

Indian Standard

TIN INGOT — SPECIFICATION

(Fourth Revision)

1 SCOPE

1.1 This standard covers the requirements for virgin tin in the form of ingot.

1.2 The requirements of refined secondary tin are, however, not covered in this standard and are covered in IS 4280 : 1970 'Refined secondary tin (first revision)'.

2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

IS No.	Title
1387 : 1967	General requirements for supply metallurgical materials (first revision)
1817 : 1961	Methods of sampling non-ferrous metals for chemical analysis
1940 : 1969	Methods of chemical analysis of tin ingots (first revision)

3 GRADES

This standard covers two grades of virgin tin, namely Sn 99.85 and Sn 99.75.

4 SUPPLY OF MATERIAL

General requirements relating to the supply of tin ingots shall conform to IS 1387 : 1967.

5 MANUFACTURE

Tin shall be produced from the ore.

6 CHEMICAL COMPOSITION

6.1 Two grades of tin ingots covered in this standard shall conform to the chemical composition as given in Table 1.

6.2 The chemical analysis shall be done either by the methods specified in IS 1940 : 1969 or any other established instrumental/chemical method. In case of dispute the procedure specified in IS 1940 : 1969 shall be the referee method.

7 FREEDOM FROM DEFECTS

Each ingot shall be free from inclusions and other harmful defects.

Table 1 Chemical Composition of Tin Ingot
(Clause 6.1)

Constituent	Requirement	
	Grade Sn 99.85 Percent	Grade Sn 99.75 Percent
(1)	(2)	(3)
Tin, Min	99.85	99.75
Lead, Max	0.04	0.08
Antimony, Max	0.04	0.08
Bismuth, Max	0.04	0.08
Copper, Max	0.04	0.05
Arsenic, Max	0.04	0.05
Iron, Max	0.01	0.01
Total impurities, Max (including lead, antimony, bismuth, copper, arsenic and iron)	0.15	0.25

8 SAMPLING

8.1 Unless otherwise agreed to between the purchaser and the manufacturer, one ingot shall be selected from each consignment of 1 000 kg or part thereof representing one grade of metal produced under uniform conditions of manufacture and offered for inspection at one time.

8.2 The method of preparing samples for chemical analysis from ingots selected under 8.1 shall be in accordance with IS 1817 : 1961.

9 RETEST

If the sample prepared under 8.2 and tested for chemical composition fails to meet the requirements specified under 6.1, two more tests shall be conducted on the same sample in order to confirm that the analysis has been done properly. If both the test results satisfy the relevant requirements, the lot shall be accepted. Should either of the retests fail, the lot represented shall be deemed as not complying with this standard.

10 INSPECTION

All inspection and testing of material described in this standard shall be carried out by the manufacturer unless otherwise agreed to between the manufacturer and the purchaser. The inspection requirements shall be stated in the enquiry and order.