

GOVERNMENT OF INDIA
(Ministry of Railways)

SPECIFICATION FOR
AIR SETTING MORTAR
(SUPER-3000)
(PL No. 81908064)

MECHANICAL DRAWING OFFICE
RAIL WHEEL PLANT
BELA, SARAN-841221,
BIHAR
I N D I A

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25.11.17
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SPECIFICATION FOR AIR SETTING MORTAR (SUPER-3000)

1.0 SCOPE

The specification covers the manufacture and supply of Air Setting Mortar to RAIL WHEEL PLANT, BELA, SARAN-841221, BIHAR, INDIA as per instructions and conditions of contract and Tender papers.

2.0 GENERAL DESCRIPTION

Alumina base, low iron, air setting, super duty bonding mortar with high strength at low, intermediate and high temperatures.

3.0 JOB REQUIREMENT

The air setting mortar is required to assemble ceramic pouring tube in the holding casting. After final setting, the pouring tube is dipped in a glazing tank containing glaze material. It is subsequently heated to 990 °C at the rate of around 110 °C rise in temperature per hour. The preheated pouring tube assembly is mounted on the pouring cone at the centre of the pouring cover and the tube is immersed in liquid steel at a temperature of about 1600 °C. The holding casting in which the super 3000 is used for mounting the pouring tube is not in contact with the liquid metal during usage. The mould assembly, weighing 4-5 MT approx., sits on the pouring cone. The tube assembly is used for pouring in more than one heat. The Super 3000 mortar shall have adequate binding strength so that the pouring tube top edge should not sink from the level when it is fitted and used continuously for 2 heats (64 castings approx.) at least. The mortar doesn't come in contact with molten metal.

4.0 MANUFACTURING AND QUALITY ASSURANCE PLAN (QAP)

4.1 CHARACTERISTICS OF RAW MATERIALS USED

Supplier has to disclose the details of the grade, source, specification and acceptance criteria of all raw materials used for manufacturing of Air Setting Mortar to satisfy uses of material as mentioned above

4.2 MANUFACTURING FACILITIES REQUIRED

The manufacturer shall have adequate manufacturing facilities such as manufacturing, crushing, sieving and packing.

4.3 TESTING FACILITIES

The manufacturer shall have all the facilities to test the

properties of Air Setting Mortar specified in this specification. If testing is carried out at outside laboratories, it shall be clearly spelt out in the offer.

4.3 QUALITY ASSURANCE PLAN (QAP)

The manufacturer shall submit their QAP that will be followed in the manufacturing of Air Setting Mortar to achieve the performance requirement described in clause 3.0. The QAP shall consider the following requirements:

- a) Details on the grade, source, specification and acceptance criteria of all raw materials and in-process control parameter norms.
- b) Finished product testing.
- c) Other details like M&P, Technical manpower, testing facilities (In-process & Product inspection), ISO or any other certification of quality as per tender document.

5.0 TECHNICAL DATA

5.1 Usable upto temperature: 1400 °C

5.2 Pyrometric Cone Equivalent (min.): 33 (Orton) (1746 °C)
(When tested as per ASTM C 24 - 09.

5.3 Binding Strength after firing & cooling, when tested as per ASTM C 198 - 76, shall be as follows:

Temperature in °C	Bonding Strength in kg/cm ² (PSI)
104	< 91.4 (1300)
760	< 77.3 (1100)
1205	< 77.3 (1100)

5.4 Lap Joint Strength, when tested as per ASTM C 606- 1976, shall be as follows:

Temperature in °C	Lap joint Strength in kg/cm ² (PSI)
24	< 21.8 (310) (approx.)
1371	< 2.5 (35) (approx.)

5.5 Chemical analysis Calcined basis (%) (For manufacturer's guidance only)

Alumina 49.08
 Silica 41.30
 Ferric oxide 0.20
 Alkali 3.40
 Loss on ignition 6.00 max.

5.6 The mortar should have expanding characteristics during setting, so that the pouring tube is held tight and does not go down in the holding casting during pouring operations when the mould weight comes on the tube.

5.7 The supplier shall produce evidence as adequate proof for performance of product in similar application as in RWF for approved vender status.

6.0 SAMPLING NORMS

The supplier or manufacturer shall follow his own sampling norm for the determination of technical characteristics and the supply shall accompany test certificates. Sampling norm followed shall be indicated in MTC.

7.0 PACKING

Shall be packed in high-density airtight plastic containers with provision for handling, each weighing 50 kgs.

Month and Year of manufacture should be clearly stamped on the packing container.

8.0 SHELF LIFE

12 months from the date of supply.

9.0 MANUFACTURER'S TEST CERTIFICATE (MTC)

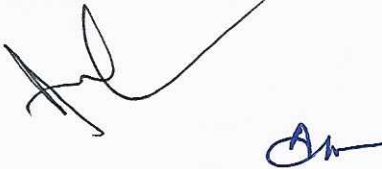
The supply shall accompany with Manufacturer's Test Certificate (MTC). The MTC shall contain the test results for characteristics specified in clause 5.1, 5.2, 5.3, 5.4 & 5.5 and test method (standard) followed against each characteristic.

10.0 INSPECTION & ACCEPTANCE

Shall be based on the Manufacturer's test certificate. For first time suppliers, in addition to the manufacturer's test certificate, the material will be subjected to field tests to adjudge its suitability for the application before granting final acceptance.

11.0 WARRANTY

The supplier shall warrant the performance stated in clause 3.0 under standard operating conditions of RWF. In case any batch of material fails to perform on account of the manufacturer/supplier, the supplier shall replace complete batch of material free of cost.

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