

TIN



# Indian Minerals Yearbook 2016

(Part- II : Metals & Alloys)



**55<sup>th</sup> Edition**

**TIN**

**(ADVANCE 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.

## RESERVES/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 reserves/resources of tin ore in the country as per NMI data, based on UNFC system, as on 1.4.2015 are placed at 83.73 million tonnes containing about 1,02,413 tonnes metal. About 4,419 tonnes ore containing 154 tonnes metal are placed under 'reserves' category and the bulk i.e. about 83.72 million tonnes containing about 1,02,259 tonnes metal are placed under 'remaining resources' category. The entire ore reserves are located in Chhattisgarh and Haryana. About 64% of total ore resources are located in Haryana and 36% in Chhattisgarh, while nominal resources are located in Odisha (Table-1).

## EXPLORATION

In Haryana, Geological Survey of India, carried out exploration of multi-metal deposit in north of Tosham Hill, Bhiwani district. Cassiterite is the main tin mineral along with other minerals of copper and tungsten. The mineralization is hosted by altered metamorphites (i.e. quartzite, quartz-mica schist, andalusite-bearing micaceous quartzite and andalusite hornfels) of Delhi Supergroup and post-Delhi intrusive viz. rhyolite and granitoid of the Tosham Hill. Mineralisation occurs as thin veins and disseminations along with the shears/fractures/ foliation planes in metasediments and at or near granite/metasediment and granite/rhyolite contact. Pyrite, pyrrhotite and chalcopyrite in quartz-mica schist were observed under microscope. Analytical results of 124 core samples of NTBH-1 drill hole indicate 11 -100 ppm tin and 3.7 - 200 ppm tungsten and 16 - 433 ppm copper.

## PRODUCTION, STOCKS & PRICES

### Concentrates

The production of tin concentrates in 2015-16 was at 13,541 kg as against 24,685 kg in the preceding year. One Public Sector and five Private Sector mines reported production in 2015-16. These mines are located in Dantewada district of Chhattisgarh (Tables- 2 to 4).

The mine-head closing stocks of tin concentrates were 3,683 kg in 2015-16 as against 8,093 kg in 2014-15 (Table-5).

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 32 workers in the current year as against 34 in the previous year on average daily basis.

**Table – 1 : Reserves/Resources of Tin as on 1.4.2015**  
**(By Grades/States)**

Grade/State	Reserves		Remaining Resources					Total Resources (A+B)				
	Proved STD111	Probable STD121 STD122	Total (A)	Feasibility STD211	Pre-feasibility		Inferred STD333					
					STD221	STD222			Reconnaissance STD334	Total (B)		
<b>All India : Total</b>												
<b>Ore</b>	2067	897	1455	22594200	2653	31330072	168457	561080	29064288	-	83720749	83725168
<b>Metal</b>	44.56	94.02	15.62	33139.45	842.8	54049.65	813.29	231.63	13182.34	-	1022259.16	102413.36
<b>By States</b>												
<b>Chhattisgarh</b>												
<b>Ore</b>	2067	897	1455	1508	2017	72	168457	559914	29063288	-	29795255	29799674
<b>Metal</b>	44.56	94.02	15.62	917.02	342.02	16.85	813.29	209.43	13172.34	-	15470.95	15625.15
<b>Haryana</b>												
<b>Ore</b>	-	-	-	22580000	-	31330000	-	-	-	-	53910000	53910000
<b>Metal</b>	-	-	-	32187.8	-	54032.8	-	-	-	-	86220.6	86220.6
<b>Odisha</b>												
<b>Ore</b>	-	-	-	12692	636	-	-	1166	1000	-	15494	15494
<b>Metal</b>	-	-	-	34.63	500.78	-	-	22.2	10	-	567.61	567.61

## TIN

**Table – 2 : Principal producers of Tin Concentrates 2015-16**

Name & address of the producer	Location of the mine	
	State	District
Chhattisgarh 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, 2013-14 to 2015-16  
(By State)**

(Quantity in kg; value in ₹'000)

State	2013-14		2014-15		2015-16 (P)	
	Quantity	Value	Quantity	Value	Quantity	Value
<b>India</b>	<b>34862</b>	<b>22791</b>	<b>24685</b>	<b>18528</b>	<b>13541</b>	<b>8214</b>

**Table – 4 : Production of Tin Concentrates, 2014-15 and 2015-16  
(By Sectors/State/District)**

(Quantity in kg; value in ₹'000)

State	No. of mines	2014-15		No. of mines	2015-16 (P)	
		Quantity	Value		Quantity	Value
<b>India</b>	<b>6</b>	<b>24685</b>	<b>18528</b>	<b>6</b>	<b>13541</b>	<b>8214</b>
Public sector	1	23001	13716	1	9268	4089
Private sector	5	1684	4812	5	4273	4125
<b>Chhattisgarh</b>	<b>6</b>	<b>24685</b>	<b>18528</b>	<b>6</b>	<b>13541</b>	<b>8214</b>

**Table – 5 : Mine-head Closing Stocks of Tin Concentrates, 2014-15 & 2015-16  
(By State)**

State	(In kg)	
	2014-15	2015-16 (P)
<b>India</b>	<b>8093</b>	<b>3683</b>
Chhattisgarh	8093	3683

**Table – 6 : Production of Tin Metal  
2013-14 to 2015-16**

(Qty in kg; value in ₹'000)

Year	Production	
	Quantity	Value
2013-14	22799	25717
2014-15	8674	11709
2015-16 (P)	16675	21677

## Tin Metal

The plant owned by Precious Minerals and Smelting Ltd reported production of 16,675 kg of tin metal in 2015-16 as against 8,674 kg in the preceding year. The plant is located at Jagdalpur in Dantewada district of Chhattisgarh (Table 6).

## MINING

In Govindpal-Tongpal area of 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. CMDC is collecting tin ore from cooperative societies of tribals in district-Dantewada, Chhattisgarh. CMDC has formed a J.V.C. for mining and marketing of tin ore in the name of precious minerals and smelting Ltd Jagdalpur, Chhattisgarh.

## 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 fitments 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 anti-mony fire retardants used in most plastics. Tin can make lithium 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. Electrolytic Tinplate undoubtedly enjoys the pride of place as a packaging medium especially of food. Tin Free Steel is an electrolytic chrome plated steel consisting of a thin layer of chromium and a layer of chromium oxide deposited on the steel base which gives it a beautiful, lustrous metallic finish on both sides. TFS offers outstanding corrosion resistance, lacquer adhesion as well as printability. Additional features of TFS are filiform rust resistance, sulphur blackening resistance and coating.

## 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, 2015-20, 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 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. Presently the company is having a leading market share of over 43% in India. There are presently 11 offices in India. The installed capacity of the electrolytic tinning plant of the company is 3,79,000 tpy. Total apparent domestic consumption of tin plate in India is around 6,00,000 tonnes per annum, of which more than 45% is met through imports and the rest through domestic supplies. As per Tinplate Company of India Limited (ninety -eight annual report 2016-17) in E.T. plant during 2014-15 and 2015-16 the electrolytic Tinplate produced of 3,04,119 tonnes, 3,04,607 tonnes and tin free steel produced 15,327 tonnes, 8,945 tonnes respectively. Similarly in cold rolling mill during 2014-15 and 2015-16, the C.R. products produced of 3,26,924 tonnes and 3,23,180 tonnes respectively. GPT is 2<sup>nd</sup> largest producer of Tin plate in India. It has the largest capacity of tin plate in India. GPT has state - of - the - art Electrolytic Tinplate Line located at Gandhidham, Kachchh District, Gujarat. SAIL and TCIL together have an installed capacity of 2.40 million tonnes per annum which is sufficient to meet the domestic market demand of 2.20 million tonnes. SAIL annually produces 1.50 million tonnes at its Rourkela steel plant while TCIL has an installed capacity of 90,000 tonnes. TCIL pioneered the introduction of OTS Tinplate years ago and continues to be the domestic source for the entire range of OTS products be it A10, A12, A2 1/2, No.1 Tall and many others, matching both industry and customers' specification. TCIL has decided to produce only 55,000 tonnes this fiscal while the Rourkela plant produced only 13,000 tonnes during the last fiscal. Vardhman Industries

Ltd(VIL) has possesses an annual capacity of production 50,000 mt. VIL manufacturers GP/GC under the brand name of OSWAL, in size range of 0.14 mm to 0.8 mm thickness, and width of upto 1100 mm, conforming to all leading national & international specifications.

## 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 4.7 million tonnes, located mainly in China (23%), Indonesia (17%), Brazil (15%), Bolivia & Australia (8% each), and Russia (7%). The world reserves of tin by principal countries are furnished in Table-7.

The world mine production of tin in 2015 decreased to 3,40,677 tonnes from 3,51,498 tonnes in the previous year (Table-8). China continued to be the largest producer of tin in 2015 with about 40% share in the total world production.

According to a survey by the International Tin Research Institute Ltd (ITRI) the world's 10 leading refined tin producers and their production in 2015 were, in descending order of production, Yunnan Tin Group Co. Ltd (China), 75,500 t; Malaysia Smelting Corp. Bhd. (Malaysia), 30,260 t; PT Timah (Persero) Tbk. (Indonesia), 27,431 t; Minsur S.A. (Peru), 20,224 t; Yunnan Chengfeng Co. Ltd. (China), 16,600 t; Empresa Metalurgica Vinto S.A. (Bolivia), 12,106 t; Guangxi China Tin Group Co. Ltd. (China), 11,100 t; Gejiu Zi-Li Mining and Smelting Co Ltd (China), 11,000 t; Thailand Smelting and Refining Co. Ltd (Thailand), 10,502 t; and Metallo Chinique International N.V. (Belgium), 8,863 t.

## Australia

Cinsolidated Tin Mines Ltd, owner of the Mount Garnet tin project in Queensland, voted to acquire the assets of Snow Peak Mining Pty. Ltd which included the concentrator at Mount Garnet, the Surveyor-Balcooma open pit and underground mines, the Baal Gammon Mine, and the Maitland and Einasleigh projects. This purchase diversified consolidated tin Mines, allowing them to produce zinc, copper and polymetallic ore, along with tin. The Mount Garnet concentrator was expected to produce 2,900 metric tonnes per year (t/yr) of tin in concentrate, 2,35,000 t/yr of iron ore, and 54,000 t/yr of fluorite .

Metalicity Ltd filed for three exploration licenses at the Pilgangoora project in Western Australia for lithium, tantalum and tin. The licenses covered 450 square kilometers and were adjacent to Global Advanced Metals Pty Ltd's Wodgina operations and Pilbara Minerals Ltd's Pilgangoora operations, which have resources of tantalum and lithium-tantalum, respectively.

## China

In 2015, China's imports of tin ores and concentrates (gross weight) increased by 65% to 2,91,000 t from 1,76,400 t in 2014 as a result of a decrease in domestic mine production. Private tin mines in Yunnan Province were reported to have closed, and the Hunan Southern Mines operations, the third largest tin mining company in China, closed in July because of environmental issues. Refined tin production was reported to be 1,59,000 t in 2015, down from 1,75,000 t in 2014.

In March, the Shanghai Futures Exchange received permission from China's Securities Regulatory Commission to start trading tin futures contracts, The minimum contract size was 1 t, the maximum contract size was 500 t, and there was a daily price limitation of 4% from the settlement price of the previous day. The grade and quality was listed at 99.9% or greater tin.

In December, the Hong Kong Exchanges and Clearing Ltd (HKEX) launched its London Tin Mini Futures contract, a renminbi-traded 1-t futures contract for tin, aimed at Chinese retail investors. The final settlement price was based on the official settlement price at the LME. Unlike the LME, however, the HKEX contracts were to be settled at the end of the month in cash, rather than daily.

## Indonesia

According to preliminary estimates, Indonesia's exports of refined tin were 70,200 t in 2015, down from 75,900 t in 2014. Beginning November 1, tin exporters in Indonesia were required to obtain a "clean and clear" certification for their mining leases before receiving a long-term export license. Depending on how strictly Indonesia implements the latest regulations, ITRI expected that Indonesia's exports would decline in 2016 to between 5,000 and 5,500 tonnes per month, down from about 5,850 tonnes per month in 2015.

## Brazil

Minsur S.A.'s Pitinga tin-niobium-tantalum mine produced 5,740 t of tin in 2015, 5% less than that in 2014. Production at the mine was negatively affected by power supply issues beginning in the third quarter relating to water leaks at the hydroelectric dam that powered operations at Pitinga. Minsur countered the decline in mine production by processing tin slag stockpiles at their Pirapora tin smelter, which produced 5,530 t of refined tin in 2015, 10% more than that in 2014. Overall, Minsur produced 25,800 t of tin in 2015, down from the 29,200 t produced in 2014.

## Burma

Burma accounted for 98% of China's tin concentrate imports in 2015, supplying 286,000 t of tin ore and concentrates containing an estimated 41,000 t of tin. The import level increased by 65% from that of 2014. Most of Burma's ore was mined in Wa County, close to the border with China's Yunnan Province. Burma's Ministry of Mining was working on developing a list of partners to operate its tin refinery and smelting plant near Rangoon.

## Egypt

Arrowhead Resources Ltd (Australia), formerly Gippsland Ltd had a 50% interest in the Abu Dabbab tantalum-tin-feldspar project, with the other 50% owned by the Egyptian Government through the Egyptian Company for Mineral Resources (ECMR). On March 26, Arrowhead claimed that ECMR was attempting to dissolve the partnership. ECMR responded that Arrowhead had abandoned the Abu Dabbab project. Arrowhead ceased funding when the ECMR became unresponsive and is now seeking resolution through legal channels.

## Rwanda

Rwanda's Ministry of Natural Resources signed contracts with six companies to mine 10 mining concessions, estimated to earn Rwanda up to \$45 million over 5 years. The successful bidders, Ruli Mining and Trade Ltd., Geosami Ltd., Crystal Mining and Trading Co. Ltd., Nsyabire Ltd., SEAVMC Ltd., and KNM Combines Ltd., were expected to invest \$9 million over 5 years, have committed to local corporate social responsibility programs, and to have established high safety standards at their mines. Seven additional licenses were expected to be allocated in the future.

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

(In '000 tonnes of tin content)

Country	Reserves
<b>World : Total (rounded)</b>	<b>4700</b>
Australia	370
Bolivia	400
Brazil	700
China	1100
Congo (Kinshasa)	110
Indonesia	800
Malaysia	250
Myanmar	110
Peru	100
Russia	350
Thailand	170
USA	--
Vietnam	11
Other countries	180

*Source: Mineral Commodity Summaries, 2017.*

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

(In tonnes of metal content)

Country	2013	2014	2015
<b>World: Total</b>	<b>332243</b>	<b>351498</b>	<b>340677</b>
Australia	6472	7207	7158
Bolivia	19287	19791	20135
Brazil	16830	25534	25000 <sup>e</sup>
Myanmar <sup>e</sup>	9000	26000	43000
China	149000	158000	135000
Congo, Dem. P.R	3427	4012	4566
Indonesia <sup>e</sup>	88000	70000	70000
Laos	579	868	815
Malaysia	3697	3777	4158
Nigeria	2516	2485	2298
Peru	23668	23105	19511
Rwanda	3671	4447	2885
Vietnam <sup>e</sup>	5400	5400	5400
Other countries	696	872	751

*Source: World Mineral Production, 2011-2015.*



## FOREIGN TRADE

### Exports

There were no export of tin ores & concentrates during 2015-16. Exports of tin & alloys including scrap were at 4,199 tonnes in 2015-16 as compared to 2,217 tonnes in the preceding year. Out of total exports in 2015-16, tin & alloys was 3,652 tonnes (87%), tin & alloys (worked) at 547 tonnes (13%) and tin (scrap) were negligible. Exports of tin & alloys were mainly to Singapore (72%), UAE (15%) & Korea, Rep. of (7%) (Tables -9 to 15).

### Imports

The imports of tin ores and concentrates in 2015-16 was 82 tonnes as compared to negligible in the previous year which were mainly from France and Lao Pa Rp. Imports of tin & alloys including scrap were at 12,500 tonnes in 2015-16 as compared to 9,423 tonnes in the previous year. Imports of tin and alloys were mainly from Indonesia (50%), and Malaysia (41%). Out of the total imports in 2015-16, tin & alloys was 12,110 tonnes comprising 62 tonnes tin, alloys (NES), 162 tonnes tin & alloys (worked) (Tables -16 to 25).

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>2217</b>	<b>2372272</b>	<b>4199</b>	<b>3829840</b>
Singapore	1298	1878826	2615	2735534
UAE	16	16137	565	565574
Korea, Rep. of	171	138242	246	162087
Malaysia	102	123551	103	108360
Iran	++	364	21	38427
Sri Lanka	8	20210	17	25462
Zambia	222	24029	216	22554
UK	29	46871	17	21032
South Africa	10	19093	15	20292
Poland	-	-	25	19828
Other countries	361	104949	359	110690

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	-	-	++	14
USA	-	-	++	14

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>1658</b>	<b>2297858</b>	<b>3652</b>	<b>3754685</b>
Singapore	1298	1878826	2615	2735534
UAE	8	13431	553	559286
Korea, Rep. of	171	138242	246	162039
Malaysia	101	122846	101	106874
Iran	++	364	21	38418
UK	29	46627	16	20846
South Africa	10	18881	13	20071
Poland	-	-	25	19828
Sri Lanka	5	14010	9	18134
Netherlands	13	24700	10	16214
Other countries	23	39931	43	57441

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>557</b>	<b>73257</b>	<b>547</b>	<b>74665</b>
Zambia	222	24029	216	22554
Nepal	175	9794	222	12581
Oman	6	10259	8	10392
Sri Lanka	3	6200	8	7328
UAE	8	2706	12	6099
USA	17	2798	20	5289
Germany	++	367	10	2035
Tanzania	++	271	9	1896
Malaysia	1	366	2	1486
Bhutan	-	-	19	1141
Other countries	125	16467	21	3864

**Table - 13 : Exports of Tin (scrap)  
(By Countries)**

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>2</b>	<b>1157</b>	<b>++</b>	<b>490</b>
Germany	++	237	++	269
UAE	-	-	++	189
Philippines	-	-	++	18
South Africa	-	-	++	14
Nepal	2	413	-	-
Malaysia	++	339	-	-
Saudi Arabia	++	141	-	-
Australia	++	24	-	-
Israel	++	3	-	-

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>218</b>	<b>217096</b>	<b>297</b>	<b>217922</b>
Korea, Rep. of	171	138242	246	162039
UK	29	46627	16	20846
Poland	-	-	25	19828
UAE	7	12647	7	10981
Kenya	-	-	1	1475
Malaysia	1	1509	1	1300
Taiwan	1	1726	1	644
Turkey	++	213	++	487
Nepal	-	-	++	190
Sri Lanka	-	-	++	131
Other countries	9	16132	++	1

**Table - 15 : Exports of Tin Blocks  
(By Countries)**

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>1</b>	<b>1456</b>	<b>++</b>	<b>337</b>
Australia	-	-	++	329
Germany	-	-	++	7
Singapore	++	7	++	1
UAE	1	784	-	-
Nepal	++	665	-	-

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>-</b>	<b>-</b>	<b>82</b>	<b>58039</b>
France	-	-	40	34944
Lao Pa Rp	-	-	42	23095

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>9423</b>	<b>12485758</b>	<b>12500</b>	<b>12736791</b>
Indonesia	3479	4572485	6042	6312147
Malaysia	4907	6709820	4943	5116257
Singapore	308	396963	898	931014
China	262	110042	415	107059
Germany	71	121234	61	89449
Korea, Rep. of	60	108652	24	50524
Vietnam	101	139484	40	43304
UAE	150	199224	30	26230
Italy	5	8323	11	14742
Taiwan	8	12122	9	11457
Other countries	72	107409	27	34608

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>9197</b>	<b>12383457</b>	<b>12110</b>	<b>12619958</b>
Indonesia	3469	4572485	6040	6303690
Malaysia	4906	6708012	4943	5115634
Singapore	308	396252	898	930962
Germany	67	100930	54	68794
China	69	72193	63	53366
Korea, Rep. of	59	107662	24	50472
Vietnam	101	139484	40	43304
UAE	150	199224	30	26227
Taiwan	7	10496	7	8876
Canada	1	1641	4	7930
Other countries	50	75078	7	10703

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>226</b>	<b>102222</b>	<b>390</b>	<b>116833</b>
China	193	37849	352	53693
Germany	4	20304	7	20655
Italy	5	8231	11	14742
Japan	11	22594	6	9953
Indonesia	-	-	2	8457
Taiwan	1	1626	2	2581
UK	1	586	++	1883
Thailand	1	1073	7	1519
USA	5	1923	1	1065
Hong Kong	3	1620	++	793
Other countries	2	6416	2	1492

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

Country	2014- 15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	-	<b>79</b>	-	-
USA	-	79	-	-
Other countries	-	-	-	-

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>81</b>	<b>123168</b>	<b>62</b>	<b>85589</b>
Germany	60	89099	51	63802
Malaysia	2	4328	7	13223
Singapore	5	7118	4	6157
Canada	-	-	++	1641
USA	++	98	++	433
China	4	7440	++	333
Indonesia	10	13976	-	-
France	++	599	-	-
Taiwan	++	510	-	-

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>149</b>	<b>200329</b>	<b>162</b>	<b>180875</b>
China	65	64753	62	51987
Korea, Rep. of	19	46084	24	49748
Malaysia	7	14610	30	27993
Singapore	38	42541	24	22596
Canada	1	1641	4	5713
Chinese Taipei/Taiwan	4	6149	4	5286
Germany	7	11625	3	4680
Austria	2	3635	2	4300
Indonesia	3	2946	4	3804
Thailand	++	256	4	2735
Other countries	3	6089	1	2033

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>8939</b>	<b>12015243</b>	<b>11858</b>	<b>12323024</b>
Indonesia	3441	4514884	6011	6274104
Malaysia	4897	6689074	4906	5074418
Singapore	265	346590	870	902209
Vietnam	101	139484	40	43304
UAE	150	199224	30	26227
China	-	-	1	959
Korea, Rep. of	40	61578	++	724
USA	++	18	++	436
Japan	++	809	++	424
UK	++	50	++	138
Other countries	45	63532	++	81

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

Country	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Countries</b>	<b>28</b>	<b>44717</b>	<b>28</b>	<b>30470</b>
Indonesia	25	40679	25	25783
Chinese Taipei/Taiwan	3	3837	3	3590
Canada	-	-	++	576
Germany	++	198	++	232
USA	-	-	++	202
China, P Rp	-	-	++	87
Singapore	++			

**Table – 25 : Imports of Tin  
(By Items)**

Item	2014-15		2015-16 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
<b>All Items</b>	<b>9423</b>	<b>12485758</b>	<b>12500</b>	<b>12736791</b>
Tin & Alloys	9197	12383457	12110	12619958
Tin & Alloys Nes	81	123168	62	85589
Tin & Alloys Worked	149	200329	162	180875
Tin :Anode, Cathode, etc. of Tin				
Unwrought	8939	12015243	11858	12323024
Tin Blocks Tin	28	44717	28	30470
Tin & Alloys Worked	226	102222	390	116833
Tin Waste & scrap	++	79	-	-

## FUTURE OUTLOOK

According to the International Tin Research Institute Ltd (ITRI) analysis, global demand for tin decreased at year end 2015 owing to low prices. ITRI also projected that global tin consumption would decrease by 3% in 2016 .

World tin reserves appeared to be adequate to meet short-term demand. Secondary sources of tin were likely to become an increasingly important component of supply, especially in the United States. Domestic tin requirements are expected to continue to be met primarily through imports.

In the coming days there is going to be major problem in supplying .19 mm SR tinplate as supply of corresponding 1.6 mm/1.8 mm HRC raw material is going to be much more scarce than before . Then Soft DR will be looked upon as the lifeguard for 0.19 mm and 0.20 mm Tinplate. Therefore in the near future the Soft DR is going to witness its increasing importance and high demand.