



CORPORATE PURCHASE SPECIFICATION

AA 53 601

Rev. No. 03

PREFACE SHEET

SILICA SAND FOR USE IN FOUNDRY

FOR INTERNAL USE ONLY  
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Comparable Standards:

1. INDIAN : IS : 1987 - 2002

Suggested / Probable Suppliers and Grades :

Refer plant vendors list

User Plant References:

1. HYDERABAD : HY 53693 53694 & 53698  
2. CFFP, HARDWAR : FF 03001,06041, FF 53693  
3. BHOPAL : DS 001

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APPROVED :  
INTERPLANT MATERIAL RATIONALISATION  
COMMITTEE- MRC (FN)

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CORPORATE PURCHASE SPECIFICATION

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**SILICA SANDS FOR USE IN FOUNDRY**

**1. General**

This specification governs the quality requirements of different grades of washed and dried high silica sand for use in foundries.

**2. Application**

Used as raw material in the preparation of moulds and cores for making castings of steel, cast iron, aluminium-bronze, etc.

**3. Compliance with national standard**

This specification is generally based on IS:1987-2002, " High silica sand for use in Foundries".

**4. Classification**

- 4.1 The sands have been classified in various grades as per the table, based on property requirements.
- 4.2 The class of sand required shall be mentioned in the purchase order. Supplier is to be ensure supply of sand strictly as per class mentioned in the purchase order.
- 4.3 The various properties – Chemical composition, grain shape, Size grading, etc is given in Table I

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TABLE I – CLASSIFICATION OF SAND AND ITS PROPERTY REQUIREMENTS

	Class "A" High silica sand	Class "B" High Silica sand	Class "C" Unwashed	Class "D" Medium grade	Class "E" Natural sand	Class "F" Red sand
Application	Making moulds with sodium silicate – CO <sub>2</sub> binder system	Making moulds with resin binder system		Making moulds for cast iron and non-ferrous castings.	Making moulds for guide wheel castings	
<b>Composition</b>						
SiO <sub>2</sub>	99% minimum	99% minimum	98% minimum	90% minimum	85% minimum	80-85%
Moisture	0.5% max.	0.5% max.	3.5%	0.5% max.	2.5% max.	5% max.
Clay content	0.5% max.	0.2% max	0.7% max.	0.5% max	12-15%	25-35% (including other washables)
Shape	Sub-angular to round	Sub-angular to round	Sub-angular to round	Sub-angular to round	Sub-angular to round	Sub-angular to round.
Grain Fineness and Distribution	Minimum 70% retention on IS sieves 425, 300 and 212 Microns  Fine fraction retained on 106 and below to be maximum 4%  AFS : 40-50 (relaxable upto 2 points at both ends if the distribution is met).	Minimum 70% retention on IS sieves 425, 300 and 212 Microns  Fine fraction retained on 106 and below to be maximum 4%  AFS : 40-50 (relaxable upto 2 points both ends if the distribution is met).	Minimum 70% retention on IS sieves 425, 300 and 212 Microns  Fine fraction retained on 106 and below to be maximum 6%  AFS : 40-50 (relaxable upto 2 points both ends if the distribution is met).	Minimum 80% retention on 300, 212 and 150 microns.  Coarse fraction retained on 600, 850 and above shall be max. 12%  Fine fraction retained on 106 microns and finer shall be max. 2%  AFS : 40-50 (relaxable upto 2 points both ends if the distribution is met).	Minimum 70% retention on 300, 212 and 150 microns.  Coarse fraction retained on 600, 850 and above shall be max. 6%  Fine fraction retained on 60 microns and finer shall be max. 8%  -	Minimum 60% retention on IS sieves 425, 300, 212 and 100 microns.  Coarse fraction retained on 600, 500, 1000 and 1400 microns shall be 25% max.  Fine fraction retained on 60 microns and finer shall be maximum 15%  -
Any other requirements						100% dried sand when mixed with optimum quantity of water should develop compressive strength of minimum 10 kg/sqcm



### 5. SAMPLING

- 5.1 UPTO 10T – ONE COMPOSITE SAMPLE, DRAWING SAMPLES FROM TWO PLACES OF THE TRUCK.
- 5.2 10-20T – ONE COMPOSITE SAMPLE, DRAWING SAMPLES FROM FOUR PLACES OF THE TRUCK.
- 5.3 ABOVE 20T – ONE COMPOSITE SAMPLE, DRAWING SAMPLES FROM SIX PLACES OF THE TRUCK.

### 6. Acceptance Tests

Each consignment shall be accepted on the basis of tests carried out as per clauses 4 & 5. Shape of sand grains shall be checked on surveillance basis.

### 7. Inspection, Deviation and Replacement

- 7.1 Sand shall be tested at BHEL and will be binding on supplier. If the material received at BHEL is not found in accordance with the requirements, it shall be rejected.
- 7.2 BHEL reserves the right to inspect material at site before despatch. The supplier shall be given prior intimation in such case. The supplier shall enclose a copy of test certificate in advance of the material offered for inspection. However inspection at BHEL shall be final. The supplier shall offer BHEL representative all reasonable test 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.

For any deviation from the specification demanded by the supplier prior approval of BHEL must be obtained in writing.

**8. Test certificates**

The supplier shall give three copies of test certificates for each consignment/batch with the following information

- (a) BHEL PO Reference
- (b) Supplier's name and address
- (c) Grain size/fineness
- (d) Grain shape
- (e) Test Results as per Table I for respective Class of sand.

**9. Despatch of Material**

- 9.1 Sand at Class "A" and Class "B" shall be packed in moisture proof bags weighing around 50 kg sand per bag. There should not be any contamination of sand from material of the bag.
- 9.2 For other Classes of sand – "C" to "F" – the packing shall be as mutually agreed between supplier and purchaser.
- 9.3 Proper care should be taken to prevent wastage, damage, pickup of foreign material, during transportation.