

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No. 2007/Elect(TRS)/440/14 Pt.

New Delhi, dated : 02.09.2019

General Manager (Elect),

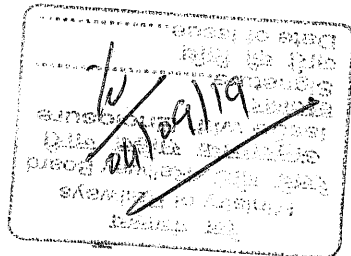
All Zonal Railways Incl. KRCL

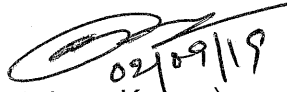
Sub : Filling up of sand as per specification no. AAR M-916-51 and proper functioning of sanders of electric & Diesel locomotives
Ref : RDSO's letter no. SD.DFM.A.8 dated 28/29.12.2011

During monsoon season, cases of stalling tend to increase due to wet rail condition resulting in loss of adhesion, consequently wheel slip. To avoid such incidences, RDSO, vide letter under reference had recommended specification no. AAR M-916-51 which mandates replacement of river sand by clean silica sand free from clay, loam, mica and other foreign material for use in sanders of Electric & Diesel locomotives.

However, it is observed that few Zonal Railways are not following the specification no. AAR M-916-51 and are still using river sand in locomotives owing to which the sand nozzles are getting blocked due to cake formation which results in stalling and time loss of coaching trains and sometimes rail burning.


It is, therefore, once again advised to strictly adhere to the specification no. AAR M-916-51 as already advised by RDSO vide letter under reference so that quality of sand and thereby proper functioning of sanders of electric & Diesel locomotives could be ensured.




(Kishore Kumar)
Exec. Dir. Elect. Engg. (RS)
Railway Board

Copy for information to:

 EDME(Traction), Railway Board.


may Pk issue form
Bengal
04/9/19

915222463716 (S)

Tele: 915222463711

mail: dmpbkh@gmail.com

मुख्य विद्युत अभियंता, मुख्य कार्यालय (विद्युत शाखा)
मुख्य रेलवे अभियंता, मुख्य कार्यालय (विद्युत शाखा)
मुख्य विद्युत अभियंता, मुख्य कार्यालय (विद्युत शाखा)

दिनांक: 17/11

Dated: 28.12.2011

No. SD DFM A 8

मुख्य ज्येष्ठ अभियंता, मुख्य कार्यालय (विद्युत शाखा),
Chief Mech. Engineer, Head Quarters Office (Mech. Branch),

मुख्य विद्युत अभियंता, मुख्य कार्यालय (विद्युत शाखा),

✓ Chief Electrical Engineer, Head Quarters Office (Electrical Branch),

Handwritten notes:
① Pl. advise all concerned
② Pl. get a copy of the spec. as mentioned & we have to apply the same for supply as per this spec.

1. मध्य रेलवे, छत्रपति शिवाजी टर्मिनस, मुंबई - 400001.	022-22620210/022-22620867
2. पूर्व रेलवे, फेररी प्लेस, कोलकाता - 700001	033-22224640/033-22200518
3. उत्तर रेलवे, यदोदा हाउस, नई दिल्ली - 110001	011-23387114/011-23307198
4. दक्षिण रेलवे, पार्क टाउन, चेन्नई - 600003	044-25351162/044-25353276
5. दक्षिण मध्य रेलवे, रेल गिरीधर, सिकन्दरगढ़ - 500071	040-27831028/040-27834179
6. दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता - 700043	033-24395879/033-24391566
7. पूर्वोत्तर रेलवे, गोरखपुर - 273012	0551-2202835/0551-2200552
8. पूर्वोत्तर सीमांत रेलवे, मालीगोंव, गुवाहाटी - 781011	0361-2676181/0361-2570572
9. पश्चिम रेलवे, वर्कगेट, मुंबई - 400020	022-22071891/022-22073829
10. पूर्व मध्य रेलवे, हाजीपुर - 844001	06224-274755/06224-274456
11. पूर्व तटीय रेलवे, बीडीए रैलवे कालोनी, रेलवे कॉम्प्लेक्स, चंद्रशेखरपुरा, नुवनेश्वर, उड़ीसा - 751017	0674-2303530/0674-2300372
12. उत्तर मध्य रेलवे, सूवेदारगंज, इलाहाबाद - 211033	0532-2230213/0532-2560934
13. उत्तर पश्चिम रेलवे, जयपुर - 202006	0141-2221549/0141-2229498
14. दक्षिण पश्चिम रेलवे, हुबली - 530023	0836-2289840/0836-2365213
15. पश्चिम मध्य रेलवे, जबलपुर - 482001	0761-2628133/0761-2628133
16. दक्षिण पूर्व मध्य रेलवे, आर ई आफिस कॉम्प्लेक्स, बिलासपुर - 495004	07752-510306/0775-2510305

Sub: Specification of sand for use in diesel and electric locomotives.

RDSO vide letter no. US/IRS/29 dated 16.4.1993 had issued instructions to use sand on locomotives as per IS:1987-74 in lieu of IRS 29-66 based on approval of Railway Board (vide letter no.92/M(L)/468/25 dated 30.6.1992). These instructions have been reiterated from time to time and at present, sand conforming to IS:1987-2002 (850/425 grade 'C' as per table 3 clause 11.3) has been recommended to be used on all types of diesel and electric locomotives including High Horse Power (HHP) locomotives. Vido this office Instruction Bulletin no. MP.IB.BK.01.09.07 Rev(00) dated 23.8.07 Issued vide RDSO letter of even no. dated 23.8.07, instructions were issued to all Zonal Railways to use sand as per above IS, defining moisture content as 0.5% maximum and including instructions for storage.


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1. Zonal Railways have been reporting problems with quality of sand procured as per IS: 1987:2002 mainly due to caking. In view of this, various sand specifications have been reviewed and it is noted that although IS specification is in not inferior to other sand specifications viz. IRS 29-66, M-016-51 in other aspects, but it does not specify caking test. This might be due to the fact that the sand as per IS: 1987 is meant for use in foundries where caking is not a problem. The other two specifications are for sand free from clay for use on locomotives and they specify caking test. Since, free flow of sand is an important property for effective working of sanding arrangement, caking test is considered to be very important. Specification no. AAR M-016-51 is for clean silica sand, free from clay, loams, mica and other foreign material, for use on locomotive sanding equipment and is suitable for locomotive application.

In view of above, it is advised to use sand as per specification no. M-016-51 (car and locomotive sand) on all types of diesel and electric locomotives including High Horse Power (HHP) locomotives

These instructions supersede all previous instructions issued regarding specification of sand to be used on locomotives.


(बी. अती)
निदेशक/चालन शक्ति /शेक
कृते महानिदेशक/चालन शक्ति

Copy to:

1. EDME (Traction) Railway Board, Rail Bhavan, New Delhi
2. CME, Diesel Locomotive Works, Varanasi
3. CME, Diesel Loco Modernisation Works, Patana
4. CME, Chittaranjan Locomotive Works, Chittaranjan
5. Sr. Prof. (Diesel Traction), IRIMEE, Jamalpur

For kind
information
please.

Association of American Railroads
Technical Services Division—Mechanical Section
Manual of Standards and Recommended Practices

SPECIFICATION M-916-51

Adopted 1950
Revised 1983, 1994

1.0 SCOPE

These specifications cover a clean silica sand free from clay, loam, mica, and other foreign material, for use in car and locomotive sanding equipment.

2.0 CHEMICAL REQUIREMENTS

2.1

The solubility of 100 grams of sand immersed in 150 cc. of concentrated hydrochloric acid for 24 hours shall not exceed 5 percent.

2.1.1 Alternate Method for Determination of Silica in High Silica (90 percent Minimum) Locomotive Sand

Fifteen to twenty grams of the representative sample is ground to pass a 200 mesh sieve.

2.1.2

A one-gram sample is weighed in a tared platinum crucible and heated to a temperature of approximately 1500° F for one-half hour. It is then cooled and reweighed. The loss in weight times 100 gives the percentage of material lost on ignition.

2.1.3

To the weighed residue in the crucible add 4 drops of distilled water, 2 drops concentrated sulphuric acid (1.84 specific gravity) and 10-15 cubic centimeters of pure hydrofluoric acid and then evaporate to dryness. The crucible is then rotated carefully, using crucible tongs, over an open gas flame to avoid splattering until all sulfur trioxide fumes have been expelled, after which the crucible is blasted for a minute, cooled and reweighed. The loss in weight times 100 gives the percent of silica in the sand.

2.1.4

For sands containing less than 90 percent of silica, the usual chemical fusion method should be used for the silica determination.

3.0 PHYSICAL REQUIREMENTS

3.1 Caking Test

The sand shall have satisfactory non-caking properties as determined by the following test: A cylinder not less than 11 inches high and 1 inch in diameter shall be filled with the sand after the sand has been saturated with distilled water. After drying in an oven at 100° C for 12 hours, it shall run freely through an opening of 1/2 inch in the bottom of the container without shaking or tapping.

Association of American Railroads
Technical Services Division—Mechanical Section
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3.2 Grading

The sand shall meet the following grading requirements:

	Min.	Max.
Percentage passing U.S. Standard Sieve No. 10	100	—
Percentage passing U.S. Standard Sieve No. 30	40	—
Percentage passing U.S. Standard Sieve No. 50	10	30
Percentage passing U.S. Standard Sieve No. 80	—	5

3.3 Sampling

A 25-pound sample representing each carload may be taken either at destination or at the plant.

4.0 INSPECTION AND REJECTION

4.1 Inspection

The inspector representing the purchaser shall have free entry, at all times while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works which concern the manufacture of the material ordered. The manufacturer shall afford the inspector, free of charge, all reasonable facilities and necessary assistance to satisfy him that the material is being furnished in accordance with these specifications. Tests and inspection at the place of manufacture shall be made prior to shipment unless otherwise specified.

4.2

The purchaser may make tests to govern the acceptance or rejection of the material in his own laboratory or elsewhere. Such tests shall be made at the expense of the purchaser.

4.3 Rejection

Material represented by samples which fail to conform to the requirements of these specifications will be rejected.

4.3.1

Material which shows injurious defects subsequent to its original inspection and acceptance at the manufacturer's works, or elsewhere, will be rejected, and the manufacturer shall be notified.

4.4 Rehearing

Samples tested in accordance with these specifications which represent rejected material, shall be held for a period of fourteen (14) days from date of the test report. In case of dissatisfaction with the results of the tests, the manufacturer may make claim for a rehearing within that time.