

TIN



# Indian Minerals Yearbook 2015

(Part- II : Metals & Alloys)

**54<sup>th</sup> Edition**

**TIN**

**(FINAL RELEASE)**

**GOVERNMENT OF INDIA  
MINISTRY OF MINES  
INDIAN BUREAU OF MINES**

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# 17 Tin

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**T**in is one of the earliest metals known and used mainly in bronze implements. It is a scarce element having an incidence of about 2 ppm in the earth's crust. Its unique combination of properties like non-toxic nature, high malleability, chemical inertness and ease with which it can form an amalgam and alloy with other metals has given it a special status among non-ferrous metals. Pure tin is a silvery-white metal which is soft and malleable. It does not occur naturally as metal. By far, the most important tin mineral is cassiterite ( $\text{SnO}_2$ ), which, in its purest form contains 78.6% tin. The less common tin ore is stannite ( $\text{Cu}_2\text{SnFeS}_4$ ). Tin is now used mostly for tin plating, soldering special alloys and in making bronze.

## RESOURCES

Tin occurs in primary as well as secondary (alluvial or placer) forms. Occurrences of tin in primary as well as secondary forms have been reported from Bihar, Chhattisgarh, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Odisha, Rajasthan and West Bengal. However, the only workable economic deposits in the form of alluvial or placer deposits occur in Bastar and Dantewada districts of Chhattisgarh. Tin in primary form as disseminations in the gneisses and schists of Koraput district, Odisha is another source of economic importance.

The total resources of tin ore in the country as per UNFC system, as on 1.4.2013 are placed at 83.73 million tonnes containing about 1,02,275 tonnes metal. About 6,973 tonnes ore containing 1,181 tonnes metal are placed under 'reserves' category and the bulk i.e. about 83.72 million tonnes containing about 1,01,094 tonnes metal are placed under 'remaining resources' category. The entire ore reserves are located in Chhattisgarh. About 64% of total ore resources are located in Haryana and 36% in Chhattisgarh, while nominal resources are estimated in Odisha (Table-1).

## PRODUCTION, STOCKS & PRICES

### Concentrates

The production of tin concentrates in 2014-15 was at 24,689 kg as against 34,862 kg in the preceding year. One public sector and five private sector mines reported production in 2014-15. These mines are located in Dantewada district of Chhattisgarh.

The mine-head closing stocks of tin concentrates were 8,093 kg in 2014-15 as against 24,718 kg in 2013-14.

The Chhattisgarh Mineral Development Corporation Limited (CMDC) purchases tin concentrates from local tribals, allowing them to collect it from the lease area. Hence, no labour was reported by the mine owned by the CMDC Ltd whereas Precious Minerals and Smelting Ltd employed 34 workers in the current year as against 30 in the previous year on average daily basis.

### Tin Metal

The plant owned by Precious Minerals and Smelting Ltd reported production of 8,674 kg of tin metal in 2014-15 against 22,799 kg in the preceding year. The plant is located at Jagdalpur in Dantewada district of Chhattisgarh.

## MINING

In Govindpal-Tongpal area in Dantewada district, Chhattisgarh, tin in the form of cassiterite is being mined from the sediments deposited in the streams. The stream sediments are dug up manually with conventional implements. Subsequent panning of these sediments helps in separating the lighter gangue minerals while the heavier part is recovered as cassiterite. The CMDC purchases cassiterite concentrate at mutually agreed rates.

**Table – 1 : Reserves/Resources of Tin as on 1.4.2013  
(By Grades/States)**

(In tonnes)

Grade/State	Reserves			Remaining resources						Total resources (A+B)		
	Proved STD111	Probable STD121	Total (A) STD122	Feasibility STD211	Pre-feasibility STD221	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)	
<b>All India : Total</b>												
<b>Ore</b>	4288	976	6973	22592860	2372	31330038	168457	561080	29064387	-	83719193	83726166
<b>Metal</b>	958.26	189.56	1181.19	32230.73	656.84	54033	813.29	231.63	13128.16	-	101093.65	102274.84
<b>By States</b>												
<b>Chhattisgarh</b>												
Ore	4288	976	6973	168	1736	38	168457	559914	29063387	-	29793700	29800673
Metal	958.26	189.56	1181.19	8.3	156.06	0.2	813.29	209.43	13118.16	-	14305.44	15486.63
<b>Haryana</b>												
Ore	-	-	-	22580000	-	31330000	-	-	-	-	53910000	53910000
Metal	-	-	-	32187.8	-	54032.8	-	-	-	-	86220.6	86220.6
<b>Odisha</b>												
Ore	-	-	-	12692	636	-	-	1166	1000	-	15494	15494
Metal	-	-	-	34.63	500.78	-	-	22.2	10	-	567.61	567.61

Figures rounded off.

## TIN

**Table – 2 : Principal producers of Tin Concentrates 2014-15**

Name & address of the producer	Location of the mine	
	State	District
Chhattisgarh State Mineral Dev. Corp. Ltd, Sona Khan Bhawan, Ring Road No.1, Raipur- 492 006 Chhattisgarh .	Chhattisgarh	Dantewada
Precious Minerals and Smelting Ltd, Semi Urban Industrial Estate, Frezerpur, Jagdalpur - 494 001, Chhattisgarh.	Chhattisgarh	Dantewada

**Table – 3 : Production of Tin Concentrates, 2012-13 to 2014-15  
(By State)**

(Quantity in kg; Value in ₹'000)

State	2012-13		2013-14		2014-15(P)	
	Quantity	Value	Quantity	Value	Quantity	Value
<b>India/Chhattisgarh</b>	<b>47774</b>	<b>24962</b>	<b>34862</b>	<b>22791</b>	<b>24689</b>	<b>15198</b>

**Table – 4 : Production of Tin Concentrates, 2013-14 and 2014-15  
(By Sectors/State/District)**

(Quantity in kg; Value in ₹ '000)

State	2013-14			2014-15 (P)		
	No. of mines	Quantity	Value	No. of mines	Quantity	Value
<b>India</b>	<b>6</b>	<b>34862</b>	<b>22791</b>	<b>6</b>	<b>24689</b>	<b>15198</b>
Public sector	1	33275	21558	1	23001	13716
Private sector	5	1587	1233	5	1688	1482
<b>Chhattisgarh</b>	<b>6</b>	<b>34862</b>	<b>22791</b>	<b>6</b>	<b>24689</b>	<b>15198</b>
Dantewada	6	34862	22791	6	24689	15198

**Table – 5 : Mine-head Stocks of Tin Concentrates, 2013-14 & 2014-15  
(By State)**

State	(In kg)	
	2013-14	2014-15(P)
<b>India/Chhattisgarh</b>	<b>24718</b>	<b>8093</b>

**Table – 6 : Production of Tin Metal  
2012-13 to 2014-15**

(Qty in kg; Value in ₹ '000)

Year	Production	
	Quantity	Value
2012-13	13938	15666
2013-14	22799	25717
2014-15(P)	8674	11709

## USES & SPECIFICATIONS

Tin, as a metal, is the most preferred and environment-friendly packing material. Tin plate, a value added flat steel product, is a versatile packaging substrate used in edible oils, paints, pesticides, processed foods, beverages and other industries. As a pure metal, it can be used in storage tanks for pharmaceutical chemical solutions, in capacitors electrodes, fuse-wires, ammunitions, tinned iron sheets to protect victuals, sweets or tobacco, etc. The tin plate is manufactured by depositing tin on iron plate of thickness ranging from 0.17 mm to 0.60 mm. The amount of tin coating on tin plate was earlier as per BIS specification IS:597-1978 for pack-rolled tin plate and pack-rolled black plate which is now inactive. IS 1993:2006 (fourth revision, Reaffirmed Sept. 2011) specifies the requirement for cold reduced electrolytic tin plate. The specifications for tin ingot which is to be used for various purposes is as per IS : 26:1992 (Fourth Revision, Reaffirmed Feb. 2014). There shall be two grades of tin ingot; viz, Sn 99.85% and 99.75%. BIS has prescribed IS : 4280-1992 (Reaffirmed Feb. 2014) for refined secondary tin ingots.

Tin readily forms alloys with other metals to create useful materials, such as solders, bronzes, and fusible alloys. Tin with lead forms an excellent alloy which melts at very low temperature and is used as solders in electronics or as a seal in plumbing. Tin is used in making fusible alloys to be used in safety devices such as fire sprinklers, pressure cookers, boiler plugs and electrical fuses. Powder containing 60% silver, 27% tin and 13% copper when mixed with appropriate quantity of mercury forms excellent dental amalgam to be used for filling dental cavities.

Tin is used in cast iron to improve the microstructure and it results in higher uniform hardness. Tin bronzes are used for making gears, tubing, springs and plumbing fittings and for making bearings. Tin is also used in making high tech alloys such as zirconium-tin, used for cladding the fuel elements in thermal nuclear reactors and a niobium-tin-intermetallic compound used in certain high-performance superconducting fields such as in high-energy physics.

Tin oxide-based catalysts are used in air purification system, gas sensors and CO<sub>2</sub> lasers. Organotin compounds are used in agrochemicals and antifouling paints in seafaring vessels. Float glass industry is an important user of tin; it utilises a method of floating molten glass over a huge vat of molten tin. Pure tin in molten form is used to provide a flat surface as well as fire-polish on both sides of float glass which solidifies on it. It is also used in the production of lead crystal glass. Tin oxide films thicker than 1 mm on glass, produce a transparent, yet electrically conductive layer. This layer is used in de-icing windscreen, antistatic glassware, security alarm, etc.

Tin has established a long-term future as an innovative, competitive and sustainable material. A new low cost, efficient and environment-friendly solar cell have been developed that uses tin instead of the hazardous lead. Tin, known as fuel catalyst, can save energy and reduce emissions when added to fuel. Tin is replacing antimony fire retardants used in most plastics. Tin can make lithium ion batteries last more than three times longer. Tin and zinc work well together to heal wounds and kill bacteria, enabling use in new range of animal healthcare products.

## RESEARCH & DEVELOPMENT

Development activities in specific areas are carried out by the Tin Plate Company of India Ltd and are given below:

1. Work on alternate passivation film to substitute presently used chromate film is continuing in coordination with other tinplate producers worldwide.

2. Product testing facilities with "online" and "offline" equipment.

3. Pilot scale trials are on for use of cost effective packaging materials without compromising functional requirements.

4. Due diligence on conversion from PSA to MSA technology at the tinning lines initiated to assess impact on environmental practices.

5. Studies initiated to improve surface finish of finished product with chromium coated work rolls in Temper Mill. This is also expected to reduce specific roll consumption.

## POLICY

As per the Foreign Trade Policy, 2009-14, there are no restrictions on the export and import of tin ores and concentrates.

## INDUSTRY/CONSUMPTION

The main consumers in India are the tin plate industry and solder industry. The latter advancing to become the biggest single end-use sector, over the last decade. The fastest growth rate is also expected in future. The domestic tin

plate market is categorised broadly into three basic packaging market segments: edible oil/vanaspati & cashew, processed food and non-processed food. The consumption in IT industry and in food/beverages packaging industry has increased in the recent years. Tin plate companies; namely, Tin Plate Company of India Ltd, GPT steel industries Ltd, Vardhaman Industries Ltd, SAIL's Rourkela Steel Plant, etc. use tin metal in appreciable quantities for the manufacture of tin plate.

The Tin Plate Company of India Ltd consumes tin at its Golmuri Works, Jamshedpur in East Singhbhum, Jharkhand. The installed capacity of the electrolytic tinning plant of the company is 379,000 tpy. GPT has state - of - the - art Electrolytic Tinplate Line located at Gandhidham, Kachchh District, Gujarat. VTPL, owned by Vardhaman Industries Ltd, has a 60,000 tonnes per annum tinplate manufacturing facility in Punjab's Patiala district.

## SUBSTITUTES

The most important use of tin is in making packing materials, as it is environment-friendly. Aluminium, glass, paper, plastic, or tin-free steel are among the major substitute for tin. A number of materials can replace tin in its various applications; such as tetrapack for liquid food items, plastic/polycontainers for solid, semi-solid food; aluminium, glass, tin-free steel can be used in place of tin cans and containers. For tin solders new epoxy resins; for bronze-aluminium alloys, copper-base alloys and plastic; plastic for bearing metals that contain tin; compounds of lead and

sodium for some tin chemicals are the other substitutes now in use in place of tin.

## WORLD REVIEW

The world reserves of tin metal are estimated at 4.8 million tonnes, located mainly in China (31%), Indonesia (17%), Brazil (15%), Bolivia and Australia (8% each), and Russia (7%). The world reserves of tin by principal countries are given in Table-7.

The world mine production of tin in 2014 increased to 3,54,646 tonnes from 3,41,673 tonnes in the previous year. (Table-8). China continued to be the largest producer of tin in 2014 with about 45% share in the total world production.

Yunnan Tin Group Co., Ltd (China); Malaysia Smelting Corp. Bhd. (Malaysia); Minsur S.A. (Peru); PT Timah (Persero) Tbk. (Indonesia); Thailand Smelting and Refining Co. Ltd (Thailand); Yunnan Chengfeng Co., Ltd (China); Guangxi China Tin Group Co. Ltd (China); Empresa Metalúrgica Vinto S.A. (Bolivia); Metallo Chimique International N.V. (Belgium); and Yunnan Gejiu Zili Metallurgy Co. Ltd (China) were the world's top 10 producers of refined tin in year 2014, as per the ITRI.

### Australia

Consolidated Tin Mines Ltd, (Cairns, Queensland), owner of the Mt Garnet tin project in Queensland, reached an agreement with China's Yunnan Tin Group to help develop the project to share tin processing technology and expertise. The Mt Garnet concentrator was expected to produce 2,900 metric tonnes per year of tin

concentrate containing 68% tin, 235,000 tonnes per year of iron ore concentrate containing 65% iron, and 54,000 tonnes per year of fluorite concentrate containing 86% calcium fluoride (CaF<sub>2</sub>). The Metals X Ltd. (West Perth, Western Australia) Renison Mine in Tasmania continued to increase total tin ore reserve estimates. As of June 2014, ore reserves were estimated at 5.9Mt grading 1.37% tin and containing 81,000 t of tin metal.

### China

In 2014, China's gross imports of tin ores and concentrates increased by 84% to 177,950 tonnes, of which 97% were from Burma. Imports of tin metal were 7,770 tonnes, a decrease of 41% from those in 2013. This major change of importing tin ores and concentrates instead of tin metal reflects a major change in China's tin industry.

The Shanghai Futures Exchange (SHFE) announced that they had applied to launch tin contract trading in 2015. The lot size would be only one tonne, with a minimum purity of 99.9%. The contract could be traded 24 hours per day on their electronic platform.

### Indonesia

According to trade ministry data, Indonesia's exports of refined tin were 75,925 tonnes in 2014.

The Indonesian Presidential Regulation No.32/2013, which authorised the ICDX to manage tin exports, was modified in 2014. The revision, effective in November 2014, aimed at limiting

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misclassification of metal in order to avoid exports through the ICDX, and set a minimum purity standard for tin being traded on the exchange at 99.9% for ingots and 99.93% for other forms and a maximum purity of 99.8% for solder and 96% for other finished tin products.

### Malaysia

The Government of Malaysia completed an anti-dumping investigation and announced that duties would be imposed on imports of tinplate for 5 years, beginning November 16, 2013.

### Morocco

Rahman Hydraulic Tin Sdn. Bhd. (Kuala Lumpur) (RHT) purchased an 80% stake in SL T in Sdn. Bhd, which held a 15 year mining lease at Sungai Lembing in Pahang State, for \$152,000. RHT planned to explore for tin deposits within the 267 hectare area, and if results are positive, the lead time to production could be 3 to 5 years.

### Rwanda

The Rwandan Government granted TINCO Investments Ltd. (London, United Kingdom) mining rights to the Rutongo Mines for 25 years. Rutongo remained the only tin mines in Rwanda that had a conflict-free mining policy that complied with the Dodd-Frank Act, allowing them to sell to companies that wished to comply with U.S. regulations.

**Table – 7 : World Reserves of Tin  
(By Principal Countries)**

(In '000 tonnes of tin content)

Country	Reserves
<b>World : Total (rounded)</b>	<b>4800</b>
Australia	370
Bolivia	400
Brazil	700
China	1500
Indonesia	800
Malaysia	250
Peru	130
Russia	350
Thailand	170
Other countries	180

*Source: Mineral Commodity Summaries, 2016.*

**Table – 8 : World Production of Tin  
(By Principal Countries)**

(In tonnes of metal content)

Country	2012	2013	2014
<b>World: Total</b>	<b>311778</b>	<b>341673</b>	<b>354646</b>
Australia	6158	6472	7207
Bolivia	19702	19287	19791
Brazil	13667	16830	17000 <sup>e</sup>
China	115900	157980	160000
Congo, Dem. P. R.	10439	3427	4612
Indonesia <sup>e</sup>	101200	88400	70200
Laos	520	579	868
Malaysia	3725	3697	3777
Myanmar <sup>e</sup>	2100	9000	35000
Nigeria	2408	2516	2485
Peru <sup>@</sup>	26105	23668	23105
Russia	249	156	150 <sup>e</sup>
Rwanda	3477	3671	4447
Vietnam <sup>e</sup>	5400	5400	5400
Other countries	728	590	604

*Source: World Mineral Production, 2010-2014.*

<sup>@</sup> - Recoverable.



## FOREIGN TRADE

### Exports

There were no export of tin ores & concentrates during 2014-15. Exports of tin & alloys including scrap were at 2,217 tonnes in 2014-15 as compared to 4,102 tonnes in the preceding year. Out of total exports in 2014-15, tin & alloys was 1,658 tonnes, tin & alloys (worked) at 557 tonnes and tin (scrap) were only at 2 tonnes. Exports were mainly to Singapore (78%) & Korea, Rep.of (10%) (Tables -9 to 15).

### Imports

There were no imports of tin ores and concentrates in 2014-15 as compared to only 1 tonne in the previous year which were solely from Uganda in 2013-14. Imports of tin & alloys including scrap were at 9,423 tonnes in 2014-15 as compared to 11,240 tonnes in the previous year. Out of the total imports in 2014-15, tin & alloys was 9,197 tonnes comprising 81 tonnes tin & alloys (NES), 149 tonnes tin & alloys (worked) (Tables -16 to 24).

**Table – 10 : Exports of Tin & Alloys  
Incl. Scrap  
(By Countries)**

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>4102</b>	<b>5022785</b>	<b>2217</b>	<b>2372272</b>
Singapore	3145	4670556	1298	1878826
Korea, Rep. of	++	33	171	138242
Malaysia	5	7650	102	123552
UK	33	40032	29	46871
Netherlands	13	17724	13	24869
Zambia	268	28111	222	24029
Nigeria	81	29741	104	23031
Sri Lanka	16	28837	8	20210
South Africa	24	46902	10	19093
UAE	148	24852	16	16137
Other countries	369	128347	244	57412

**Table – 9 : Exports of Tin Ores & Conc.  
(By Countries)**

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>8</b>	<b>1125</b>	<b>-</b>	<b>-</b>
U A E	8	1125	-	-

**Table – 11 : Exports of Tin & Alloys  
(By Countries)**

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>3343</b>	<b>4920014</b>	<b>1658</b>	<b>2297858</b>
Singapore	3145	4670454	1298	1878826
Korea, Rep. of	-	-	171	138242
Malaysia	3	3935	101	122847
UK	24	37613	29	46627
Netherlands	8	14482	13	24700
South Africa	24	46828	10	18881
Nigeria	34	21094	8	14493
Sri Lanka	8	24621	5	14009
UAE	14	13823	8	13431
USA	2	4448	6	11432
Other countries	81	82716	9	14370

**Table – 12 : Exports of Tin & Alloys: Worked  
(By Countries)**

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>751</b>	<b>100840</b>	<b>557</b>	<b>73257</b>
Zambia	268	28111	222	24029
Oman	19	10237	6	10259
Nepal	168	11512	175	9794
Nigeria	47	8647	96	8538
Sri Lanka	3	4216	3	6200
USA	14	5247	17	2798
UAE	134	11029	8	2706
Jordan	-	-	7	1199
Sudan	-	-	3	980
Japan	1	1158	1	958
Other countries	97	20683	19	5796

**Table – 13 : Exports of Tin (Scrap)  
(By Countries)**

Country	2013-14		2014-15 (P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>3</b>	<b>1931</b>	<b>2</b>	<b>1157</b>
Nepal	1	51	2	413
Malaysia	++	22	++	339
Germany	++	229	++	237
Saudi Arabia	-	-	++	141
Australia	1	163	++	24
Israel	++	356	++	3
Other countries	1	1110	-	-

**Table - 14 : Exports of Tin & Alloys: NES  
(By Countries)**

Country	2013-14		2014-15 (P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>121</b>	<b>156311</b>	<b>218</b>	<b>217096</b>
Korea, Rep. of	-	-	171	138242
UK	24	37530	29	46627
South Africa	16	32000	8	14881
UAE	12	12046	7	12647
Chinese				
Taipei/Taiwan	-	-	1	1726
Malaysia	2	3188	1	1509
USA	-	-	1	759
Ghana	-	-	++	492
Turkey	++	106	++	213
Other countries	67	71441	-	-

**Table – 15 : Exports of Tin Block  
(By Countries)**

Country	2013-14		2014-15 (P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>5</b>	<b>3392</b>	<b>1</b>	<b>1456</b>
UAE	1	857	1	784
Nepal	-	-	++	665
Singapore	-	-	++	7
Other countries	4	2535	-	-

**Table – 16 : Imports of Tin Ores & Conc.  
(By Countries)**

Country	2013-14		2014-15 (P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>1</b>	<b>380</b>	<b>-</b>	<b>-</b>
Uganda	1	380	-	-
Other countries	-	-	-	-

**Table – 17: Imports of Tin & Alloys, Incl. Scrap  
(By Countries)**

Country	2013-14		2014-15 (P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>11240</b>	<b>14965679</b>	<b>9423</b>	<b>12485758</b>
Malaysia	8924	12584424	4907	6709821
Indonesia	1148	1607030	3479	4572486
Singapore	46	58315	308	396963
UAE	10	11759	150	199224
Vietnam, Soc. Rep.	-	-	101	139484
Germany	85	156505	71	121234
China	303	140603	262	110042
Korea, Rep. of	21	50704	60	108652
Thailand	124	164038	46	64686
Japan	65	25235	11	23403
Other countries	514	167066	28	39763

**Table – 18 : Imports of Tin & Alloys  
(By Countries)**

Country	2013-14		2014-15 (P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>10752</b>	<b>14824038</b>	<b>9197</b>	<b>12383457</b>
Malaysia	8923	12581365	4906	6708012
Indonesia	1148	1607030	3479	4572486
Singapore	46	58218	308	396253
UAE	8	10806	150	199224
Vietnam, Soc. Rep.	-	-	101	139484
Korea, Rep. of	21	50532	59	107662
Germany	77	136159	67	100930
China	85	86245	69	72194
Thailand	124	164038	45	63612
Chinese				
Taipei/Taiwan	7	10218	7	10497
Other countries	313	119427	6	13103

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**Table – 19 : Imports of Tin & Alloys : Worked, NES  
(By Countries)**

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>487</b>	<b>141143</b>	<b>226</b>	<b>102222</b>
China	218	54358	193	37849
Japan	64	23732	11	22594
Germany	8	20346	4	20304
Italy	6	10841	5	8231
Switzerland	++	491	++	2202
USA	1	589	5	1923
Malaysia	1	3059	1	1808
Chinese Taipei/Taiwan	++	483	1	1626
Hong Kong	7	4870	3	1620
Thailand	-	-	1	1073
Other countries	182	22374	2	2992

**Table – 20 : Imports of Tin (Scrap)  
(By Countries)**

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>1</b>	<b>498</b>	<b>++</b>	<b>79</b>
USA	-	-	++	79
Other countries	1	498	-	-

**Table – 21 : Imports of Tin Alloys, NES  
(By Countries)**

Country	2012-13		2013-14	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>89</b>	<b>135754</b>	<b>81</b>	<b>123168</b>
Germany	53	83302	60	89098
Indonesia	2	3252	10	13976
China	3	4539	4	7440
Singapore	6	9922	5	7118
Malaysia	25	33275	2	4328
France	-	-	++	599
Chinese Taipei/Taiwan	-	-	++	510
USA	-	-	++	98
Other countries	++	1464	++	1

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**Table – 22 : Imports of Tin & Alloys: Worked,  
(By Countries)**

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>189</b>	<b>265964</b>	<b>149</b>	<b>200329</b>
China	76	74162	65	64753
Korea, Rep. of	21	50532	19	46084
Singapore	40	48068	38	42541
Malaysia	8	12030	7	14610
Germany	24	52369	7	11625
Chinese Taipei/Taiwan	5	7230	4	6149
USA	3	4511	3	5252
Austria	++	1062	2	3635
Indonesia	1	677	3	2946
Canada	11	12263	1	1641
Other countries	++	3060	++	1093

**Table – 23 : Imports of Tin :Anode, Cathode, etc. of Tin Unwrought  
(By Countries)**

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>7169</b>	<b>8542326</b>	<b>10199</b>	<b>14038870</b>
Malaysia	4654	5453210	8662	12218927
Indonesia	1652	2003925	1100	1540792
Thailand	569	691556	124	163943
Belgium	110	138109	56	64445
Egypt	-	-	217	26104
UAE	22	25943	8	10806
China	++	10	6	7467
Australia	-	-	25	3407
Japan	++	49	1	1272
France	1	2009	++	990
Other countries	161	227515	++	717

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**Table – 24: Imports of Tin Blocks  
(By Countries)**

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
<b>All Countries</b>	<b>275</b>	<b>383450</b>	<b>28</b>	<b>44717</b>
Indonesia	45	62308	25	40679
Chinese Taipei/Taiwan	2	2988	3	3837
Germany	++	334	++	198
Singapore	++	6	++	3
Other countries	228	317814	-	-

**FUTURE OUTLOOK**

World tin reserves appear to be adequate to meet foreseeable demand. Secondary sources of tin are likely to become an increasingly important component of supply. In coming years, technological changes are likely to affect tin consumption in its main application of electronics, solder and tin plate. Domestic tin requirements are expected to continue to be met primarily through imports. In India, with high growth in modern retail, FDI in multi-brand retail and with

government's thrust on the food processing industry, packaging industry is bound to grow. As a result, tin plate demand is likely to increase. Further, implementation of the Food Safety and Standards Act would help in promoting the use of prime quality tin plate in packaging. Besides, global concerns over climate change are drawing focus on the need for sustainable and eco-friendly packaging. Tin plate, being naturally environment friendly, enjoys superiority over other conventional packaging media like: PET, plastic, HDPE, etc.