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2009 Minerals Yearbook

TIN

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TIN

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Tin has not been mined in the United States since 1993; consequently, the country was reliant on imports and recycling for its tin needs. In 2009, 25 firms consumed 91% of the primary tin used domestically. The major uses were as follows: metal containers, 19%; solders, 16%; transportation, 16%; construction, 11%; and other, 38%. The estimated value of primary tin metal consumed domestically was $459 million. Industry stocks declined by 18% compared with those at yearend 2008 (table 1). The Defense Logistics Agency (DLA) managed the National Defense Stockpile (NDS).

Approximately 13,400 metric tons (t) of tin, most of it from old scrap, was recycled (table 5). About one-fourth of the tin consumed in the United States was recycled metal.

World tin mine output decreased slightly compared with that in 2008, and world primary tin smelter production increased by 7% compared with that of 2008 (tables 1, 9–10). Of the 20 countries in which tin was mined, the top 5 accounted for 92% of the total world tin production of 260,000 t. China was the leading producer (44% of world output), followed by Indonesia (21%), and Peru (14%). Industry analysts considered the world tin market in 2009 to have a slight deficit of supply relative to consumption. The composite tin price decreased by 26% from that of 2008. World tin reserves were estimated to be 5.2 million metric tons (Mt), about 16 times the estimated annual world primary tin consumption of 350,000 t. Most tin reserves are in Asia and South America.

Legislation and Government Programs

In August 2008, the Defense National Stockpile Center (DNSC) suspended sales of tin until further notice; therefore, the DLA sold no tin in 2009. The fiscal year annual materials plan for tin was set at 6,000 t. As of December 31, 2009, the tin inventory was 4,020 t, all of which was stored at the DNSC's depot in Hammond, IN (David Kotok, DLA Strategic Materials, written commun., January 11, 2011).

Production

Mine.—Tin was not mined in the United States in 2009. Until 1993, a few small tin mines had operated sporadically in the United States; no mine production data have been reported to the U.S. Geological Survey (USGS) since that year.

Secondary.—Industry analysts considered the United States to be the world's leading producer of secondary or scrap tin. Most secondary tin was generated during manufacturing from various scrapped alloys of tin and recycled in those same alloy industries. Secondary tin from recycled fabricated parts was used in many kinds of products and was a particularly important source of tin for the manufacture of brass and bronze and solder.

Consumption

In 2009, domestic consumption of primary tin increased by 8% compared with that in 2008 (tables 1, 2). Domestic consumption data for tin were developed by the USGS from a voluntary survey of tin consumers. Of the 105 firms to which a survey form was sent, 68 responded, including the major consumers. Data for the nonrespondents were estimated based on prior-year reporting.

The total number of metal cans shipped was 129 billion in 2009 compared with 132 billion in 2008. Steel (essentially tinplate and tin-free steel) dominated in the food, pet, and general line can markets, and aluminum held 100% of the beverage can market (Can Manufacturers Institute, 2009, p. 24).

Prices

The Platts Metals Week average composite price for tin metal decreased by 26% from that in 2008. Industry observers attributed the decline in price to selective decreases in some tin-consuming countries, partly owing to the effects of the economic slowdown. The London Metal Exchange Ltd. (LME) remained the principal trading site for tin.

Foreign Trade

U.S. imports of refined tin, which supplied most domestic tin requirements, decreased by 9% compared with those of 2008 (table 8). Imports of tin in all forms (metal, ore and concentrate, scrap, and waste) remained duty free, and were held in U.S. warehouses by trading firms until sold to customers. Foreign-owned trading firms tended to dominate the marketing of imports. U.S. imports of tin came mostly from Peru, Bolivia, Indonesia, China, and Brazil, in descending order. Refined tin exports were significantly less than imports (tables 6, 8).

World Review

The Association of European Producers of Steel for Packaging (Apeal) (Brussels, Belgium) reported that the recycling rate of packaging steels (mostly tinplate) reached a record 70% in Europe in 2008. About 2.5 Mt of food and drink cans and other steel containers were recycled, representing a slight increase from that in 2008. Apeal noted that these data make steel the leading recycled packaging material compared with glass (62%), cardboard (33%), and plastic (29%). Belgium was again the recycling leader in Europe, recycling 93% of its steel containers. Germany, Luxembourg, and the Netherlands followed closely behind, each recycling more than 87% of their steel containers (Canmaker, The, 2010).

Secondary or scrap production has long been an important component of the world's refined tin supply. Some sources estimated that 10% to 12% of world refined tin production came from secondary sources. Several companies announced the startup of new tin recycling plants in 2009.

The World Bureau of Metal Statistics (WBMS) issued data on world supply and demand in 2008, showing that of the six metals traded on the LME, tin was the only one with a supply deficit. However, world tin consumption fell more in 2008 than did consumption for the other metals. WBMS estimated that the world tin supply fell short of demand by 4,300 t in 2008. WBMS also estimated that tin consumption in China decreased by 5% in 2008, and Japan experienced a 6% decrease. The strongest market was Europe where consumption increased by 2% (ITRI Ltd., 2009).

CRU Tin Monitor (2009a) identified 12 companies that consistently produced more than 5,000 metric tons per year (t/yr) of tin. The firms and their 2008 refined tin production (in metric tons) were as follows:

1. Yunnan Tin Group Co., Ltd. (China), 58,400;
2. PT Timah Tbk (Indonesia), 49,000;
3. Minsur S.A. (Peru), 38,000;
4. Malaysia Smelting Corp. (Malaysia), 31,600;
5. Thailand Smelting and Refinery Co. Ltd. (Thailand), 21,700;
6. Yunnan Chengfeng Non-Ferrous Metals Co., Ltd. (China), 13,500;
7. Liuzhou China Tin Group, Ltd. (China), 12,000;
8. Metallo Chimique N.V. (Belgium), 9,200;
9. Em Vinto (Bolivia), 8,800;
10. PT Koba Tin (Indonesia), 7,100;
11. Gejiu Zi-Li Co., Ltd. (China), 7,000; and
12. Taboca/Paranapanema (Brazil), 6,100.

In a related study, CRU Tin Monitor (2009a) reported data showing the concentration of production ownership in tin in different countries compared with that in other major metals. With the top five refined tin producers accounting for 65% of world tin output, tin ranks number one among the seven major metals compared. The other metals and their degree of concentration in their respective metals were nickel (61%), aluminum (38%), gold (32%), zinc (30%), copper (28%), and lead (22%).

Argentina.—Silver Standard Resources Inc. (Vancouver, British Columbia, Canada) announced that its wholly owned Pirquitas project in Jujuy, began production of concentrate in December. The mine was primarily a silver mine, with significant tin and zinc byproducts; silver and tin concentrates were expected to account for about 95% of the mine's revenue. Silver Standard estimated that the cost to develop the Pirquitas facility was $230 million (TIN World, 2009a).

Australia.—Australia's Foreign Investment Review Board approved the proposed deal between Metals X Ltd. (East Perth, Western Australia) and Yunnan Tin Co. (YTC) (Kunming, Yunnan Province, China) for the sale of up to 60% of its interest in Metals X's Tasmanian assets for $55 million. Under the agreement, Yunnan Tin would pay Metals X an initial $45 million for a 50% stake in Metals X's wholly owned subsidiary, Bluestone Mines Tasmania, which operated the Tasmanian tin assets. Yunnan Tin would have the option of purchasing the remaining 10% stake for $9 million during the next 2 years. The two companies would form a joint venture to continue the development of the assets, which include the Renison Bell underground mine, the Mt. Bischoff open pit mine, the Renison tin concentrator plant, and the Rentails tailings retreatment project (Platts Metals Week, 2009c).

Bolivia.—Corporación Minera de Bolivia (Comibol) (La Paz), the parent company of Empresa Minera Huanuni (EMH), expected to spend $40 million to build a new mill at EMH's Oruro Mine, which would raise daily ore throughput to 3,000 metric tons per day (t/d) from 1,200 t/d. The mine produced 7,880 t of tin-in-concentrate in 2008 and was the country's leading tin mine (CRU Tin Monitor, 2009d).

Also, EMH announced plans to invest $2 million to build a tailings dam at the Huanuni Mine. Until December 2009, waste from the concentrator at the operation had been discharged straight into the local river, from which local community members scavenged tin not recovered at the mill (CRU Tin Monitor, 2009b).

The Government of Bolivia agreed to guarantee a $20 million investment to install a new Ausmelt furnace at the state-owned Vinto tin smelter. The new furnace would increase the smelter's treatment capacity to 38,000 t/yr of tin concentrate, allowing it to produce 17,000 t/yr of refined tin, an increase from 11,000 t/yr currently. The Government seized Vinto in February 2007 from the trading firm Glencore International AG (Baar, Switzerland) (Platts Metals Week, 2009a).

Brazil.—Data from Brazil's tin producers association, Sindicato Nacional da Industria e Extracao de Estanho (SNIEE), showed a 15% year-on-year decline in national tin mine production in January through September 2009. Total output of tin-in-concentrate was reported at 8,100 t, down from 9,500 t in the same period of 2008. The decline was owing to the sharp fall in production at Mineracao Taboca SA's (Manaus) Pitinga Mine as a result of a major reorganization of operations that began following Taboca's acquisition by Minsur S.A. (Lima, Peru) in late 2008. Production at Pitinga decreased by 55% to 2,200 t in the first 9 months of 2009. This was partly offset by a large increase in production by small-scale garimpeiro operations (CRU International Ltd., 2009c).

China.—Nanshan Tin Co. Ltd. commissioned a new tin smelter in Nankang Industrial Zone, Jiangxi Province, on April 9. The smelter had a design capacity of 10,000 t/yr of refined tin and cost $22 million. The startup took place at a time when Chinese tin smelters struggled to obtain sufficient raw materials owing to shortages of scrap. Nanshan Tin was reported to have a business relationship with a Jiangxi Province mining firm, which was likely to provide part of its concentrate feed (Metals Place, 2009).

Liuzhou China Tin Group Co. Ltd. (Liuzhou, Guangxi Province) was expected to be the fourth major world tin smelter to adopt Ausmelt tin smelting technology. Two of the world's leading producers, Minsur and YTC already operate large Ausmelt plants, and Bolivia's Vinto tin smelter planned to install a new unit in 2010–11. Liuzhou's new 20,000-t/yr capacity tin smelter was to be built alongside the existing facility at Liabing

City. Liuzhou China Tin produced 12,000 t of refined tin in 2008 (CRU Tin Monitor, 2009b).

YTC reported promising initial results in the trial operation of a hydrometallurgical method to recover copper, tin, and tungsten from tailings. The project was conducted by Makuang Mining (a subsidiary of YTC). The trial operation started in March and involved the processing of more than 10,000 t of ore with 0.6% copper, 0.2% tin, and 0.1% tungsten (CRU International Ltd., 2009c).

Congo (Kinshasa).—Thailand Smelting and Refining Co. Ltd. (Thaisarco) (Phuket, Thailand), the only tin smelting firm in Thailand, and a subsidiary of the multinational organization AMC Group Ltd. (London, United Kingdom), announced on September 18 that it had suspended all purchases of tin ore from Congo (Kinshasa). The decision followed continued criticism by the Global Witness Organization, whose stated goal was to expose allegedly corrupt exploitation of natural resources. AMC stated that Thaisarco would not enter into further contracts with suppliers of tin ore unless it had the support of the United Nations and campaign groups for certification schemes. Thaisarco had been participating with the tin research organization ITRI Ltd. (St. Albans, United Kingdom) to develop a certification plan to verify the origin of shipments of tin ore. The first stage of the ITRI Tin Supply Chain Initiative was implemented on July 1 and included, among other requirements, a system for written confirmation of origin of the mineral from each supplier. The deposits of cassiterite in Congo (Kinshasa), the chief source of tin, were found in a broad zone extending from northern Shaba region through Sud-Kivu and Nord-Kivu Provinces to the Haut-Zaire region. These deposits were worked by artisanal miners using picks and shovels, and a single container load of ore could be sourced from thousands of miners (TIN World, 2009d).

Indonesia.—The Government set a tin production quota of 105,000 t in 2009, a 47% increase from tin output in 2008. Of the 105,000 t, 90,000 t would come from Bangka Island, which has many smelters, including those of PT Koba Tin (Jakarta) and PT Timah Tin (Jakarta), and the remaining production would come from the Riau Islands (Platts Metals Week, 2009b).

Tin smelter production in Indonesia experienced several setbacks during 2009. Independent tin smelters reported continuing problems in obtaining sufficient supplies of tin ore. The PT Bangka-Belitung Timah Sejahtera tin smelter operated at 30% to 40% below its capacity of 5,000 to 6,000 metric tons per month of refined tin for much of the year. Koba Tin [75% owned by Malaysia Smelting Corp. (Butterworth, Malaysia) and 25% by PT Timah Tbk (Bangka)] was forced to shut down two gravel pumps after they were flooded following heavy rains in May (CRU International Ltd., 2009b).

Koba Tin announced plans to produce 9,000 t of tin in 2009. Koba Tin produced 7,200 t of refined tin in 2008 including production from the treatment of stockpiled slags. The increase in production in 2009 would come from the opening of four new gravel pumps and a planned resumption of small-scale subcontractor mining. Koba Tin also operated one onshore dredge (CRU International, Ltd., 2009a).

PT Latinusa Tbk (Jakarta) announced plans to nearly double its tinplate production capacity to 250,000 t/yr by 2013–14. Production capacity in 2009 was 130,000 t/yr, with actual production expected to increase to 120,000 t in 2010 from 90,000 t in 2009. PT Latinusa was divesting 55% of its equity to a consortium headed by Nippon Steel Corp. (Tokyo, Japan) and a public offering of another 20% to raise funds for the expansion (CRU Tin Monitor, 2009c).

Japan.—Kosaka Smelting and Refining (Kosaka), Mitsui Mining and Smelting (Tokyo), and Nippon Mining & Metals Co. Ltd. (Tokyo) announced plans (separately) to recover tin, along with copper and precious metals, from the treatment of post-consumer electronics scrap and other materials. Nippon Mining completed the first phase of construction and partly started test operation of the Hitachi Metal Recycling Complex (HMC) (Ibaraki) project in September. The plant, located within an existing Nippon Mining copper refining and electronic components manufacturing complex in Hitachi City, has a capacity to produce 150 t/yr of antimony, 200 t/yr of bismuth, as well as 500 t/yr each of nickel and tin. HMC planned to recover the metals by leaching electronic and auto component scrap collected mainly in the Tokyo area (CRU Tin Monitor, 2009a).

Morocco.—Kasbah Resources Ltd. (South Perth, Western Australia, Australia) raised $2.5 million to fund further drilling at its Achmmach tin project in Morocco. The funds would be directed towards diamond drilling of 15,000 square meters in the Meknes Zone, which was part of a plan to complete a feasibility study on the project by June 2011 (CRU Tin Monitor, 2009d).

Poland.—Fenix Metals Ltd. (Tamobrzeg) started up a new 3,500-t/yr vacuum distillation unit in Poland late in 2009 and planned to make a similar investment at its sister company, Falcon Metals Ltd. (Jebel Ali, United Arab Emirates). Fenix planned to produce 1,500 t of refined tin from scrap in 2009 and also was investing in additional processing technology that would allow it to treat more complex materials.

Russia.—The country's leading tin mining firm, JSC Sakhaolovo, LLC (Sakhaolova), reportedly near bankruptcy, ceased production and laid off almost all its employees. The firm's parent company (Tsvetmet Holding) abandoned the operation. All of Sakhaolovo's tin production comes from its Deputastsky deposit in the Ust-Yansky District. The only hope for Sakhaolovo's survival reportedly may be a Government bailout based on the mine's status as a national strategic resource (Marchmont News.com, 2009). The mine closure also affected the Novosibirsk Integrated Tin Works (NOK) (Novosibirsk), the country's sole refined tin producer. NOK stopped receiving tin concentrate from Sakhaolovo and was unable to offset the shortage with supplies from other sources (CRU Tin Monitor, 2009d).

Singapore.—Singapore Tin Industries Pty. Ltd. (STI) announced that it would put up its assets for tender, signaling the end of operations for the firm; STI had been closed since yearend 2008. YTC owned 51% of STI, and KJP International Corp. (Taipei, Taiwan) owned the remaining 49%. STI had the capacity to produce 36,000 t/yr of refined tin, and in 2007 had commissioned a 12,000-t/yr tin smelter on Bangka Island in Indonesia (CRU International Ltd., 2009a).

United Kingdom.—Western United Mines Ltd. (WUM) (Redruth), the owner of the South Crofty Tin Mine (Pool), announced a new focus in returning the mine to production

during the next 2 years. Although long known as a tin mine in the area that has produced tin ore for more than 300 years, South Crofty was actually a polymetallic mine, containing copper, lithium, precious metals, and zinc. WUM thought that by recovering a range of base metals, the mine would take advantage of a range of fluctuating metal prices rather than being at the mercy of the rise and fall of tin prices. WUM planned to develop research projects with the Camborne School of Mines (Tremough) to implement this approach (TIN World, 2009c).

Zimbabwe.—The Zimbabwe Mining Development Corp. (ZMDC) (Harare) held discussions with a South African company to reopen the Kamativi Tin Mine. Kimativi was acquired by ZMDC in 1986 but closed in 1994 following a slump in global tin prices and the exhaustion of higher grade tin ores. During the mid-1980s, the opencast and underground operations together produced about 1,000 t/yr of tin-in-concentrate. At that time, ore grades were about 0.125% tin for the opencast operations and 0.15% to 0.35% tin for the underground operations (TIN World, 2009b).

Outlook

Domestic demand for primary tin worldwide was expected to increase moderately in the near term, at a rate of about 3% per year. That rate, however, could double in a few years if new applications—especially those in which tin is substituted for toxic materials, such as lead-free solders—continue to find acceptance in the marketplace.

World tin reserves appeared to be adequate to meet foreseeable demand. Secondary sources of tin were likely to remain an important component of supply, especially in the United States. The August 2008 cessation of tin sales from the NDS, unless revised, would end tin supply from this source. Domestic tin requirements were expected to continue to be met primarily through imports.

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TABLE 1
SALIENT TIN STATISTICS[1]

		2005	2006	2007	2008	2009
United States:						
Production, secondary, contained tin[e]	metic tons	11,700	11,600	12,200	11,700 [r]	11,100
Exports, refined tin	do.	4,330	5,490	6,410	9,800	3,170
Imports for consumption, refined tin	do.	37,500	43,300	34,600	36,300	33,000
Consumption, contained tin:						
Primary	do.	31,400	29,200	23,700	23,100 [r]	24,900
Secondary	do.	9,170	8,480	7,490	6,250	7,750
Stocks, yearend, U.S. industry, contained tin	do.	8,080	7,890	9,100	8,560	7,020
Prices, average, contained tin:						
New York, NY, market	cents per pound	360.94	419.49	679.50	864.53	641.62
Platts Metals Week composite	do.	483.05	565.12	899.48	1,128.97	837.08
London, United Kingdom	do.	334.00	398.00	659.05	836.76	615.15
Kuala Lumpur, Malaysia	do.	333.55	397.69	658.42	837.70	609.34
World, production, contained tin:	do.					
Mine	metric tons	296,000 [r]	291,000 [r]	301,000 [r]	257,000 [r]	260,000 [e]
Smelter:						
Primary	do.	324,000	320,000 [r]	327,000 [r]	305,000 [r]	325,000 [e]
Secondary	do.	20,100	19,100	18,600	18,000 [r]	17,300 [e]
Undifferentiated	do.	200	50	--	--	--

[e]Estimated. [r]Revised. do. Ditto. -- Zero.

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

TABLE 2
U.S. CONSUMPTION OF PRIMARY AND SECONDARY TIN[1]

(Metric tons of contained tin)

	2008	2009
Stocks, January 1[2]	8,760	8,940
Net receipts during year:		
Primary	22,700	26,200
Secondary	4,300	5,890
Scrap	2,410	2,170
Total receipts	29,400	34,300
Total available	38,200	43,200
Tin consumed in manufactured products:		
Primary	23,100 [r]	24,900
Secondary	6,250	7,750
Total	29,400 [r]	32,600
Intercompany transactions in scrap	402	285
Total processed	29,800 [r]	32,900
Stocks, December 31 (total available less total processed)	8,460	10,300

[r]Revised.

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

[2]Includes tin in transit in the United States.

TABLE 3
U.S. CONSUMPTION OF TIN, BY FINISHED PRODUCT[1]

(Metric tons of contained tin)

Product	2008			2009		
	Primary	Secondary	Total	Primary	Secondary	Total
Alloys, miscellaneous[2]	1,980	235	2,210	1,960	W	1,960
Babbitt	568 r	36	604 r	288	31	319
Bar tin	767	--	767	245	--	245
Bronze and brass	1,130	1,330	2,460	987	1,260	2,240
Chemicals	5,440	W	5,440	9,290	W	9,290
Solder	5,110 r	W	5,110	5,110	W	5,110
Tinning	395	--	395	340	--	340
Tinplate[3]	6,840	--	6,840	6,130	--	6,130
Other[4]	720	4,650	5,370	532	6,470	7,000
Total	22,900	6,250	29,200	24,900	7,750	32,600

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

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

[2]Includes terne metal.

[3]Includes secondary pig tin and tin acquired in chemicals.

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

TABLE 4
U.S. INDUSTRY YEAREND TIN STOCKS[1]

(Metric tons)

	2008	2009
Plant raw materials:		
Pig tin:		
Virgin[2]	6,680 r	5,190
Secondary	504	527
In process[3]	865	856
Total	8,050 r	6,570
Additional pig tin:		
Jobbers-importers	314	266
Afloat to United States	190	190
Total	504	456
Grand total	8,560	7,020

rRevised.

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

[2]Includes tin in transit in the United States.

[3]Data represent scrap only, tin content.

TABLE 5

U.S. STOCKS, RECEIPTS, AND CONSUMPTION OF NEW AND OLD SCRAP AND TIN RECOVERED, BY TYPE OF SCRAP[1]

(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
2008:									
Copper-base scrap:									
Ingot makers	3,830 r	75,900 r	15,600 r	60,600 r	76,100 r	3,660 r	W	2,650	2,650 r
Brass mills[2]	--	W	W	--	W	--	1,390	--	1,390
Foundries and other plants	1,670	21,000	16,000	4,970	21,000	1,670 r	W	144	144
Total	XX	XX	XX	XX	XX	XX	1,390	2,790 r	4,180 r
Lead-base scrap	21,000 r	1,240,000 r	26,800	1,220,000	1,250,000 r	16,500	703	8,910	9,620 r
Tin-base scrap[3]	W	W	W	W	W	W	W	W	W
Grand total	XX	XX	XX	XX	XX	XX	2,100	11,700 r	13,800 r
2009:									
Copper-base scrap:									
Ingot makers	3,660	60,200	10,900	49,400	60,300	3,640	373	2,180	2,560
Brass mills[2]	--	W	W	--	W	--	1,170	W	1,170
Foundries and other plants	1,670	22,200	16,000	5,500	21,500	2,390	W	144	144
Total	XX	XX	XX	XX	XX	XX	1,550	2,330	3,870
Lead-base scrap	16,500	1,160,000	29,000	1,140,000	1,170,000	11,700	760	8,740	9,500
Tin-base scrap[3]	W	W	W	W	W	W	W	W	W
Grand total	XX	XX	XX	XX	XX	XX	2,310	11,100	13,400

[e]Estimated. [r]Revised. W Withheld to avoid disclosing company proprietary data. XX Not applicable. -- Zero.

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

[2]Consumption is assumed to be equal to receipts.

[3]Includes tinplate and other scrap recovered at detinning plants.

TABLE 6

U.S. EXPORTS OF TIN IN VARIOUS FORMS[1]

	2008		2009	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Ingots and pigs	9,800	$62,000	3,170	$22,200
Tin scrap and other tin-bearing material except tinplate scrap (gross weight)[2]	14,500	65,600	11,600	46,200
Tinplate and terneplate (gross weight)[2]	247,000	192,000	224,000	175,000

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

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

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF TIN IN VARIOUS FORMS[1]

	2008		2009	
	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]	24,200	$33,300	81,300	$23,400
Miscellaneous[3]	XX	71,100	XX	36,200
Tin compounds	800	15,800	601	8,180
Tinplate and terneplate	292,000	271,000	295,000	366,000
Tinplate scrap	25,900	7,040	27,100	5,190

XX Not applicable.

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

[2]Not specifically provided for.

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

Source: U.S. Census Bureau.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF UNWROUGHT TIN METAL, BY COUNTRY[1]

	2008		2009	
Country	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Belgium	8	$185	82	$647
Bolivia	4,980	92,400	6,300	82,300
Brazil	1,570	25,100	1,050	13,600
Canada	4	80	30	260
Chile	100	1,300	121	1,870
China	2,380	39,100	1,210	14,500
Germany	5	100	20	391
India	--	--	64	779
Indonesia	2,000	28,000	3,220	16,100
Malaysia	1,740	33,000	169	1,190
Mexico	29	273	--	--
Peru	20,900	363,000	20,300	266,000
Singapore	706	13,700	451	5,650
Switzerland	--	--	25	382
Taiwan	6	37	--	--
Thailand	1,670	36,300	15	158
United Kingdom	225	3,880	(2)	7
Other	--	--	1	5
Total	36,300	636,000	33,000	404,000

-- Zero.

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

[2]Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 9
TIN: WORLD MINE PRODUCTION, BY COUNTRY[1, 2]

(Metric tons)

Country	2005	2006	2007	2008	2009[e]
Australia	2,819	1,478	2,071	1,783	1,400
Bolivia	18,433 [r]	18,444 [r]	15,972	17,320 [r]	19,273 [3]
Brazil	11,739	9,528	11,835 [r]	13,000 [r]	13,000
Burma[4]	708	923	830	741	672 [3]
Burundi	4	46	2	21	21
China[e]	126,000	126,000	146,000	110,000	115,000
Congo (Kinshasa)[e]	4,400	3,800	8,900	11,800	9,400
Indonesia	78,404	80,933	66,137	53,228 [r]	55,000
Laos	450	450	700 [r]	700 [r]	700
Malaysia	2,857	2,398	2,263	2,605 [r]	2,380
Mexico	17	25	25	15	15
Niger[e]	14	13	11	10	10
Nigeria[e, 5]	1,300	1,400	180 [r]	185 [r]	180
Peru	42,145	38,470	39,019	39,037	37,503 [3]
Portugal	243	25	41 [r]	29 [r]	30
Russia[e]	3,000	3,000	2,500	1,500	1,200
Rwanda	140 [r]	390 [r]	740 [r]	980 [r]	850
Thailand	158 [e]	190	120	120 [e]	120
Uganda	2	2	2	2	2
Vietnam[e]	3,500	3,500	3,500	3,500	3,500
Total	296,000 [r]	291,000 [r]	301,000 [r]	257,000 [r]	260,000

[e]Estimated. [r]Revised.

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

[2]Table includes data available through July 10, 2010.

[3]Reported figure.

[4]Includes content of tin-tungsten concentrate.

[5]Concentrate gross weight reported, estimated 62% tin content.

TABLE 10
TIN: WORLD SMELTER PRODUCTION, BY COUNTRY[1, 2]

(Metric tons)

Country	2005	2006	2007	2008	2009[e]
Australia:					
Primary	594	572	118	170 [r]	7,637 [3]
Secondary[e]	300	400	400	400	400
Total[e]	894	972	518	570 [r]	8,037
Belgium, secondary[e]	7,000	6,000	5,000	5,000	5,000
Bolivia, primary	13,941 [r]	14,089 [r]	12,251	12,666 [r]	14,715 [3]
Brazil:					
Primary	8,986	8,780	9,384 [r]	10,308 [r]	10,550 [p, 3]
Secondary[e]	250	250	250	250	250
Total	9,236	9,030	9,634 [r]	10,558 [r]	10,800
Bulgaria, secondary[e]	10	10	10	10	10
Burma, primary[e]	30	30	30	30	30
China, primary[e]	122,000	132,000	149,000	129,000	135,000
Czech Republic, secondary[e]	100	100	100	100	100
Denmark, secondary[e]	100	100	100	75	75
Greece, secondary[e]	100	100	100	75	75
Indonesia, primary	65,300	65,357	64,127	53,417 [r]	54,000
Japan, primary	754	854	879	986 [r]	980
Malaysia, primary	36,924	22,850	25,263	31,630 [r]	36,407 [3]
Mexico, primary	17	25	25	15	15
Nigeria, primary[e]	25	--	--	--	--
Norway, secondary[e]	50	50	50	50	50
Peru, primary	36,733	40,495	36,004	38,865	38,900 [p]
Russia:[e]					
Primary	5,000	4,980	3,800	2,000	1,700
Secondary	500	500	400	300	300
Total	5,500	5,480	4,200	2,300	2,000
Rwanda	200	50	--	--	-- [3]
Spain, secondary[e]	10	10	10	10	10
Thailand, primary	31,600	27,540	23,104 [r]	21,860 [r]	21,000
United States, secondary	11,700	11,600	12,200	11,700 [r]	11,100 [3]
Vietnam, primary	1,766	2,665 [r]	3,369 [r]	3,566 [r]	3,600
Grand total	344,000	339,000	346,000 [r]	322,000 [r]	342,000
Of which:					
Primary	324,000	320,000 [r]	327,000 [r]	305,000 [r]	325,000
Secondary	20,100	19,100	18,600	18,000 [r]	17,300
Undifferentiated	200	50	--	--	--

[e]Estimated. [p]Preliminary. [r]Revised. -- Zero.

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

[2]Whenever possible, total output has been separated into primary (from ores and concentrates) and secondary (tin metal recovered from old scrap). This table reflects metal production at the first measurable stage of metal output. Table includes data available through July 10, 2010.

[3]Reported figure.