PRODUCT MANUAL FOR
PORTLAND POZZOLANA CEMENT – FLY ASH BASED
ACCORDING TO IS 1489 (PART 1): 2015

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	**Product**	:	IS 1489 (PART 1) : 2015
	Title	:	PORTLAND POZZOLANA CEMENT – FLY ASH BASED
	No. of Amendments	:	1
2.	**Sampling Guidelines:**		
a)	**Raw material**	:	a) Ordinary Portland Cement – IS 269 b) Clinker – IS 16353 c) Fly ash – IS 3812 (Part 1)
b)	**Grouping guidelines**	:	Not applicable
c)	**Sample Size**	:	PPC – Fly ash based – 8 kg for physical test 1 kg for chemical test Conformity of Raw material per the relevant Indian Standard shall be ensured at the time of GoL/CSoL.
3.	**List of Test Equipment**	:	Please refer ANNEX – A
4.	**Scheme of Inspection and Testing**	:	Please refer ANNEX – B
5.	**Possible tests in a day :**		
	(i) Insoluble Residue (ii) Loss of ignition (iii) Fineness (iv) Setting time		
6.	**Scope of the Licence :**		
	"Licence is granted to use Standard Mark on Portland Pozzolana Cement – Fly ash based as per IS 1489 (Part 1): 2015".		
	Any other aspect required as per the Standard		Transverse strength test is optional test as per agreement between purchaser and manufacturer.

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ANNEX A

List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl No.	Tests used in with Clause Reference	Test equipment
1	Fineness Clause 7 Table 2	Blaine's apparatus variable flow type
		Stop watch with start-stop mechanism
		Mercury for calibration
		Balance, Standard weights
		Standard Cement
		Manometer liquid (di-butyl phthalate or light mineral oil.)
		Mercury of reagent grade or better, Pyknometer
		Circular discs of filter paper of medium porosity (mean pore diameter 7 μ).
		Le-Chatelier's flask
		Constant temperature water bath to maintain temp. within ± 0.1 ° C
2	Soundness by Autoclave Clause 7 Table 2	Auto clave machine with thermostatic control to maintain pressure of 2.1 MPa for 3 hrs, pressure to be attained within 1-1 ¼ hrs; L-Shape thermometer LC 1 °C
		Pressure gauge 0-42 kg/cm^2 LC = 0.4 kg/cm^2
		Humidity chamber with temperature & RH control 27 ± 2 °C, RH 90 to 100 %
		Standard bar 308 mm, max
		Bar moulds 25 x 25 x 282 mm
		Length comparator with dial gauge
		Mineral oil for covering moulds
3	Soundness by Le-chatelier Method Clause 7 Table 2	Le-Chatelier's water bath preferably with thermostatic control raising temperature from 27 ± 2 ^{0} C to boiling in 27 ± 3 minutes
		Le-Chatelier's moulds with weights and cover glasses minimum 8 nos.
		Humidity chamber with temperature & RH control 27 ± 2 ^{0} C, RH 90 to 100 %
		Steel scale 12" (304.8 mm)

4	Setting time Clause 7 Table 2	Vicat apparatus
		Needle for Consistency, IST& FST testing
		Moulds
		Stop Watch
		Balance – 1000 g ± 0.1 g and Standard Weights 1 mg to 500 gm
		Gauging trowel of weight 210 ± 10 g
5	Compressive Strength Clause 7 Table 2	Vibration machine with timer & cube mould fitting assembly 12000 ± 400 vibration per min.
		Compressive Strength machine
		Poking Rod , Petroleum Jelly
		Proving ring with all accessories suitable for calibration of CST machine
		Tachometer
		Cube Moulds 70.6 × 70.6 mm, Poking rod
		Gauging trowel (210 ± 10 g) gauging plate, stainless steel(non-perforated)
		Standard sand grade 1, 2 and 3 (as per IS 650)
		Curing tank of appropriate size with water circulation arrangement
		Graduated glass cylinders 150 to 200 ml
		Humidity chamber with temperature & RH Control 27 ± 2° C, RH 90 to 100 %
6	Transverse Strength Test Clause 7, Table 2	Moulds
		Planetary Mixer, Standard Sand
		Jolting Apparatus, Scraper, Demolding device as per IS 4031 (Part 8)
7	Drying shrinkage Clause 7, Table 2	Balance with weights Trowel Length comparator Flow table and Accessories Beam mould- 25 x 25 x 282 mm Humidity and Temperature control cabinet.
8	IS 1489 (Part 1) : 2015	**General equipments for Cement testing**
a)	To control humidity & temperature in lab	1. Humidity chamber with temperature & RH control 27 ± 2 °C, RH 90 to 100 % 2. Suitable arrangement to demonstrate maintenance of temp. of 27 ± 2 ° C & RH 65 ± 5% constantly

b)	For cement Sampling	Mixing trays –adequate size including trays of 24 partitions for keeping hourly samples
c)	To control the residue of cement	Sieves of size (300, 212, 150, 90, 75 & 45µ)
d)	To measure temperature	Thermometers
e)	Lab ball mill (motorized)	To grind the clinker, slag & gypsum sample in lab ball mill for testing
f)	To weigh the material	1. Platform type balance 2. Electrical balance 3 Weight box with weights (1 mg - 500 g)
9	**General test equipments for chemical testing Clause 6 , Table 1 of IS 1489 (Part 1) : 2015**	
		Muffle Furnace with thermostatic control, Range 0 – 1200° C
		Oven with thermostatic control 0-300° C
		Heater and hot plate
		Distillation Assembly
		Crucible: Platinum or Porcelain / silica
		Filter paper (no 1,40,41,42)
		Desiccators with cover & Desiccant
		Water bath
		pH meter/paper
		Glassware - volumetric flask -0-250 ml, beaker 0-250 ml, measuring cylinder 0-50,100,500, 1000 ml, burette 0-25/50 ml, conical flasks- 0-250 ml, Pipette 0-5,10, 25, 50 ml
		All chemicals required for complete chemical analysis of cement
		Tongs including platinum tipped tong
		Wire gauge with asbestos sheet at the middle
		Washing bottle
		Mortar mixer- 4.75 l Glass thermometer
		All required chemicals as per IS 4032 for Portland Pozzolana cement, Ordinary portland cement and Portland clinker testing.

10	**Fly ash testing [clause 4.1 of IS 1489 (Part 1) : 2015 and IS 3812 (Part 1) : 2013]**	
	Chemical Test	Chemicals and glassware as per IS 1727 and IS 4032, Flame photometer
	Loss on ignition	Muffle furnace Crucible (Silica /Platinum) Weighing balance
	Fineness	Blain Apparatus Permeability cell , Disk, Plunger, Filler paper U-Tube manometer with manometer liquid Stop watch with Stop-Start mechanism Standard sample Mercury for calibration Pycnometer, Thermometer
	Residual on 45µ sieve	45µ sieve Balance Oven
	Soundness by autoclave	Same as cement above
	Lime reactivity	50 mm cubes moulds Planetary mixer , paddle, mixing bowl, scrapper Flow table and Accessories Tamping rod Trowel etc
	Compressive strength	50 mm cube moulds Planetary mixer , paddle, mixing bowl, scrapper Flow table and Accessories Tamping rod Trowel etc

The above list is indicative only and may not be treated as exhaustive.

ANNEX B

SCHEME OF INSPECTION AND TESTING

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments. 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.

2. TEST RECORDS – The manufacturer shall maintain test records in various formats, Form 1 to Form 20 for the tests carried out to establish conformity.

3. LABELLING AND MARKING – Labeling and marking shall be as given below:

3.1 STANDARD MARK - The Standard Mark, as specified by BIS, shall be printed or stenciled on each bag or drum of Portland Pozzolana Cement – Fly ash based 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 **160 x 120** mm or **80 x 60** mm for packing in quantity of 50 kg and above. For other packing of lower quantity, a photographic reduction is permitted.

3.2 MARKING - As per the requirements of IS 1489 (Part 1): 2015.

3.2.1 In addition to above, following marking shall also be marked:

a) Name of original manufacturer of cement with BIS licence number in case of repacking unit.

b) Any other marking required under provisions of Legal Metrology Act, 2009 and Legal Metrology (Packaged Commodities) Rules, 2011 framed thereunder.

3.2.2 All the information including BIS Standard Mark except Manufacturers Registered Trade Mark shall be applied on each bag in RED COLOUR.

3.2.3 Marking of variable parameters on cement bags which are changing with production schedule and done online (such as Date of manufacturing/Week number/Batch number, MRP, Percentage of addition of Pozzolana) is permitted in BLACK COLOUR. However, all such marking shall be conspicuous.

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 3.1 and 3.2 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. The colour of the bag and background colours should be in contrast to the colour of the Standard Mark and the details so that the markings are conspicuous.

4. CONTROL UNIT –

4.1 For manufacturing units of Portland Pozzolana Cement: The tests, as indicated in Table 1 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.

4.2 For packing of Portland Pozzolana Cement at bulk cement terminal: The tests, as indicated in Table 2 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.

4.2.1 For bulk packing units as per clause 4**.2**, all cement of one consignment received shall constitute one batch.

4.2.2 Batch mixing may be permitted for packing units, which are extended packing terminals of the same cement manufacturer (licensee) subject to packing units obtaining test certificates from the manufacturer and keeping proper records. If the cement is received from different units of the same manufacturer (different licensees) batch mixing of cement is not permitted. 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. Adequate care shall be taken to avoid spoilage during handling, packing and storage.

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

4.2.4 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.

4.3 WEIGHMENT – One filled bag from each nozzle shall be taken at random twice in each shift of operation and weight checked in case of electronic packers with recorders. In all other cases one filled 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 1) : 2015. Such adjustments for each nozzle shall be recorded in Form 1 under remarks column.

4.3.1 For packing of Portland Pozzolana Cement in bulk cement terminal weighment of hourly check of mass of drums also shall be done in addition to weighment of bags mentioned in para 4.3 above. The records of weighments shall be maintained in Forms 12 and 14.

4.4 RAW MATERIALS

4.4.1 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**.**

4.5 HOMOGENEITY - Homogeneity of the mixture in a consignment shall be ensured within the stipulated percent of fly ash addition. Percentage of Pozzolana addition shall be declared every time and marked on the bags/package.

4.6. **PACKING** - The Cement shall be packed in bags as specified in clause 10 of IS 1489 (Part 1): 2015. A test certificate either from the manufacturer or from any recognized testing laboratory shall be received along with each consignment of bags. 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.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with clause 2 above.

5.1. PRODUCTION DATA - 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 quarter of the operative period as per the enclosed proforma and shall also submit these details to BIS at the end of the operative year duly authenticated by a Chartered Accountant.

6. REJECTIONS – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

Table 1 – Levels of Control (Grinding/Packing Unit)

(1)				(2)	(3)			
TEST DETAILS				**Test equipment requirement R: required (or) S: Sub-contracting permitted**	**RECOMMENDED LEVELS OF CONTROL**			
Clause	**Requirement**	**Test Methods Clause Reference**			**Number of sample**	**Frequency**		**Remark**
						Cement Grinding/Blending	**Cement Packing**	
4.1	Pozzolana	4.1	IS 1489 (Part 1) IS 1727	R	One	One sample shall be tested from each supplier once in a week as per IS 3812 (Part 1). No further testing required if accompanied with test certificate or ISI marked.		
4.2	Portland Cement Clinker	4.2	IS 1489 (Part 1) IS 4031 IS 4032	R	One	Daily composite sample shall be tested for complete requirement as per IS 16353. No further testing required if accompanied with test certificate or ISI marked.		
4.3	Ordinary Portland Cement	4.3	IS 1489 (Part 1) 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 SIT shall be maintained.		
6 Table 1	**Chemical Requirement**							
i)	Insoluble residue	6	IS 1489 (Part 1) IS 4032	R	One	Daily Composite sample	Weekly composite sample	-
ii)	Magnesia	6	IS 1489 (Part 1) IS 4032	R	One	Daily Composite sample	Weekly composite sample	-
iii)	Total Sulphur content calculated as sulphuric anhydride (SO_3)	6	IS 1489 (Part 1) IS 4032	R	One	Daily Composite sample	Weekly composite sample	-
iv)	Loss on ignition	6	IS 1489 (Part 1) IS 4032	R	One	Daily Composite sample	Weekly composite sample	-
v)	Chloride Content	6	IS 1489 (Part 1) IS 4032	R	One	-	Weekly composite sample	This test shall also be carried out whenever there is any change in source of any raw material.

vi)	Alkali Content	6	-	S	One	-	-	Pl see note under Table 1 of IS 1489 (Part 2) : 2015.
7, Table 2	**Physical Requirement**							
i)	Fineness	7	IS 1489 (Part 1) IS 4031 (Part 2)	R	One	1. Every alternate hourly from each mill separately. 2. Daily Composite sample	Daily Composite sample	-
ii)	Soundness (Le-Chatelier method and Autoclave method)	7	IS 1489 (Part 1) IS 4031(Part 3)	R	One	Daily Composite sample	Daily Composite sample	-
iii)	Setting Time	7	IS 1489 (Part 1) IS 4031 (Part 5)	R	One	One sample per shift (Composite sample)	Daily Composite sample	-
iv)	Compressive strength	7	IS 1489 (Part 1) IS 4031 (Part 6)	R	One	Daily Composite sample	Daily Composite sample	-
v)	Transverse strength (Optional)	7	IS 1489 (Part 1) IS 4031(Part 8)	S	One	Weekly composite sample	Weekly composite sample	-
vi)	Drying shrinkage	7	IS 1489 (Part 1) IS 4031(Part 10)	R	One	-	Weekly composite sample	

NOTES –

1. Composite sample shall be made out of hourly samples for the required period (Pl see IS 3535 Methods of sampling hydraulic cements).
   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.
2. For manufacturing units where there is no packing silo and cement is packed directly from cement grinding, 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.

Table 2 Level of Control (Bulk Packing Unit)

(1)				(2)	(3)		
TEST DETAILS				**Test equipment requirement R: required (or) S: Sub-contracting permitted**	**RECOMMENDED LEVELS OF CONTROL**		
Clause	**Requirement**	**Test Methods Clause Reference**			**Number of samples**	**Frequency**	**Remarks**
6 , Table 1 (i)	Insoluble Residue	6	IS 1489 (Part 1) IS 4032	R	One	Each batch	To be tested in laboratory at bulk terminal packing unit.
6, Table 1 (v)	Loss on Ignition	6	IS 1489 (Part 1) IS 4032	R	One	Each batch	
7, Table 2 (i)	Fineness	7	IS 1489 (Part 1) IS 4031(Part 2)	S	One	Each batch	-
7, Table 2 (ii)	Soundness	7	IS 1489 (Part 1) IS 4031(Part 3)	S	One	Each batch	
7, Table 2 (iii)	Setting Time	7	IS 1489 (Part 1) IS 4031(Part 5)	S	One	Each batch	
7, Table 2 (iv)	Compressive strength	7	IS 1489 (Part 1) IS 4031(Part 6)	S	One	Each batch	

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 PRODUCTION ACCEPTED AND REJECTED FOR STANDARD MARK)

Shift	Quantity	Passed for Standard mark	Rejected	Remark

Form No. 4

Pozzolana (One sample per week) Fly ash Pozzolana

Date	CHEMICAL								PHYSICAL				
	$SiO_2 + Al_2O_3 + Fe_2O_3$	SiO_2	Reactive Silica	MgO	Total Sulphur as SO_3	Available alkali as 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. 5

CLINKER CHEMICAL COMPOSITION (DAILY COMPOSITE SAMPLE)

Date of manufacture	Total loss on ignition	Insoluble residue	Alkali content as Na_2O @	C_3S	C_3A	C_3S+C_2S	SO_3	MgO	Chloride	Free lime	LSF	Alumina factor	Sample Pass/Fail	Remarks

@ Alkali content test may be conducted as and when required by purchaser

Form No. 6

CLINKER GROUND WITH GYPSUM (DAILY COMPOSITE SAMPLE)

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

Form 8

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

Date of grinding	IR	MgO	Total Sulphur calculated as SO_3	LOI	Chloride Content	Alkali content @	Fineness	Soundness (Le-chatelier & Autoclave)	Setting Time Initial & Final	Compressive strength	Transverse Strength	Drying Shrinkage	Sample Pass/Fail	Action taken if sample fails

@ Alkali content test may be conducted as and when required by purchaser

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	IR	MgO	Total Sulphur calculated as SO_3	LOI	Chloride Content	Alkali content @	Fineness	Soundness (Le-chatelier & Autoclave)	Setting Time Initial & Final	Compressive strength	Transverse Strength	Drying Shrinkage	Sample Pass/ Fail	Mode of disposal or action taken if sample fails

@ Alkali content test may be conducted as and when required by purchaser

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-2 OF SIT (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 DISPATCH 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	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	

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.
Note-2: The control unit and levels of control as decided by the Bureau are obligatory to which the licensee shall comply with.