

**GOVERNMENT OF INDIA
(Ministry of Railways)**

**SPECIFICATION FOR
SILICA SAND 45 AFS
(PL No.81981879)**

Issued by

**MECHANICAL DRAWING OFFICE
RAIL WHEEL FACTORY
YELAHANKA, BANGALORE-560 064
INDIA**

<i>P. K.</i> 24.7.15	<i>A. Aravind</i> 23/7/15	<i>S. P. M</i>	<i>Chand</i> 22/7/15
CME	CWE/W	Dy. CME/Mfg.	SSE/D
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SPECIFICATION FOR SILICA SAND - 45 AFS**1.0 SCOPE**

- 1.1 This specification covers process and supply of Silica sand – 40-45 AFS to Rail Wheel Factory, Yelahanka, Bangalore - 560 064, Karnataka state, India as per the instructions and conditions of Contract and Tender Papers.

2.0 JOB REQUIREMENT

- 2.1 The silica sand is used for preparation of phenol formaldehyde resin coated sand for baking of risers and domes on graphite mould for the manufacture of cast steel wheel through the upward pressure pouring technique.

3.0 MANUFACTURING PROCESS

- 3.1 The 45 AFS silica sand shall be of naturally occurring mined silica sand having shape of round to predominantly sub-angular, washed, dried and containing the least clay content. The supplier shall take extreme care to meet the technical requirement specified in Clauses 4.0 & 5.0. The supplier shall have adequate facility including source/mine licence and legal & regulatory requirements issued by competent authority and documentary evidence shall be submitted to RWF along with the offer. The supplier shall have the machinery and plant to process and achieve the specified quality of the sand.

- 3.2 During the initial supply from a particular mine/ location the supplier shall test the sand to ensure the chemical composition and the shape/size either in their own facility or through a reputed laboratory. If required, authorised representative of RWF shall have free access to witness the testing at this laboratory. The contractor shall arrange for the access as and when required by RWF. Washing and grading are important process in 45 AFS sand manufacture. The supplier shall have mechanised or manual washing and screening facilities. They should test the screening efficiency at prescribed intervals to ensure the efficiency and correctness of the output sand. Mixing shall be uniform and aimed to achieve desired GFN & sieve retentions specified in Clause 4.5.

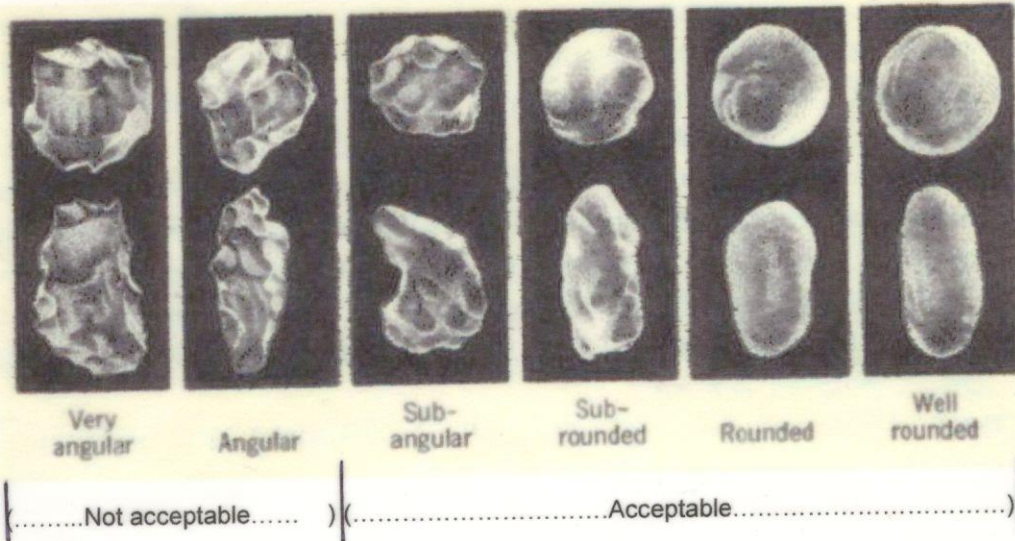
4.0 GENERAL DESCRIPTION

- 4.1 Natural silica sand washed, dried and graded. Crushed quartz is not acceptable.
- 4.2 Grain shape :Round/Sub angular grain. (Photograph depicted below for guidance.)

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4.2 Grain shape

:Round/Sub angular grain. (Photograph depicted below for guidance.)



4.3 Clay content :0.3% Max.

4.4 Fines :Traces.

4.5 Grain Finness Number :40-45 AFS (American Foundry Standard)

a. Min. 90% retention (cumulative) on US sieves 40,50 and 70.

b. Required sieve analysis is given below.

US series screen(ASTM)	Retention
30	1.4% Max
40 } 50 } 70 }	90% and above
100	8% Max.
140	2% Max.
200	0.1% Max.
270	-
Pan	-
AFS	40 to 45

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5.0 CHEMICAL CHARACTERISTICS

- 5.1 Silica content : 98.5% Min.
 5.2 Fe as Fe₃O₄ : 0-0.5% Max.
 5.3 CaO and MgO : 0-1% Max.
 5.4 Alkalies (K₂O & Na₂O) : 0.5% Max.
 5.5 Moisture content : 5.0% Max.
 5.6 The sand should be free from any foreign particles such as fibres, grass roots and clay dust etc.

6.0 TRANSPORT

- 6.1 The sand shall be transported preferably in covered truck during the rainy seasons.

7.0 PAYMENT

- 7.1 Payment will be made on dry basis.

8.0 SAMPLING NORMS

- 8.1 As per IS 1811:1984. (Methods of sampling foundry sands.)

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