केन्द्रीय मुहर विभाग- III

हमारा संदर्भ- सीएमडी -III/16: IS 1489 (Part 2) **03 07 2017**

विषय- आई एस 1489 (पार्ट 2) : 2015 के अनुसार **परिपालन लिए एस टी आई Doc: STI/1489 (Part 2) /3, June 2017**

इसे उपरोक्त विषय का संदर्भ है।

सक्षम प्राधिकारी ने IS 1489 (Part 2) : 2015 के अनुसार उत्पाद के प्रमाणन हेतु पुनरीक्षित एस.टी.आई **Doc: STI/1489 (Part 2)/3, June 2017** को अनुमोदित कर दिया है ।

सभी संबंधित पक्षकारो से अनुरोध हे कि इसका अनुपालन तत्काल प्रभाव से सुनिश्चित करे ।

(एस डी राणे)
वैज्ञानिक ई (सी एम डी-III)

प्रमुख (सी एम डी-III)

सभी क्षेत्रीय/शाखा कार्यालय

आई टी एस विभाग – बीआईएस इंट्रानेट पर डालने हेतू

CENTRAL MARKS DEPARTMENT-III

Our Ref: CMD-III/16: IS 1489(Part 2) **03 07 2017**

Subject: Revised STI Doc: STI/1489(Part 2)/3, June 2017 for as per IS 1489 (Part 2) : 2015.

This has reference to the subject mentioned above.

The Competent Authority has approved the revised STI, **Doc: STI/ 1489 (Part 2) /3, June 2017** for certification of the product as per IS 1489 (Part 2) : 2015.

All concerned are requested to ensure compliance of above STI with immediate effect.

(S D Rane)
Sc-E (CMD- III)

Head (CMD-III)

Circulated to all RO/BO

Copy to: ITS for hosting on BIS Intranet.

SCHEME OF TESTING AND INSPECTION FOR CERTIFICATION OF PORTLAND POZZOLANA CEMENT PART 2 – CALCINED CLAY BASED ACCORDING TO IS 1489 (PART 2) : 2015

1. LABORATORY

1.1 A laboratory shall be maintained which shall be suitably equipped and staffed where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.2 All test equipments shall be periodically checked, verified and calibrated and records of such checks/verification/calibration shall be maintained.

2. TEST RECORDS

2.1 All records of tests as per this Scheme of Testing and Inspection shall be kept in suitable forms.

2.2 Copies of any such records that may be required by BIS shall be made available at any time on request.

3. QUALITY CONTROL

3.1 It is recommended that, as far as possible, Statistical Quality Control (SQC) methods may be used for controlling the quality of the product during production as envisaged in this Scheme [see IS 397 (various parts)].

3.2 In addition, effort should be made to gradually introduce a Quality Management System in accordance with IS/ISO 9001.

4. CALIBRATION

4.1 Periodic calibration of various testing equipments shall be carried out and records of such calibrations kept. The following equipments shall be calibrated at a frequency shown against each and records kept.

Sl No.	**TEST EQUIPMENT**	**FREQUENCY OF CALIBRATION**
1.	Blaine's apparatus	Daily with licensee's own Standard cement sample and monthly with standard cement samples supplied by NCCBM.
2.	Compressive strength Testing machine	Once in a month with Licensee's own Proving Ring and the Proving Ring shall be Calibrated once in two years from a NPL/NABL Accredited Calibrating body or NPL or NPL accredited Proving Ring manufacturer.
3.	Autoclave pressure gauge	Once in a month by licensee's own dead weight pressure gauge tester OR once in six months from accredited calibrating body or NPL/NABL accredited manufacturer of such gauges.

4.	Vibration machine	Once in a month by licensee's own Tachometer. The tachometer shall be calibrated once in a year from NPL/NABL accredited outside agency.
5.	Dead weight pressure gauge Tester (if available)	Once in four years from NABL accredited Tester (if available) Lab or OEM (original Equipment manufacturer) having NPL/NABL accredited calibrator.

5. STANDARD MARK

5.1 The Standard Mark, as given in Column (1) of the First Schedule of the licence, shall be printed or stenciled on each bag or drum of Portland Pozzolana Cement or on the label applied to it, provided the material in each bag or package to which the mark thus applied conforms to the specification. The size of the Standard Mark shall be either 1**60 x 120** mm or **80 x 60** mm for packing in quantity of 50 kg and above. For other packings of lower quantity, a photographic reduction is permitted.

6. MARKING

6.1 In addition, the following information as per clause **11** of IS 1489(Part-2) : 2015 shall be clearly and indelibly marked on each bag or package or on the label applied to it. Same information shall be provided in the delivery advices accompanying the shipment of packed or bulk cement and on cement drums. The following information and BIS Standard Mark other than the Manufacturers registered trade mark shall be applied on each bag in **RED COLOUR.**

a) Manufacturer's name and his registered trade mark, if any;
b) Type of Portland cement; that is Portland Pozzolana Cement (*Calcined Clay Based)*;
c) Net quantity, in kg;
d) The words 'Use no Hooks' on the bags;
e) Batch/Control unit number in terms of week, month and year of packing;
f) Best before date (i.e. 3 months from date of packing);
g) Wording as 'Cement to be tested before use if more than 3 months old from date of packing';
h) Address of the manufacturer;
i) Percentage addition of Pozzolana (To be given individually for the pozzolanas added);
j) The words "FOR EXPORT', if required;
j) Licence Number (CM/L----------) ; and
k) Any other marking required under current Legal Metrology Act and Rules framed there under.

Note :

1. For each calendar year the first week shall be counted as 7 days from 1st of January and subsequent weeks numbered serially accordingly. The bags shall be marked as W 0l/MM/YY…… W 51/MM/YY……. etc.
2. Label mentioned at 5 and 6 above shall be attached to the seal of the container. The seal shall be of such a design that it shall automatically get destroyed on opening.
3. For bulk packing units all cement of one consignment received shall constitute a batch. Batch mixing may be permitted for those packing units which are extended packing terminals of the same cement manufacturer subject to packing units obtaining test

certificates from the manufacturer and keeping proper records. If the cement is received from different manufacturers (licensees) batch mixing of cement is not permitted. Adequate care shall be taken to prevent mixing of cement, even of same grade.

4. In case of packing bulk terminal unit being extended packing facility of cement manufacturer, name of the original manufacturer and/or his trade mark or BIS Certification Mark need not be given on the bag/drum/packing
5. If the cement for packing is not from the same manufacturer the source details (CM/L number) shall be indicated on the bag.
6. The colour of the bag (other than Red) and background colours should be in contrast to the colour of the Standard Mark and the details so that the markings are conspicuous.
7. The Manufacturers' registered trade mark may be in any colour.

7. LEVELS OF CONTROL

7.1 For manufacturing units of Portland Pozzolana Cement: The tests, as indicated in Table 1 and Table 2 attached and at the levels of control specified therein, shall be carried out on the whole production of the factory which is covered by this scheme and appropriate records maintained in accordance with clause 2 above and charts may be maintained as per clause 3 above. All the production which conforms to the Indian Standard and covered by this licence shall be marked with Standard Mark.

7.2 For packing of Portland Pozzolana Cement at bulk cement terminal: The tests, as indicated in Table 3 attached and at the levels of control specified therein, shall be carried out on the whole packing of Portland Pozzolana cement and appropriate records maintained in accordance with clause 2 above and charts may be maintained as per clause 3 above All the packing quantity which conforms to the Indian Standard and covered by this licence shall be marked with Standard Mark.

7.2.1 BATCH: For the purpose of clause **7.2** of this scheme, all cement of one consignment received shall constitute one batch.

7.2.2 The Batch integrity shall be ensured at all stages of packing and the packer shall maintain appropriate controls and checks to ensure that there is no chance of mix up of different batches of the cement if received from different manufacturer. Adequate care shall be taken to avoid spoilage during handling, packing and storage.

7.2.3 Test Certificate of each original batch of cement shall be obtained from the supplier and test results recorded. On the basis of tests and inspection, the decision regarding conformity or otherwise of the consignment/batch to a given requirement shall be taken.

7.3 WEIGHMENT – One filled bag from each nozzle shall be taken at random twice in each shift of operation and weighed in case of electronic packers with recorders. In all other cases one bag from each nozzle shall be checked once in two hours. The records shall be maintained in Form 1. The bag shall be so chosen for weighment such that bags from each nozzle are taken for weighment. The weighing and packing machines shall be adjusted as and when necessary in such a way that net quantity of each bag shall be in accordance with the tolerances given in Annex B

and clause 10.1.1 of IS 1489(Part 2): 2015. Such adjustments for each nozzle shall be recorded in Form 1 under remarks column.

7.3.1 For packing of Portland Pozzolana cement in bulk cement terminal the weighment of hourly check of mass of drums also shall be done in addition to weighment of bags mentioned in para 7.3 above. The records of weighments shall be maintained in Forms 12 and 14.

8. RAW MATERIALS

8.1 Routine analysis of various raw materials used in the manufacture of Portland Pozzolana cement shall be made at intervals of a month or whenever there is a change in the source/mine area stratification whichever is earlier and appropriate records of the analysis and of the Physical composition of the mixtures shall be maintained in Form 2. This analysis is not applicable for Packing Units of Portland Pozzolana Cement at bulk cement terminal**.**

9. In respect of all other clauses of the specification the factory will maintain appropriate control and checks to ensure that their product conforms to the various requirements of this specification.

10. HOMOGENEITY

10.1 Homogeneity of the mixture in a consignment shall be guaranteed within the stipulated percent of Pozzolana addition. Percentage of addition of Pozzolana (to be given individually for each Pozzolana added) shall be marked on the bags/package accordingly.

11. REJECTIONS

11.1 A separate record shall be maintained giving information relating to the rejection of the production not conforming to the requirements of the specification and the method of its disposal. Such material shall in no circumstances be stored together with that conforming to the specification.

12. PACKING

12.1 The Cement shall be packed in bags specified in clause 10 of IS 1489(Part-2) : 2015. A test certificate either from the manufacturer or from any recognized testing laboratory shall be received along with each consignment. Alternatively the samples of bags from each consignment shall be tested by the cement manufacturer either in his own laboratory or any other BIS recognized laboratory before they are used for packing cement. No testing would be necessary if the bags carry BIS Certification Mark. The bag shall be in good condition at the time of packing.

13. SAMPLES

13.1 The licensee shall supply, free of charge, the samples required in accordance with the Bureau of Indian Standards (Certification) Regulations, 1988, as subsequently amended, from the factory or godown. BIS may draw samples from the open market, if available.

14. REPLACEMENT

14.1 Whenever a complaint is received soon after the goods with Standard Mark have been purchased and used, and if there is adequate evidence that the goods have not been misused, defective goods shall be replaced free of cost by the licensee in case the complaint is found to be genuine and the warranty period (where applicable) has not expired. The final authority to judge the conformity of the product to the Indian Standard shall be with BIS.

14.2 In the event of any damage caused by the goods bearing the Standard Mark, or any claim being filed by the consumers against BIS Standard Mark and not "conforming to" the relevant Indian Standard, entire liability arising out of such non-conforming product shall be of the licensee and BIS shall not in any way be responsible in such cases.

15. STOP MARKING

15.1. The marking of the product shall be stopped under intimation to BIS if, at any time, there is some difficulty in maintaining the conformity of their product to the Specification, or the testing equipment goes out of order or due to any other reason. The marking may be resumed as soon as the defects are removed under intimation to BIS

15.2 The marking of the product shall be stopped immediately if directed to do so by BIS for any reason. The marking may then be resumed only after permission by BIS. The information regarding resumption of marking shall also be sent to BIS.

15.3 If bulk packing unit is instructed by the BIS to stop marking due to the failure of the samples, such instruction will automatically apply to the manufacturer of the cement, as per relevant stop marking guidelines. An undertaking to this effect is to be obtained from the bulk packers and the cement manufacturer.

16. PRODUCTION DATA

16.1 The licensee shall send to BIS a statement of quantity produced, marked and exported by him and the value thereof at the end of each operative year of the licence as per the enclosed proforma which has to be authenticated by a Chartered Accountant.

---Table 1---

Table 1 Level of control (Raw material)

Sl No.	TEST DETAILS				LEVELS OF CONTROL
	Clause	Requirement	Test Method Reference	Frequency	Remark
(1)	(2)	(3)	(4)	(5)	(6)
i)	4.1	Pozzolana	IS 1727	One sample per week	Calcined clay Pozzolana shall conform to IS 1344, and Fly ash shall conform to IS 3812(Pt- 1).
ii)	4.2	Portland Cement Clinker	IS 4032 IS 4031	Daily composite sample	Portland Cement Clinker shall conform to IS 16353
iii)	4.3	Ordinary Portland Cement	IS 269	-	OPC shall be ISI marked and shall be accompanied with manufacturer certificate. If OPC is produced in the same factory, records as per relevant STI shall be maintained.

Table 2 – Levels of Control (Grinding/Blending Unit)

TEST DETAILS			LEVELS OF CONTROL		
Clause	Requirement	Reference	Cement Grinding/Blending	Cement Packing	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
6,Table 1	**Chemical requirement as per IS 1489 (Part 2)**				
i)	Insoluble Residue	IS 4032	Daily Composite sample	-	
ii)	Magnesia	IS 4032	-do-	-	
iii)	Sulphuric anhydride (SO_3)	IS 4032	-do-	-	
iv)	Loss on Ignition	IS 4032	-do-	-	
v)	Chloride Content	IS 4032	-	Weekly composite sample	This test shall also be carried out whenever there is any change in source of any raw material.
vi)	Alkali Content	-	-	-	Pl see note under table 1 of IS1489 (Part 2) : 2015.
7,Table 2	**Physical requirement as per IS 1489 (Part 2)**				
i)	Fineness	IS 4031 (Part 2)	1. Every alternate hourly from each mill/ blender separately. 2. Daily Composite sample	Daily Composite sample	

ii)	Soundness (Le-Chatelier method and Autoclave method)	IS 4031 (Part 3)	Daily Composite sample	-do-	
iii)	Setting Time	IS 4031 (Part 5)	One sample per shift (Composite sample).	-do-	
iv)	Compressive strength	IS 4031 (Part 6)	Daily Composite sample	-do-	
v)	Transverse strength (Optional)	IS 4031 (Part 8)	Weekly composite sample	Weekly composite sample	Pl see Note 3 and 4 under Table 2 of IS 1489 (Part 2)
vii)	Drying shrinkage	IS 4031 (Part 10)	-	Weekly composite sample	

NOTE –

1. Composite sample shall be made out of hourly samples for the required period (Pl See IS 3535 Methods of sampling hydraulic cements).
   If clinker is manufactured from more than one kiln, clinker sample from each kiln shall be tested as per the above table. If clinker is manufactured using different proportion of raw materials such different clinkers shall be tested considering it as separate production.
   If cement is manufactured using same proportion of raw materials from more than one cement mill, sample from each mill shall be tested for fineness as per the above table. For all other parameters composite samples from all the mills shall be tested.
   If cement is manufactured using different proportion of raw materials from more than one cement mill, sample from each mill shall be tested for all requirements as per the above table.
   If blending of ingredients is adopted, sample at 'Cement blending stage' shall be drawn after blending all such ingredients.
2. For manufacturing units where there is no packing silo and cement is packed directly from cement grinding /blending stage, the frequency of tests specified for cement grinding stage would apply for the various tests to be carried out on samples taken from cement mill spouts along with weekly chloride content test.
3. Limit of additives shall be as given in clause 5 of the standard.

Table 3 Level of Control (Bulk Packing Unit)

TEST DETAILS			LEVELS OF CONTROL	
Clause	Requirement	Test Methods Reference	Frequency	Remarks
(1)	(2)	(3)	(4)	(5)
6, Table 1 (i)	Insoluble Residue	IS 4032	One sample from each batch	To be tested in laboratory at bulk terminal packing unit.
6, Table 1 (iv)	Loss on Ignition	-do-	-do-	-do-
7, Table 2 (i)	Fineness	IS 4031(Part 2)	-do-	May be tested at bulk terminal packing unit or got tested from a pre-declared approved testing laboratory if in house test facilities are not available
7, Table 2(ii)	Soundness	IS 4031(Part 3)	-do-	-do-
7, Table 2 (iii)	Setting Time	IS 4031(Part 5)	-do-	-do-
7, Table 2 (iv)	Compressive strength	IS 4031(Part 6)	-do-	-do-

Form No. 1

FORMAT FOR MAINTENANCE OF TEST RECORDS WEIGHMENT CONTROL AT PACKING STAGE

Date	Shift	Time (Hourly)	No. of Bags	Net mass of bags from nozzles							Remark.

Form No. 2

RAW MATERIAL TESTING

Date of receipt of material	Date of testing	Name of Material	Source of supply and consignment No.	Details of analysis for specified requirements

Form 3

PRODUCTION DATA

(POST GRINDING DETAILS OF PRODUCTIONACCEPTED AND REJECTES FOR STANDARD MARK)

Shift	Quantity	Passed for Standard mark	Rejected	Remark

Form No. 4 A

Pozzolana (One sample per week), Fly ash Pozzolana (If used), Column 5 of Table 1

Date	CHEMICAL								PHYSICAL				
	$SiO_2 + Al_2O_3 + Fe_2O_3$	SiO_2	Reactive Silica	MgO	SO_3	Na_2O	Total Chloride	LOI	Fineness	Lime Reactivity	Comp Strength at 28 Days	Soundness by autoclave	Particle retained on 45 µ sieve (Optional)

Form No. 4 B

Pozzolana (One sample per week), Calcined Clay Pozzolana, Column 5 of Table 1

Date	Fineness	Lime Reactivity	Comp Strength at 28 Days	Drying Shrinkage

Form No. 5

CLINKER CHEMICAL COMPOSITION (DAILY COMPOSITE SAMPLE)

Date of manufacture	Total loss on ignition	Insoluble residue	SiO_2	CaO	Al_2O_3	Fe_2O_3	SO_3	MgO	LSF	Alumina factor	Sample Pass/Fail	Remarks

Form No. 6

CLINKER GROUND WITH GYPSUM (DAILY COMPOSITE SAMPLE)

Date of grinding	Fineness	Soundness		Setting time		Compressive strength			Sample Pass/Fail	Remark
		Lechatelier	Autoclave	Initial	Final	3 days	7 days	28 days		

Form 7

CLINKER GROUND WITH GYPSUM & POZZOLANA

Date of grinding	Fineness	Soundness		Setting Time		Compressive strength			Drying Shrinkage	Sample Pass /Fail	Mode of disposal or action taken if sample fails
		Lechatelier	Autoclave	Initial	Final	3 days	7 days	28 days			

Form 8

PORTLAND POZZOLANA CEMENT/GRINDING/BLENDING (Daily/Weekly Composite sample)

Date of grinding	LOI	MgO	IR	SO_3	Fineness	Soundness (Le-chatelier &Autoclave)	Setting Time Initial & Final	Compressive strength	Drying Shrinkage	Sample Pass/Fail	Action taken if sample fails

Form No 9

PORTLAND POZZOLANA CEMENT GRINDING (For Alternate Hourly Sample)

Date of grinding	Time	Fineness	Setting Time Initial & Final	Sample Pass/Fail	Mode of disposal or action taken if sample fails

Form No 10

PORTLAND POZZOLANA CEMENT PACKING STAGE (Daily/Weekly Composite Sample)

Date of Packing	LOI	MgO	IR	SO_3	Chloride Content (Weekly)	Fineness	Soundness (Lechatelier &Autoclave)	Setting Time Initial & Final	Compressive strength	Drying Shrinkage	Sample Pass/ Fail	Mode of disposal or action taken if sample fails

Form No 11
CALIBRATION

Sl. No	Date of calibration	Result of Calibration (Test records indicating details of standard values and observed values for each equipment to be kept in proforma for which various columns be devised; as required)	Name of equipment Action taken if equipment found defective	Sl.No. (If any) Remarks

Note : The above records are to be kept separately for each equipment.

RECORDS TO BE MAINTAINED AS PER TABLE 3 OF STI (BY BULK PACKING UNIT)

Form No. 12
FORMAT FOR MAINTENANCE OF TEST RECORDS WEIGHMENT CONTROL AT PACKING STAGE
HOURLY CHECK OF MASS OF DRUMS

Date	Time (Hourly)	Condition of Drums	Net quantity of cement	Record of calibration of weighing scale and Date of calibration.

Form No. 13
FORMAT FOR MAINTENANCE OF RECORDS FOR THE CONDITIONS OF THE EMPTY DRUMS/BULKERS FOR PACKING CEMENT

Date	No. of empty drums/Bulkers checked	No. of empty drums/Bulkers rejected	Reasons/Remarks	Sign of firms inspector

Form No.14
FORMAT FOR MAINTENANCE OF TEST RECORDS WEIGHMENT CONTROL AT PACKING STAGE
HOURLY CHECK OF MASS OF BAGS

Date	Shift	Time (Hourly)	No of Bags	Net quantity of Bags from Nozzles	Records of calibration/date of calibration of nozzles

Form No. 15
RECEIPT OF CEMENTS

Date of receipt	Batch No.	Supply received from	Test Certificate No

Form No.16

CEMENT DESPATCH DATA FROM PACKING

Date	Quantity	Passed for Standard Mark	Rejected (if any)	Reasons for not marking/Method of disposal

Form No. 17 & 18

TEST DONE AT FACTORY (At receipt stage and at bulk packing terminal)

Date	Batch No.	LOI	IR	Sulphide Sulphur (S)	Fineness	Setting Time	Remarks

Form No 19 & 20

PORTLAND POZZOLANA CEMENT (PHYSICAL TEST REPORT) (At receipt stage and at bulk packing terminal)

Date	Batch No.	Test Report	Soundness		Compressive Strength			Remarks
			LC	AC	3 days	7 days	28 days	

PROFORMA FOR OBTAINING PRODUCTION DETAILS

Period covered	
Name of Licensee CM/L No.	
Name of Articles (s)	IS No.
Grade/Type/Size/Variety/Class/Rating	
Brand/Trade/Name(s) of Product covered under BIS Certification Mark	
Total production of the articles(s) licensed for certification marking	
Total production of the article(s) conforming to Indian Standard	
Production covered with BIS Certification Mark and its Value : a) Quantity b) Value (Rs.)	
Brand Name used on production covered under BIS Certification Mark	
Calculation of marking fee on unit-rate basis; Marking Fee per unit a) Unit b) Quantity covered with BIS Certification Mark c) Marking fee rounded off in whole rupees as obtained by applying unit rates given in (a) on quantity given in (b) **NOTE:** In case a clause is not applicable, suitable remarks may be given against it	
Quantity not covered with BIS Certification Mark, if any.	
Reasons for such non-coverage	
Brand Name under which non-ISI goods were sold	
Quantity exported with BIS Standard Mark and its value	
Brand Name under which BIS Certified goods are exported	
Authentication by Chartered Accountant	