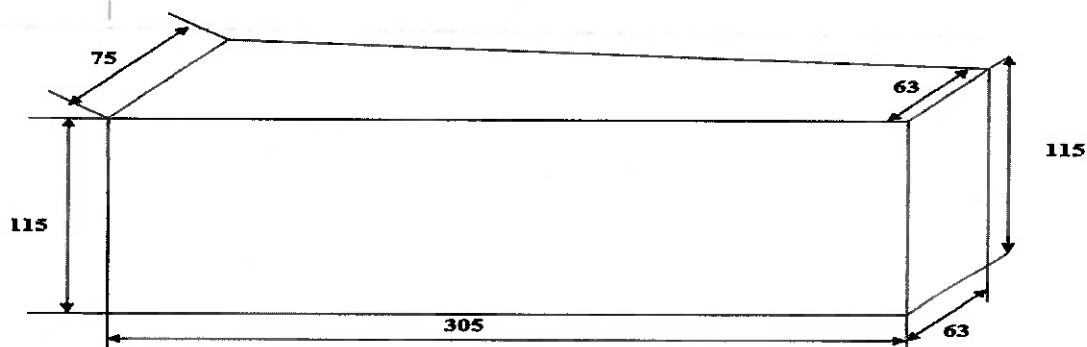
*mod**S. Singh**M. R. Singh*

5 DIMENSIONS AND TOLERANCES:

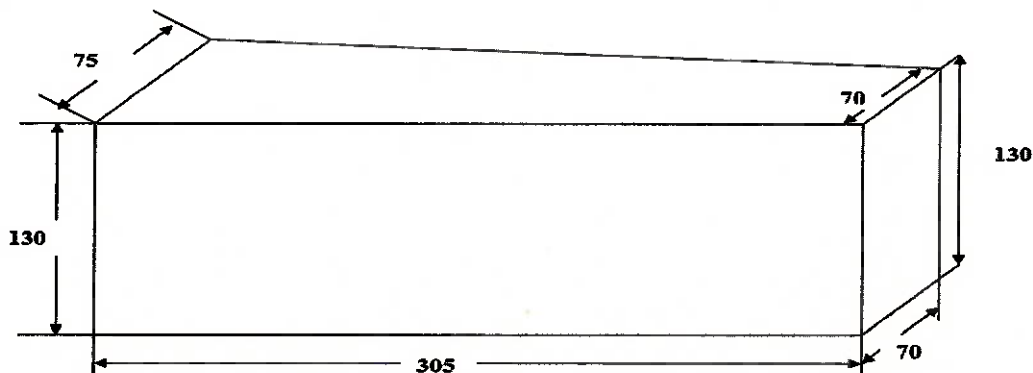
5.1 Shape and Size:

All Dimensions in mm

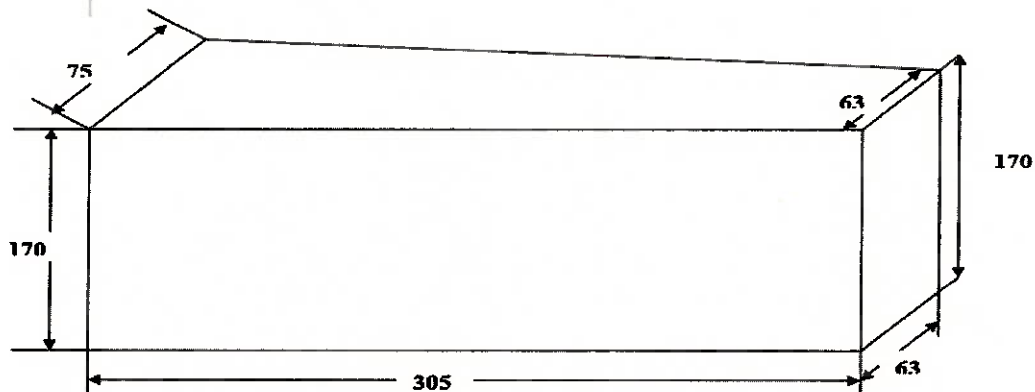
Type A: 305X115X75/63



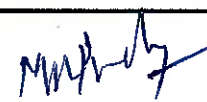
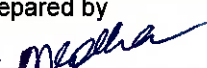

Type B: 305X130X75/70













Type C: 305X170X75/63



Tolerances: 0.5% or ± 1 mm whichever is higher

Revisions:			Approved by:		
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Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue 05/03/2025
Dt:	Dt:	Year:	 Dy.Manager (CERALIN)	 Sr.Mgr. (CERALIN)	

	PLANT PURCHASING SPECIFICATION JAGDISHPUR	JP53375 Rev No.00 PREFACE SHEET																		
<p>6 FREEDOM FROM DEFECTS:</p> <p>The refractories shall be free from cracks and broken corners and edges. They shall be of homogenous texture and shall have good surface finish.</p> <p>7 INSPECTION</p> <p>7.1 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.</p> <p>7.2 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.</p> <p>7.3 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.</p>																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3" style="height: 40px; vertical-align: top;"> Revisions: </td> <td colspan="3" style="height: 40px; vertical-align: top;"> Approved by: <div style="text-align: center;">  SDGM/Cer.Mfg </div> </td> </tr> <tr> <td style="width: 16.6%;">Rev No.00</td> <td style="width: 16.6%;">Amd No.</td> <td style="width: 16.6%;">Reaffirmed</td> <td style="width: 16.6%;">Prepared by</td> <td style="width: 16.6%;">Checked by</td> <td style="width: 16.6%; vertical-align: top;">Dt. of 1st Issue</td> </tr> <tr> <td>Dt:</td> <td>Dt:</td> <td>Year:</td> <td style="vertical-align: top;">  Dy. Manager (CERALIN) </td> <td style="vertical-align: top;">  Sr. Mgr. (CERALIN) </td> <td style="vertical-align: top;">05/03/2025</td> </tr> </table>			Revisions:			Approved by: <div style="text-align: center;">  SDGM/Cer.Mfg </div>			Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue	Dt:	Dt:	Year:	 Dy. Manager (CERALIN)	 Sr. Mgr. (CERALIN)	05/03/2025
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Dt:	Dt:	Year:	 Dy. Manager (CERALIN)	 Sr. Mgr. (CERALIN)	05/03/2025															



PLANT PURCHASING SPECIFICATION JAGDISHPUR

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PREFACE SHEET

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

7.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.

7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

8 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:

JP53375: BICKLEY ARCH BRICK

BHEL Order No.

Manufacturer's/ Supplier's Name.

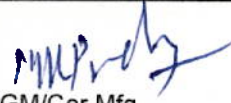


Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

Revisions:			Approved by:  SDGM/Cer.Mfg		
Rev No.00	Amd No.	Reaffirmed	Prepared by  Dy.Manager (CERALIN)	Checked by  Sr.Mgr. (CERALIN)	Dt. of 1 st Issue 05/03/2025
Dt:	Dt:	Year:			



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53375

Rev No.00

PREFACE SHEET

9 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.

JP53375: BICKLEY ARCH BRICK

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

Approved by:

SDGM/Cer.Mfg

Rev No.00

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Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
05/03/2025

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53379

Rev No.00

PREFACE SHEET

Pillars for High Temperature Kiln

1 SCOPE

This specification governs the requirements of Pillars for High Temperature Kiln of different size in Ceramic Tile.

2 APPLICATION

The pillars are used to hold the slab which in turn will be loaded with Ceramic Tiles. The loaded car will be fired in high temperature kiln up to 1550 deg. Centigrade.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

4 COMPOSITION

Sl. No.	Parameter	Value
1	Hot Face Temperature	$\geq 1750^{\circ}\text{C}$
2	Bulk density	$\geq 2.70 \text{ Gms/CC}$
3	Apparent porosity	22% Max.
4	Cold crushing strength	$\geq 750 \text{ Kg/Cm}^2$
5	PLC % after heating at $1600^{\circ}\text{C}/2 \text{ Hours}$ or $1450^{\circ}\text{C}/6 \text{ Hours}$	$\pm 0.50 \text{ Max (At } 1600^{\circ}\text{C) or } \pm 0.10 \text{ Max (At } 1450^{\circ}\text{C)}$
6	Chemical Analysis	
	Al_2O_3	86% Min.
	Fe_2O_3	0.30% Max.

5 DIMENSIONS AND TOLERANCES:

5.1 Shape and Size:

TYPE A. 50x90x100 MM

TYPE B. 90x90x100 MM

5.2 Tolerances: $\pm 1\%$ or 1.5 mm whichever is greater

Approved by:

SDGM/Cer.Mfg.

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
23/09/2024

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53379

Rev No.00

PREFACE SHEET

6 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.

7 INSPECTION

7.1 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.

7.2 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.

7.3 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.

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

7.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.

7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

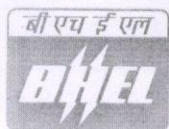
8 TEST CERTIFICATES

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.

Revisions:			Approved by: SDGM/Cer.Mfg.		
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PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53379

Rev No.00

PREFACE SHEET

The test certificates shall bear the followings information:

JP53379: Pillars for High Temperature Kiln

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

9 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.

JP53379: Pillars for High Temperature Kiln

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

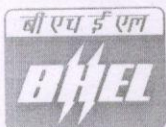
10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:			Approved by:		
Rev No.00	Amd No.	Reaffirmed	SDGM/Cer.Mfg.		
Dt:	Dt:	Year:	Prepared by:	Checked by:	Dt. of 1 st Issue 23/09/2024
			Dy.Manager (CERALIN)	Sr.Mgr. (CERALIN)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53380

Rev No.00

PREFACE SHEET

Mullite HF Tiles

1 SCOPE

This specification governs the requirements of Mullite HF Tiles/slabs for High Temperature Kiln in Ceramic Tile.

2 APPLICATION

The tiles will be used for loading of ceramic tiles (85 to 90% alumina) in a kiln car formed with tiles and pillars. Then, the loaded car will be fired in high temperature kiln up to 1550 deg. Centigrade.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

4 COMPOSITION

Sl. No.	Parameter	Value
1	Hot Face Temperature	$\geq 1750^{\circ}\text{C}$
2	Bulk density	$\geq 2.70 \text{ Gms/CC}$
3	Apparent porosity	22% Max.
4	Cold crushing strength	$\geq 750 \text{ Kg/Cm}^2$
5	MOR at 1350°C	$\geq 70 \text{ Kg/Cm}^2$
6	PLC % after heating at $1600^{\circ}\text{C}/2 \text{ Hours}$ or $1450^{\circ}\text{C}/6 \text{ Hours}$	$\pm 0.50 \text{ Max (At } 1600^{\circ}\text{C) or } \pm 0.10 \text{ Max (At } 1450^{\circ}\text{C)}$
7	Chemical Analysis	
	Al_2O_3	86% Min.
	Fe_2O_3	0.30% Max.

5 DIMENSIONS AND TOLERANCES:

5.1 Shape and Size:

270x200x25 MM

5.2 Tolerances: $\pm 1\%$ or 1.5 mm whichever is greater

Approved by:

SDGM/Cer.Mfg.

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
23/09/2024

Dt:

Dt:

Year:

Dy.Manager (CERALIN)

Sr.Mgr. (CERALIN)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53380

Rev No.00

PREFACE SHEET

6 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.

7 INSPECTION

7.1 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.

7.2 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.

7.3 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.

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

7.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.

7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

8 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.

Revisions:			Approved by: SDGM/Cer.Mfg.		
Rev No.00	Amd No.	Reaffirmed	Prepared by 	Checked by 	Dt. of 1 st Issue 23/09/2024
Dt:	Dt:	Year:	Dy. Manager (CERALIN)	Sr. Mgr. (CERALIN)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53380

Rev No.00

PREFACE SHEET

The test certificates shall bear the followings information:

JP53380: Mullite HF Tiles

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

9 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.

JP53380: Mullite HF Tiles

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Sizes and Quantity supplied Date of manufacture

10 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

11 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:			Approved by: 		
Rev No.00	Amd No.	Reaffirmed	Prepared by: 	Checked by: 	Dt. of 1 st Issue 23/09/2024
Dt:	Dt:	Year:	Dy. Manager (CERALIN)	Sr. Mgr (CERALIN)	



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP JP53388

Rev No.00

PREFACE SHEET

Refractory Mortar HT-A

1 SCOPE

This specification governs the requirements of high alumina mortar for High Temperature Kiln.

2 APPLICATION

Used as a lining material for repair of refractory in furnaces.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirements of this specification.

4 Properties

4.1 General Properties:

Service Temperature: 1850 °C Max.

Maximum Grain Size : 0.1 MM

Water for Trowelling Consistency : 18 – 23 %

CHEMICAL ANALYSIS, %

	Range
Al ₂ O ₃ (Minimum)	96.0
Fe ₂ O ₃ (Maximum)	0.20

PHYSICAL PROPERTIES:

	Range
% Retained Above Maximum Grain Size	0.0 - 5.0

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It must not be used directly or indirectly in any way detrimental to the interest of the company.

			Approved by:		
			Head- Cer.Mfg. & NBD-Cer. & Comp		
Rev No.00	Amd No.	Reaffirmed	Prepared by	Checked by	Dt. of 1 st Issue
Dt:	Dt:	Year:	Manager (CER.MFG.)	Manager (NBD)	22/06/2024



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53388

Rev No.00

PREFACE SHEET

5 FREEDOM FROM DEFECTS:

Material shall be free from external impurities which can deteriorate the performance of material in actual use.

6 INSPECTION

7.1 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.

7.2 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.

7.3 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.

7.4 BHEL may, at its discretion, test the material after receipt and acceptance of the material will be based on the BHEL's test results.

7.5 Supplier shall ensure that the material is free from extraneous material. The material shall be rejected if it is not free from extraneous material.

7.6 For result of analysis and properties of material the decision of BHEL shall be final and binding on the supplier.

7.7 If the material received is not found suitable according to the requirements, it shall be replaced free of cost by the supplier.

7.8 For any deviation, demanded by the supplier from the specification, prior approval of BHEL must be obtained

7 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.

Revisions:

Approved by:

Head- Cer.Mfg. & NBD-Cer. & Comp

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt. of 1st Issue
22/06/2024

Dt:

Dt:

Year:

Manager (CER.MFG.)

Manager (NBD)



PLANT PURCHASING SPECIFICATION JAGDISHPUR

JP53388

Rev No.00

PREFACE SHEET

The test certificates shall bear the followings information:

JP53388: Refractory Mortar HT-A

BHEL Order No.

Manufacturer's/ Supplier's Name.

Batch/ Lot No.

Quantity Supplied.

Date of manufacture

Dimensional inspection as per clause 5.

Test Results of clauses 4.

8 PACKING AND MARKING

The material shall be suitably packed in HDPE or gunny bags of 25/50 Kg each to avoid damage during transit. Each consignment shall be legibly marked or labelled with the following information.

JP53388: Refractory Mortar HT-A

BHEL Order No.

Manufacturer's/ Supplier's Name.

Trade mark, if any.

Batch/ Lot No.

Quantity supplied

Date of manufacture

9 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

10 REFERRED STANDARDS (Latest Publications Including Amendments)

Nil

Revisions:

Approved by:

Head- Cer.Mfg. & NBD-Cer. & Comp

Rev No.00

Amd No.

Reaffirmed

Prepared by

Checked by

Dt:

Dt:

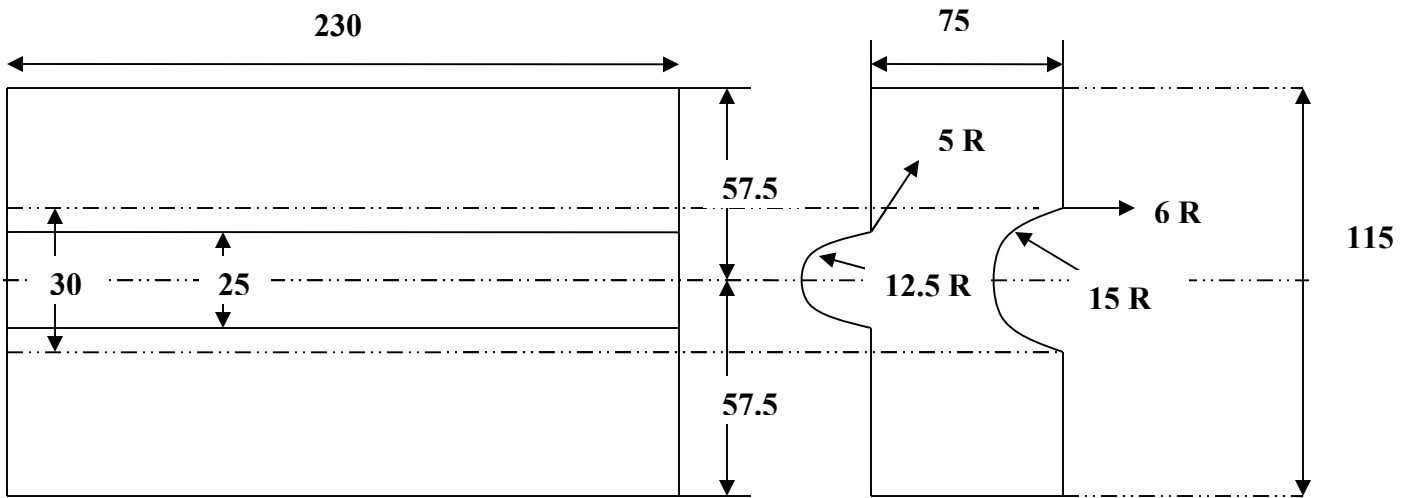
Year:

Manager (CER.MFG.)

Manager (NBD)

Dt. of 1st Issue
22/06/2024

SINGLE GROOVE BRICK

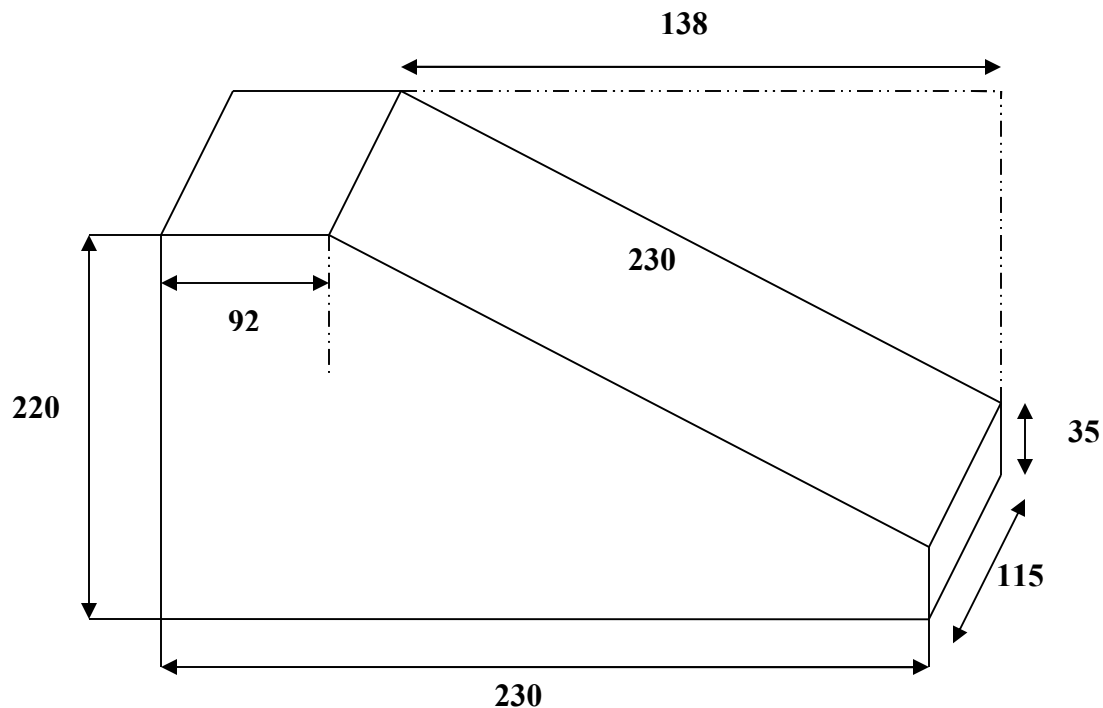


Specification for Single grove brick (Bubble Alumina)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °C Min.
2	Bulk density	1.35 Gms/CC Min.
3	Cold crushing strength	90 Kg/Cm ² Min.
4	Thermal Conductivity (W/m °k)	
	At 800 °C	1.5 Max.
	At 1000 °C	1.3 Max.
	At 1200 °C	1.3 Max.
5	Reheat change for 24 Hrs at 1650 °C	0.5 % Max.
6	Chemical Analysis	
	Al ₂ O ₃	88 % Min.
	SiO ₂	09 % Max.
	Fe ₂ O ₃	0.2 % Max.

Note: - Entire dimensions are in mm & Dimensional tolerance is ± 2 mm

DRG NO. – HTK/2009/02/Rev. 01

Skew Block



Specification (Mullite refractory)		
Sl. No.	Parameter	Value
1	Service temperature	1750 °c Min.
2	Bulk density	≥ 2.5 Gms/CC
3	Apparent porosity	19% Max.
4	Cold crushing strength	≥ 1000 Kg/Cm ²
5	MOR (Modulus of Rupture) :	
	At Room temperature	170 Kg/Cm ² Min.
	At 1350 °c	100 Kg/Cm ² Min.
6	Re heat change at 1450 °c/6 Hrs.	± 0.1 %
7	Thermal Conductivity W/m °k	
	At 800 °c	1.70 Max.
	At 1000 °c	1.60 Max.
	At 1200 °c	1.7 5 Max.
8	Chemical Analysis	
	Al ₂ O ₃	87% Min.
	SiO ₂	22% Max.
	Fe ₂ O ₃	0.2% Max.

Note : Entire dimensions are in mm and tolerance is ± 1 mm

DRAWING NO.-HTK/2009/07/Rev.01