



2014 Minerals Yearbook

TIN [ADVANCE RELEASE]

TIN

By C. Schuyler Anderson

Domestic survey data and tables were prepared by Linda M. Barnes, statistical assistant, and the world production tables were prepared by Lisa D. Miller, international data coordinator.

Tin has not been mined in the United States since 1993; consequently, the country is reliant on imports and recycling for its tin needs. In 2014, the estimated value of primary tin metal consumed domestically was \$546 million. Approximately 12,600 metric tons (t) of tin, about 12% of the tin used, was recovered from domestic scrap, most of it (10,600 t) from old scrap (table 5). Industry stocks increased by 7% compared with those at yearend 2013 (table 1).

World tin mine production was 261,000 t, an increase of 7% from the revised amount in 2013 (table 9). Of the 18 countries in which tin was mined, 6 countries accounted for 89% of the total production. China was the leading producer (38% of world output), followed by Indonesia (15%), Burma (13%), Peru (9%), Bolivia (8%), and Brazil (7%). World primary tin smelter production was 358,000 t (table 10), a 15% increase from that in 2013, and according to CRU International Ltd., world refined tin consumption for 2014 was 361,000 t (CRU Tin Monitor, 2015).

The New York market tin price in 2014 decreased by 2% from that in 2013 to 1,023.05 cents per pound. World tin reserves were estimated to be 4.8 million metric tons (Mt), about 13 times the estimated 2014 world primary tin production. The majority of tin reserves were in Asia and South America.

Legislation and Government Programs

In July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act was signed into law. Section 1502 requires publicly listed companies to verify and disclose their sources of “conflict minerals,” defined as “cassiterite, columbite-tantalite (coltan), gold, wolframite, or their derivatives;” this group of minerals is commonly called “3TG” (tantalum, tin, tungsten, gold) minerals. Section 1502 also required companies to file, by June 2014, a specialized disclosure form (SD form) with the U.S. Securities Exchange Commission (SEC) that indicates whether or not any 3TG minerals used in their products were sourced from the Democratic Republic of Congo [Congo (Kinshasa)] and the adjoining countries (U.S. Congress, 2010). In 2014, some companies that used any of the 3TG minerals publicly released their supply sources for the 3TG minerals that they consume.

In 2014, tin solder was given a permanent exemption from Indonesia’s export regulation 32/2013, issued in 2013, which requires that all tin exports had to be traded on the Indonesia Commodity and Derivatives Exchange (ICDX). The exemption considers tin solder to be a finished product and not a raw material. Other exemptions include pure and impure tin ingots and tin in other forms. In order to prevent pure tin from being sold as solder, a maximum purity of 99.8% was set by the 2014 exemption. All other tin that had to be traded on the ICDX required a minimum purity of 99.9% tin. Other standards were set by the 2014 exemption for labeling, packaging, size, and

shape for both refined tin and solder. Cassiterite and cassiterite concentrate still had to be traded on the ICDX. Also, 17 private smelters formed a new representative group, the Associate of Indonesia Tin Exporters (AETI), to replace the inactive Indonesian Tin Association (ITRI Ltd., 2014b, c, f).

Production

No tin was mined in the United States in 2014, and it has not been mined since 1993, when it was mined in Alaska. In 2014, tin recovered from new and old scrap was estimated to be 12,600 t, slightly lower than in 2013 (table 5). A significant quantity of alloy tin scrap was generated during manufacturing processes and recycled within those same industries.

Secondary tin recovered from obsolete fabricated parts was used in many types of products and was a particularly important source of tin for the manufacture of brass, bronze, and solder. In 2014, 10,600 t of tin was recovered from old scrap, with 8,640 t from lead-base scrap and 1,920 t from copper-base scrap directly melted at brass mills, ingot makers, and foundries (table 5).

Consumption

Tin in the United States is used, in descending order by weight, in tinplate, 22%; chemicals, 20%; solder, 18%; alloys, 14%; babbitt, bronze/brass, and tinning, 9%; and other, 17% (table 3). Tinplate is a layer of tin adhered to steel or wrought iron substrate for corrosion protection. Tin is used in this case to inhibit rust and is commonly used in food-grade cans. Tin-based chemicals are commonly used in polyvinyl chloride (PVC) production and curing, biocides, and catalysts. Tin alloys are used in brass and bronze products, solders, and low friction metals. Solder is commonly used in electronic devices for connections on circuit boards.

In 2014, U.S. tin consumption was 24,200 t of primary tin and 3,250 t of secondary tin. Domestic consumption data for tin were developed by the U.S. Geological Survey from a voluntary survey of tin consumers. Of the 94 firms to which a survey form was sent, 42 responded, accounting for 44% of estimated reported consumption. Data for the nonrespondents were estimated based on prior-year reporting.

Prices

The New York average market price for tin metal decreased slightly from that in 2013 to \$10.23 per pound from \$10.41 per pound. The Platts Metals Week composite price was discontinued in January 2014. The London Metal Exchange Ltd. (LME) remained the principal commodity exchange for trading tin and, in 2014, the LME average tin price was \$9.94 per pound, a slight decrease from the average LME price of \$10.12 per pound in 2013. The Kuala Lumpur Tin Market

price in 2014 averaged \$9.93 per pound, a slight decrease from the previous year's price of \$10.12 per pound. The LME average price of tin remained 16% lower than the historically high average price of \$11.84 per pound in 2011.

Foreign Trade

U.S. imports of refined tin, which supplied most domestic tin requirements, were slightly more than those of 2013 (table 8). Imports of tin in all forms (metal, ore and concentrate, scrap, and waste) remained duty free. Foreign-owned trading firms operating in the United States tended to dominate the marketing of imports. U.S. imports of tin came mostly from Peru, Indonesia, Malaysia, and Bolivia, in descending order of quantity imported. Net imports of tin in 2014 were 35,600 t, a slight increase from those in 2013. Refined tin exports in 2014 were 5,700 t, significantly less than the 35,600 t of refined tin imported (tables 6, 7).

World Review

According to a survey by ITRI Ltd. (2015b), the world's 10 leading refined tin producers and their production in 2014 were, in descending order of production, Yunnan Tin Group Co., Ltd. (China), 75,900 t; Malaysia Smelting Corp. Bhd. (Malaysia), 35,200 t; PT Timah (Persero) tbk. (Indonesia), 27,600 t; Minsur S.A. (Peru), 24,200 t; Yunnan Chengfeng Co., Ltd. (China), 22,900 t; Thailand Smelting and Refining Co. Ltd. (Thailand), 17,000 t; Guangxi China Tin Group Co. Ltd. (China), 12,200 t; Empresa Metalúrgica Vinto S.A. (Bolivia), 11,800 t; Metallo Chimique International N.V. (Belgium), 9,800 t; and Yunnan Gejiu Zi-Li Metallurgy Co. Ltd. (China), 7,000 t.

World mine production rose slightly in 2014. The leading producers of tin in 2014 were, in descending order of production, China (38%), Indonesia (15%), Burma (13%), Peru (9%), and Bolivia (8%). Burma had the largest change, increasing production to 35,000 t from 17,000 t. Indonesia's production decreased to 38,500 t from 45,800 t.

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 and to share tin processing technology and expertise. If the first-stage analysis of the ore samples has beneficial results, Consolidated Tin Mines has the option to enter into a second stage, where Yunnan Tin will conduct laboratory-scale tests on tin ore samples, and a third stage of pilot-scale production. The Mt Garnet concentrator was expected to produce 2,900 metric tons per year (t/yr) of tin concentrate containing 68% tin, 235,000 t/yr of iron ore concentrate containing 65% iron, and 54,000 t/yr of fluorite concentrate containing 86% calcium fluoride (CaF₂) (Barrett, 2013; Consolidated Tin Mines Ltd., 2014).

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 5.9 Mt grading 1.37% tin and containing 81,000 t of tin metal. An additional 91,000 t of tin reserves were contained in 20.35 Mt of tailings grading 0.45% tin. In 2014, the Renison Mine processed 317,168 t of ore and produced 3,108 t of tin

metal in concentrate. As of yearend 2014, Metals X had yet to begin construction of its Rentails project to recover the tin and copper contained in the accumulated tailings (Metals X Ltd., 2014, p. 119).

China.—In 2014, China's gross imports of tin ores and concentrates increased by 84% to 177,950 t, of which 97% were from Burma. Imports of tin metal were 7,770 t, 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. Refined tin production was reported by the China Nonferrous Metals Industry Association to be 186,000 t (ITRI Ltd., 2015a).

The Shanghai Futures Exchange (SHFE) announced that they had applied to launch tin contract trading in 2015. The lot size would be only 1 t, with a minimum purity of 99.9%. The contract could be traded 24 hours per day on their electronic platform. The SHFE currently trades 12 contracts, including aluminum, copper, lead, silver, steel, and zinc (Shanghai Futures Exchange, 2014).

Egypt.—Gippsland Ltd. (Claremont, Western Australia, Australia) ended production from its alluvial tin operations at Abu Dabbab owing to technical issues. Performance at Abu Dabbab suffered due to multiple factors: stockpiled ore grades were 15% to 20% lower than expected; an unrecoverable tin component resulted in a lower tin yield in the concentrate; a high fixed cost of the operation; poor work practices; and low productivity. Gippsland shifted its focus to developing its tantalum-tin-feldspar project, which was undergoing a revised feasibility study. In August, Gippsland signed a non-binding agreement for the toll smelting of the tin-tantalum concentrates, eliminating the need for construction of their own smelter on site and the need for startup capital (Gippsland Ltd., 2014; Sparks, 2014).

Indonesia.—According to trade ministry data, Indonesia's exports of refined tin were 75,925 t in 2014. The President of the Association of Indonesian Tin Exporters called for an exemption of Indonesian smelters from the Conflict Free Smelter audits owing to official statistics that showed that Indonesia imported no concentrates from Congo (Kinshasa) and the surrounding countries (Dragomanovich, 2014a; ITRI Ltd., 2014b).

The Indonesian Presidential Regulation No. 32/2013, which authorized the ICDX to manage tin exports, was modified in 2014. The regulation required all tin ingot exports to go through the ICDX but allowed for an exemption of finished products such as solder. The revision, effective in November 2014, aimed at limiting 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. From September 2013 to July 2014, 20% of all surveyed tin products were classified as solder, and in some months the proportion of products classified as solder rose to 40% (ITRI Ltd., 2013, 2014f; Spicer, 2013).

The ICDX proposed several new initiatives to improve international sales and participation. A Bulletin Board system would allow sellers to deal directly with customers outside of the auction system, and a Small/Medium End-User plan would allow low-cost membership for small consumers. The Bulletin

Board system would be linked to the TINPB200 contract (a tin purity of 99.9% tin, and a maximum contaminant level of 200 parts per million) and would allow each of the 22 seller members to offer sales directly to consumers. The Small/Medium End-User plan would apply to users who purchase less than 250 t/yr of tin. These users would also be exempt from the normal \$30,000 joining fee and would have reduced membership fees (ITRI Ltd., 2014c).

Malaysia.—Rahman Hydraulic Tin Sdn. Bhd. (Kuala Lumpur) (RHT) purchased an 80% stake in SL Tin 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 (ITRI Ltd., 2014e).

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 (Metal Bulletin, 2014).

Outlook

The change in China's import mix, from importing large quantities of tin metal to importing tin concentrate, affected the tin markets in Burma and Indonesia. With prices decreasing owing to increased supplies of tin concentrate, Indonesian manufacturers are attempting to find new ways to increase cashflow. According to industry analysts, worldwide demand for primary tin is expected to increase moderately in 2015. Tin prices decreased throughout 2014, with a small peak in April but an overall decline of 2% (ITRI Ltd., 2014a, d).

With increasing demand and no new mines expected to open in 2015, the deficit of tin production relative to demand is expected to extend past 2016. Increasing production of tin concentrate in Burma could partially reduce the deficit. There are about 70 tin projects in the process of being developed, but only 4 of them were discovered after 1985 (Onstad, 2013; Dragomanovich, 2014b).

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.

References Cited

- Barrett, Lauren, 2013, Consolidated Tin eyes producer status: Cairns, Queensland, Australia, Consolidated Tin Mines Ltd., July 11. (Accessed January 7, 2015, at http://www.csdtin.com.au/wp-content/uploads/CSD_News_Articles/2013/2013-07-11%20-%20Consolidated%20Tin%20eyes%20producer%20status%20-%20MiningNewsPremium.pdf.)
- Consolidated Tin Mines Ltd., 2014, Company update: Cairns, Queensland, Australia, Consolidated Tin Mines Ltd., August 21, 2 p. (Accessed September 15, 2014, at <http://www.csdtin.com.au/wp-content/uploads/2014/08/2014-08-21-%20Company%20Update.pdf>.)
- CRU Tin Monitor, 2015, Supply demand consumption: London, United Kingdom, CRU International Ltd., February 19. (Accessed February 19, 2015, via <http://mycru.crugroup.com/>.)
- Dragomanovich, Vanya, 2014a, Indonesia's tin exports drop to lowest in 8 years: London, United Kingdom, Metal-Pages, December 12. (Accessed December 15, 2014, via <http://www.metal-pages.com>.)
- Dragomanovich, Vanya, 2014b, Tin mine projects in development will not cover future needs: London, United Kingdom, Metal-Pages, October 2. (Accessed December 15, 2014, via <http://www.metal-pages.com>.)
- Gippsland Ltd., 2014, Cessation of alluvial tin operations: Perth, Western Australia, Australia, Gippsland Ltd., September 10, 1 p. (Accessed November 14, 2014, at http://www.gippslandtd.com/upload/docs/140910_Cessation_of_Alluvial_Tin_Operations.pdf.)
- ITRI Ltd., 2013, ICDX promotes guaranteed supply and quality: Frogmore, United Kingdom, ITRI Ltd. news release, January 30. (Accessed September 18, 2014, at https://www.itri.co.uk/index.php?option=com_zoo&task=item&item_id=2955&Itemid=143.)
- ITRI Ltd., 2014a, Accelerating electronics growth forecast: Frogmore, United Kingdom, ITRI Ltd. news release, January 17. (Accessed September 24, 2015, at https://www.itri.co.uk/index.php?option=com_zoo&task=item&item_id=2941&Itemid=143.)
- ITRI Ltd., 2014b, AETI sees big drop in 2015 Indonesian exports: Frogmore, United Kingdom, ITRI Ltd. news release, November 24. (Accessed September 22, 2015, at https://www.itri.co.uk/index.php?option=com_zoo&task=item&item_id=3108&Itemid=143.)
- ITRI Ltd., 2014c, ICDX previews new trading initiatives: Frogmore, United Kingdom, ITRI Ltd. news release, November 25. (Accessed September 22, 2015, at https://www.itri.co.uk/index.php?option=com_zoo&task=item&item_id=3111&Itemid=143.)
- ITRI Ltd., 2014d, Investment needed to boost tin supply: Frogmore, United Kingdom, ITRI Ltd. news release, July 22. (Accessed September 18, 2015, at https://www.itri.co.uk/index.php?option=com_zoo&task=item&item_id=3049&Itemid=143.)
- ITRI Ltd., 2014e, MSC unit to acquire Malaysian tin prospect: Frogmore, United Kingdom, ITRI Ltd. news release, March 21. (Accessed September 18, 2015, at https://www.itri.co.uk/index.php?option=com_zoo&task=item&item_id=2991&Itemid=143.)
- ITRI Ltd., 2014f, Revised Indonesian export rule to take effect on 1 November: Frogmore, United Kingdom, ITRI Ltd. news release, July 28. (Accessed September 18, 2015, at https://www.itri.co.uk/index.php?option=com_zoo&task=item&item_id=3057&Itemid=143.)
- ITRI Ltd., 2015a, China tin ores and concentrates imports up 50% in 2014: Frogmore, United Kingdom, ITRI Ltd. news release, February 3. (Accessed September 18, 2015, at https://www.itri.co.uk/index.php?option=com_zoo&task=item&item_id=3136&Itemid=143.)
- ITRI Ltd., 2015b, The top 10 refined tin producers of 2014: Frogmore, United Kingdom, ITRI Ltd. news release, March 19. (Accessed September 18, 2015, at https://www.itri.co.uk/index.php?option=com_zoo&task=item&item_id=3169&Itemid=143.)
- Metal Bulletin, 2014, TINCO signs 25-year mine license agreements with Rwandan Government: London, United Kingdom, Metal Bulletin, September 4. (Accessed November 15, 2014, at <http://www.metalbulletin.com/Article/3377118/TINCO-signs-25-year-mine-licence-agreements-with-Rwandan-government.html>.)
- Metals X Ltd., 2014, 2014 annual report: West Perth, Western Australia, Australia, Metals X Ltd., September 22, 126 p. (Accessed November 15, 2014, at https://www.metalsx.com.au/system/assets/53/original/2014_Annual_Report.pdf.)
- Onstad, Eric, 2013, Tin deficit to deepen in 2014 to 12,400 t, prices to rise—ITRI: London, United Kingdom, Thomson Reuters, November 29. (Accessed September 23, 2014, at <http://www.reuters.com/article/2013/11/29/tin-deficit-idUSL5N0JE3AC20131129>.)
- Shanghai Futures Exchange, 2014, The SHFE—Mature conditions for listing nickel, tin futures products: Shanghai, China, Shanghai Futures Exchange, September 29. (Accessed November 25, 2014, at <http://www.shfe.com.cn/en/AnnouncementandNews/SHFENews/911321292.html>.)
- Sparks, Polina, 2013, Malaysia's Perak State partners with ITRI—UK experts on sustainable tin mining: London, United Kingdom, Metal-Pages, December 18. (Accessed September 15, 2014, via <http://www.metal-pages.com>.)
- Sparks, Polina, 2014, Gippsland revises costs of Abu Dabbab tin-tantalum project: London, United Kingdom, Metal-Pages, February 3. (Accessed September 15, 2014, via <http://www.metal-pages.com>.)

Spicer, Andi, 2013, Indonesia tin exports slide to six-year low as metal prices rally on exchange restrictions: London, United Kingdom, Metal-Pages, October 7. (Accessed September 15, 2014, via <http://www.metal-pages.com/>.)

U.S. Congress, 2010, Dodd-Frank Wall Street Reform and Consumer Protection Act: U.S. Congress Public Law 111–203, July 21, p. 1375–2223. (Accessed September 15, 2014, at <http://www.gpo.gov/fdsys/pkg/PLAW-111publ203/pdf/PLAW-111publ203.pdf>.)

GENERAL SOURCES OF INFORMATION

U.S. Geological Survey Publications

Conflict Minerals From the Democratic Republic of the Congo—Tin Processing Plants, a Critical Part of the Tin Supply Chain (ver. 2.0, July 31, 2015). Fact Sheet 2015–3022, 2015.

Historical Statistics for Mineral and Material Commodities in the United States. Data Series 140.

Recycling—Metals. Ch. in Minerals Yearbook, annual.

Tin. Ch. in Mineral Commodity Summaries, annual.

Tin. Ch. in United States Mineral Resources, Professional Paper 820, 1973.

Tin. International Strategic Minerals Inventory Summary Report, Circular 930–J, 1990.

Tin. Mineral Industry Surveys, monthly.

Tin Resources of the World. Bulletin 1301, 1969.

Tin (Sn). Ch. in Metal Prices in the United States Through 2010, Scientific Investigations Report 2012–5118, 2013.

Other

Canadian Mining Journal.

Resource World.

Resources Recycling.

Roskill Information Services Ltd.

Tin. Ch. in Mineral Facts and Problems, U.S. Bureau of Mines Bulletin 675, 1985.

Waste Age.

TABLE 1
SALIENT TIN STATISTICS¹

(Metric tons contained tin, unless otherwise specified)

	2010	2011	2012	2013	2014	
United States:						
Production, secondary (old scrap)	11,100	11,000	11,200	10,600 ^r	10,600 ^e	
Exports, refined tin	5,630	5,450	5,560	5,870	5,700	
Imports for consumption, refined tin	35,300	34,200	36,900	34,900	35,600	
Consumption:						
Primary	25,300	25,200	24,500	25,700	24,200	
Secondary	4,820	3,280	3,240	4,730	3,250	
Stocks, yearend, U.S. industry	6,410	6,280	6,910	6,520 ^r	7,010	
Prices, average:						
New York, NY, market	cents per pound	954.13	1,215.90	989.60	1,041.43	1,023.05
Platts Metals Week composite	do.	1,239.64	1,574.67	1,283.37	1,352.43	NA
London, United Kingdom	do.	925.15	1,184.05	957.26	1,011.92	993.75
Kuala Lumpur, Malaysia	do.	922.17	1,187.54	958.44	1,011.85	992.53
World, production:						
Mine	266,000 ^r	268,000 ^r	254,000 ^r	244,000 ^r	261,000	
Smelter:						
Primary	326,000 ^r	321,000	314,000 ^r	311,000 ^r	358,000 ^e	
Secondary	22,100	22,000	23,600	23,500 ^r	23,500 ^e	
Total	348,000 ^r	344,000 ^r	338,000 ^r	334,000 ^r	382,000 ^e	

^eEstimated. ^rRevised. do. Ditto. NA Not available.

¹Data are rounded to no more than three significant digits, except prices.

TABLE 2
U.S. CONSUMPTION OF PRIMARY AND SECONDARY TIN¹

(Metric tons, contained tin)

	2013	2014
Stocks, January 1 ²	7,110	5,530
Net receipts during year:		
Primary	25,600	24,000
Secondary	2,620	1,250
Scrap	1,970	2,450
Total receipts	30,100 ^r	27,700
Total available	37,300	33,200
Tin consumed in manufactured products:		
Primary	25,700	24,200
Secondary	4,730	3,250
Total	30,400	27,500
Intercompany transactions in scrap	5	368
Total processed	30,400	27,800
Stocks, December 31 (total available less total processed)	6,820 ^r	5,390

^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes tin in transit in the United States.

TABLE 3
U.S. CONSUMPTION OF TIN, BY FINISHED PRODUCT¹

(Metric tons, contained tin)

Product	2013			2014		
	Primary	Secondary	Total	Primary	Secondary	Total
Alloys, miscellaneous ²	7,160	W	7,160	3,970	W	3,970
Babbitt	401	419	820	245	37	282
Bar tin	W	W	W	W	W	W
Bronze and brass	1,090	1,290	2,380	650	1,070	1,720
Chemicals	6,790	W	6,790	5,420	W	5,420
Solder	3,020	2,920	5,940	2,820	2,040	4,860
Tinning	511	--	511	514	--	514
Tinplate ³	6,030	W	6,030	5,910	W	5,910
Other ⁴	704	103	807	4,680	98	4,780
Total	25,700	4,730	30,400	24,200	3,250	27,500

W Withheld to avoid disclosing company proprietary data; included with "Other." -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes terre metal.

³Includes secondary pig tin and tin acquired in chemicals.

⁴Includes britannia metal, collapsible tubes and foil, jewelers' metal, pewter, tin powder, type metal, and white metal.

TABLE 4
U.S. INDUSTRY YEAREND TIN STOCKS¹

(Metric tons, contained tin)

	2013	2014
Plant raw materials:		
Pig tin:		
Primary ²	4,980 ^r	4,860
Secondary	107	102
In process ³	387	379
Total	5,480 ^r	5,340
Additional pig tin:		
Jobbers-importers	855	1,480
Afloat to United States	191	191
Total	1,050	1,670
Grand total	6,520 ^r	7,010

^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes tin in transit in the United States.

³Data only include tin content of scrap.

TABLE 5
U.S. STOCKS, RECEIPTS, AND CONSUMPTION OF NEW AND OLD SCRAP AND TIN RECOVERED, BY TYPE OF SCRAP¹

(Metric tons)

Type of scrap	Gross weight of scrap						Tin recovered ^e		
	Stocks, January 1	Receipts	Consumption			Stocks, December 31	New	Old	Total
			New	Old	Total				
2013:									
Copper-base scrap:									
Ingot makers ^f	3,630	47,600	6,120	41,500	47,600	3,650	194	1,840	2,030
Brass mills ²	W	W	W	W	W	W	1,230	W	1,230
Foundries and other plants ^f	1,350	16,800	14,500	2,260	16,700	1,390	W	85	85
Total	XX	XX	XX	XX	XX	XX	1,420 ^r	1,920 ^r	3,340 ^r
Lead-base scrap	43,700	1,120,000	27,700	1,100,000	1,120,000	42,800	727	8,650	9,380
Tin-base scrap ³	W	W	W	W	W	W	W	W	W
Grand total	XX	XX	XX	XX	XX	XX	2,150 ^r	10,600 ^r	12,700 ^r
2014:									
Copper-base scrap: ^e									
Ingot makers	3,650	47,600	6,120	41,500	47,600	3,670	194	1,840	2,030
Brass mills ²	W	W	W	W	W	W	1,230	W	1,230
Foundries and other plants	1,390	16,800	14,500	2,260	16,700	1,430	W	85	85
Total	XX	XX	XX	XX	XX	XX	1,420	1,920	3,340
Lead-base scrap	42,700	1,120,000	24,300	1,090,000	1,120,000	43,100	638	8,640	9,280
Tin-base scrap ³	W	W	W	W	W	W	W	W	W
Grand total ^e	XX	XX	XX	XX	XX	XX	2,060	10,600	12,600

^eEstimated. ^rRevised. W Withheld to avoid disclosing company proprietary data. XX Not applicable.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Consumption is assumed to be equal to receipts.

³Includes tinplate and other scrap recovered at detinning plants.

TABLE 6
U.S. EXPORTS OF TIN IN VARIOUS FORMS¹

Form	2013		2014	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Ingots and pigs	5,870	\$38,400	5,700	\$45,400
Tin scrap and other tin-bearing material except tinplate scrap (gross weight) ²	10,700	59,000	127,000	58,400
Tinplate and terneplate (gross weight)	135,000	109,000	148,000	116,000

¹Data are rounded to no more than three significant digits.

²Includes rods, profiles, flakes, tubes, and pipes.

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF TIN IN VARIOUS FORMS¹

Form	2013		2014	
	Quantity (metric tons, gross weight)	Value (thousands)	Quantity (metric tons, gross weight)	Value (thousands)
Dross, skimmings, scrap residues, tin alloys, n.s.p.f. ²	64,300	\$36,100	50,600	\$38,100
Miscellaneous ³	XX	33,900	XX	38,200
Tin compounds	257	5,230	412	8,300
Tinplate and terneplate	488,000	546,000	634,000	696,000
Tinplate scrap	59,700	21,400	78,900	24,500

XX Not applicable.

¹Data are rounded to no more than three significant digits.

²Not specifically provided for.

³Includes tinfoil, tin powder, flitters, metallics, and other manufactures n.s.p.f.

Source: U.S. Census Bureau.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF UNWROUGHT TIN METAL,
BY COUNTRY¹

Country	2013		2014	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Belgium	218	\$5,250	219	\$4,580
Bolivia	6,510	147,000	4,550	104,000
Brazil	3,100	69,800	3,030	67,200
Canada	28	627	57	1,310
Chile	--	--	157	3,520
China	1,610	36,900	3,470	78,000
Indonesia	5,560	109,000	8,140	170,000
Japan	--	--	--	--
Malaysia	4,190	93,400	6,050	135,000
Peru	11,300	252,000	9,260	209,000
Singapore	101	2,100	375	7,840
Switzerland	--	--	--	--
Thailand	2,380	54,500	291	6,420
United Kingdom	--	--	--	--
Other	4	27	2	71
Total	34,900	771,000	35,600	787,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 9
TIN: WORLD MINE PRODUCTION, BY COUNTRY^{1,2}

(Metric tons, contained tin)

Country	2010	2011	2012	2013	2014
Australia	18,263	14,014	6,158	6,472 ^r	7,207
Bolivia	20,190	20,373	19,702	19,287 ^r	19,791
Brazil	10,400	10,725	13,667	16,830 ^r	17,000 ^e
Burma ⁴	4,000	11,000 ^e	10,600	17,000 ^r	35,000 ^e
Burundi	12	22	21	13 ^r	32
China ^e	115,000	120,000	110,000	97,000 ^r	99,000
Congo (Kinshasa) ^c	8,000 ^r	5,600 ^r	4,800 ^r	4,500 ^{r,3}	6,500
Indonesia	43,258	43,258 ^r	49,300 ^r	45,800 ^r	38,545
Laos	925	674	762	579 ^r	866
Malaysia	2,668	3,340 ^r	3,725 ^r	3,697 ^r	3,777
Nigeria ^{e,5}	160 ^r	270 ^r	340 ^r	390 ^r	460
Peru	33,848	28,882	26,105	23,668	23,105
Portugal	22	39	42 ^r	84 ^r	75 ^e
Russia	144	75	100	249 ^r	500 ^e
Rwanda ^c	3,300	4,400 ^r	2,900 ^r	3,100 ^r	3,800
Thailand	292 ^r	286 ^r	199 ^r	132 ^r	156
Uganda, placer	32	-- ^r	--	18 ^r	31
Vietnam ^c	5,400	5,400	5,400	5,400	5,400
Total	266,000 ^r	268,000 ^r	254,000 ^r	244,000 ^r	261,000

^cEstimated. ^rRevised. -- Zero.

¹World totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²Includes data available through December 23, 2015.

³Reported figure.

⁴Includes content of tin-tungsten concentrate.

⁵Tin content is estimated as 62% of reported gross weight concentrate.

TABLE 10
TIN: WORLD SMELTER PRODUCTION, BY COUNTRY^{1,2}

(Metric tons, contained tin)

Country	2010	2011	2012	2013	2014 ^c
Australia, secondary ^c	400	400	400	400	400
Belgium, secondary ^c	9,900	10,000	11,400	12,000	12,000
Bolivia, primary	15,003 ^r	14,295 ^r	14,626 ^r	14,862 ^r	15,439 ³
Brazil:					
Primary	9,098	9,382	11,955	14,721	15,000
Secondary ^c	250	250	250	250	250
Total	9,348	9,632	12,205	14,971	15,250
Burma, primary ^c	30	30	30	30	30
China, primary ^c	150,000	156,000	148,000	150,000	187,000
Denmark, secondary ^c	75	60	50	50	50
Greece, secondary ^c	60	50	50	50	50
Indonesia, primary	51,418 ^r	43,832 ^r	51,400 ^r	48,800 ^r	58,233 ³
Japan, primary	841	947	1,133	1,786 ^r	1,746 ³
Malaysia, primary	38,771 ^r	40,281 ^r	37,823 ^r	32,633 ^r	35,018 ³
Norway, secondary ^c	50	50	50	50	50
Peru, primary	36,451	32,290	24,811	24,181	24,462 ³
Russia: ^c					
Primary	1,081 ³	526 ³	500	400	400
Secondary	300	200	200	150	150
Total	1,380	730	700	550	550
Spain, secondary ^c	10	10	10	10	10
Thailand, primary	20,000	20,000	19,996 ^{r,3}	19,088 ^{r,3}	16,929 ³
United States, secondary	11,100	11,000 ³	11,200	10,600 ^r	10,600
Vietnam, primary	3,042 ³	3,900	4,000	4,000	4,000
Grand total	348,000 ^r	344,000 ^r	338,000 ^r	334,000 ^r	382,000
Of which:					
Primary	326,000 ^r	321,000	314,000 ^r	311,000 ^r	358,000
Secondary	22,100	22,000	23,600	23,500 ^r	23,500

^cEstimated. ^rRevised.

¹World totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²Whenever possible, total output has been separated into primary (from ores and concentrates) and secondary (tin metal recovered from old scrap). Data reflect metal production at the first measurable stage of metal output. Includes data available through December 23, 2015.

³Reported figure.