



PM/ IS 11890/ 1/ Nov 2023

**PRODUCT MANUAL FOR
Specification for High Purity Primary
Aluminium Ingots for Remelting for Special
Applications according to IS 11890:1987**

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 11890:1987
	Title	:	High Purity Primary Aluminium Ingots for Remelting for Special Applications
	No. of amendments	:	0
2.	Sampling Guidelines		
a)	Raw material	:	No specific requirement However, it is to be insured that no scrap shall be used in the production of the material except that which has accumulated during the process of manufacture of the material and which has not been remelted except by the manufacturer.
b)	Grouping Guidelines	:	Please refer Annex – A
c)	Sample Size	:	For Chemical test: 2 pcs of 150 mm x 150 mm Tests for Shapes and Sizes as per clause 7.1 shall be carried out in the factory.
3.	List of Test Equipment	:	Please refer Annex – B
4.	Scheme of Inspection and Testing	:	Please refer Annex – C
5.	Possible tests in a day	:	All tests
6.	Scope of the Licence :		
	Licence is granted to use Standard Mark as per IS 11890:1987 with the following scope:		
	Name of the product	Specification for High Purity Primary Aluminium Ingots for Remelting for Special Applications	
	Grade/Designation	HP Grade 1/ 19950, HP Grade 2/19900, HP Grade 3/19850, HP Grade 4 /19800	

BUREAU OF INDIAN STANDARDS
Manak Bhawan, 9, Bahadur Shah Zafar Marg,
New Delhi – 110002

ANNEXURE A
TO PRODUCT MANUAL FOR
Specification for High Purity Primary
Aluminium Ingots for Remelting for
Special Applications **according to**
IS 11890:1987

GROUPING GUIDELINES

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1) Grouping has been done on the basis of purity of Grades of Aluminium Ingots as under:

Sl. No.	Type	Classification	Grouping
1.	Grade	(a) HP Grade 1 (b) HP Grade 2 (c) HP Grade 3 (d) HP Grade 4	One sample of each Grade shall be drawn for chemical testing only.

2) For testing of Shapes and Sizes (cl. 7), for considering GOL, the above sample of Aluminium Ingot shall be tested in the factory for the requirements specified at Cl. 7. Separate samples are not required to be tested for each shape/size. In case of inclusion, factory test report for the requirements of Shapes and Sizes (cl.7.) shall be accepted for considering inclusion.

3) If the above sample passes, then licence may be granted/inclusion be done for the Grades of the Aluminium Ingots intended to be covered in the licence. However, it shall be ensured that the firm is having all necessary manufacturing and testing facilities for all the Grades of Aluminium Ingots to be included in the licence and all shapes/sizes.

4) During the operation of license, BO shall ensure that all Grades covered in the license are drawn for independent testing on rotation over a period of time.

ANNEXURE B
TO PRODUCT MANUAL FOR
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LIST OF TEST EQUIPMENTS

Major test equipment required to test as per requirements of Indian Standard.

Sl No.	Test Equipment	Test Used in with Clause Reference
1	i. Vernier Caliper ii. Measuring Tape iii. Weighing Scale	Shape and Sizes Cl 7
2	Device for instrumental chemical analysis such as Optical Spectrometer with all requisite channels and Certified/Standard Reference Materials OR Chemicals and Reagents for Chemical method as per IS 504 for each element given below	Chemical Composition, Cl. 6.1
i)	Copper	• Dilute Sulphuric Acid • Hydrofluoric Acid • Hydrogen Sulphide Gas • Hydrogen Sulphide Wash Solution • Dilute Nitric Acid • Concentrated Ammonium Hydroxide • Dilute Ammonium Hydroxide Wash Solution • Citric Acid Solution • Sodium Diethyl-Dithiocarbamate Solution • Carbon Tetrachloride • Sodium Sulphate • Standard Copper Solution • Silica Basin • Analytical Balance • Ashless Paper Pulp • Filter Papers • Platinum Crucible • Heating Apparatus/Burner • Photometer
ii)	Silicon	• Sodium Hydroxide Solution • Hydrogen Peroxide • Concentrated Sulphuric Acid • Sulphuric Acid-Perchloric Acid Mixture

		• Perchloric Acid Solution • Concentrated Nitric Acid • Sulphurous Acid • Dilute Sulphuric Acid • Concentrated Hydrochloric Acid • Ammonium Acetate Solution • Dilute Hydrochloric Acid- • Hydrofluoric Acid • Analytical Balance • Ashless Paper Pulp • Filter Papers
iii)	Iron	• Concentrated Sulphuric Acid • Concentrated Hydrochloric Acid • Concentrated Nitric Acid • Dilute Sulphuric Acid • Hydrofluoric Acid • Potassium Bisulphate • Hydrogen Sulphide Gas • Hydrogen Sulphide Wash Solution • Potassium Permanganate Solution • Potassium Thiocyanate Solution • Standard Titanous Chloride Solution • Analytical Balance • Platinum Crucible • Heating Apparatus/Burner • Magnet • Ashless Paper Pulp • Filter Papers
iv)	Manganese	• Concentrated Nitric Acid • Sodium Bismuthate • Sulphurous Acid • Dilute Nitric Acid • Phosphoric Acid • Standard Ferrous Ammonium Sulphate Solution • Standard Sodium Oxalate Solution • Standard Potassium Permanganate Solution • Analytical Balance • Asbestos Gooch Crucible • Heating Apparatus/Burner
v)	Zinc	• Concentrated Sulphuric Acid • Concentrated Hydrochloric Acid • Dilute sulphuric acid • Hydrogen Sulphide gas • Hydrogen Sulphide Wash Solution • Tartaric Acid Solution • Concentrated ammonium hydroxide

		• methyl red indicator solution • Formic Acid • Ammonium Sulphate • dilute hydrochloric acid • concentrated nitric acid • methylated spirit • mercuric potassium thiocyanate solution • Chloroform • Standard Zinc Solution • Standard Potassium Iodate Solution • Sintered-Glass Crucible • Drying Oven • Weighing Balance • Ashless Paper Pulp • Filter Papers
vi)	Titanium	• Sodium Hydroxide Solution • Nitric Acid-Sulphuric Acid Mixture • Dilute Sulphuric Acid • Hydrogen Peroxide • Standard Titanium Solution • Filter Papers • Weighing Balance • Heating Apparatus/Burner
vii)	Vanadium	• Potassium Permanganate • N-Cinnamylol 1-N Phenyl Hydroxalmine (CPHA) • Dilute Hydrochloric Acid • Hydrochloric Acid • Chloroform • Dilute Sulphuric Acid • Standard Vanadium Solution • Filter Papers • Hot Plate • Weighing Balance • Heating Apparatus/Burner

viii)	Magnesium	• Sodium Hydroxide Solid • Hydrogen Peroxide • Sodium Carbonate- Solid • Methyl Red • Ammonium Hydroxide • Ammonium Chloride • Hydrochloric Acid • Hydrogen Sulphide- Gas • Ammonium Persulphate • Ammonium Sulphide • Bromine Water • Hydroxyquinoline • Glacial Acetic Acid • Dilute Ammonium Hydroxide • Methyl Orange • Alcohol • Potassium Hydroxide • Potassium Bromide • Potassium Bromate • Potassium Iodide Solution • Soluble Starch • Potassium Iodate • Sodium Thiosulphate • Erlynmeyer Flask • Titration Assembly • Analytical Balance • General Glasswares • Hot Plate • Filter Papers • Sintered Glass Funnel • Burner • Ammoniacal Water
ix)	Gallium	Any Method mutually agreed between the manufacturer and the purchaser

Note: The above is an indicative list for the purpose of guidance only.

ANNEXURE C
TO PRODUCT MANUAL FOR
High Purity Primary Aluminium
Ingots for Remelting for Special
Applications according to
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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 and implement a calibration plan for the test equipment.

2. TEST RECORDS - The manufacturer shall maintain test records for the test carried out to establish conformity.

3. STANDARD MARK - The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L...) shall be incorporated, and the marking shall be done as per the provisions of the Indian Standard, provided always that the product thus marked conforms to all the requirements of the specification.

4. CONTROL UNIT- All Aluminum Ingots representing the same cast, grade and manufactured under the uniform conditions of production in the same place shall constitute a control unit.

5. LEVELS OF CONTROL : The tests as indicated in Table 1 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 paragraph 2 above.

6. TEST CERTIFICATE : For each consignment of BIS Certified material conforming to IS 11890:1987 there shall be a test certificate which shall contain the Standard Mark, the cast/Control Unit number and the corresponding test results (as given in Annexure-I enclosed)

7. 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. Any rejected material which is potentially resalable be sheared or cut or deformed in such a manner that it cannot be used for any other purpose except re-melting. A separate record shall be maintained giving information on quantity and cast number/control unit number, as applicable, relating to all such rejections/defective/substandard material of the production not conforming to the requirements of the Specification and the method of its disposal. Such material shall in no case be stored together with that conforming to the Specification. The Standard Mark (if already applied) on rejected material should be defaced.

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SCHEME OF INSPECTION AND TESTING

TABLE 1: LEVELS OF CONTROL

(1)				(2)	(3)		(4)
TEST DETAILS					<u>LEVELS OF CONTROL</u>		REMARKS
Clause	Requirements	Test Method		Test equipment requirement R: required (or) S: Sub- contracting permitted	No. of Samples	Frequency	
		Clause	Reference				
6.1	Chemical Composition		IS 11890/ IS 504 (Part 1 to 12) and (Part 13 to 16) or Any other established chemical/ instrumental method	R	One	Each cast	---- -
7	Shapes and Sizes	7.1	IS 11890/ IS 1820	R	Adequate inspection to ensure each item conforms to nominal dimensions as agreed between manufacturer and purchaser or as stipulated in the standard.		

Note-1: Whether test equipment is required (R) or sub-contracting (S) is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification.



ANNEXURE-I

(Para 7 of the Scheme of Inspection and Testing

XYZ COMPANY

(Registered office Address and works address)

**TEST CERTIFICATE FOR HIGH PURITY PRIMARY ALUMINIUM INGOTS FOR REMELTING
FOR SPECIAL APPLICATIONS**

TEST CERTIFICATE No. _____

DATE _____

TO M/s _____

We certified that the material described below fully conforms to IS 11890:1987 as tested in accordance with the Scheme of Testing and Inspection contained in the BIS Certification Marks Licence No.CM/L _____ are as indicated below against each order No.

(PLEASE REFER TO IS 11890:1987 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	Nomin al Size	Control Unit No.	Grade	Quantity in tonnes	CHEMICAL COMPOSITION										Shape and Sizes	Remarks
					Al	Cu	Si	Fe	Mn	Mg	Zn	Ti + V	Ga	Other elements (each) %		
					%	%	%	%	%	%	%	%	%			

REMARKS

WAGON NO.

TRUCK NO.

(It is suggested that size A4 paper be used for this test certificate)

FOR XYZ COMPANY