

Mineral Industry Surveys

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TIN IN MARCH 2000

Domestic consumption of primary tin in March was estimated by the U.S. Geological Survey to be just slightly higher than that in February and 4% lower than that in March 1999.

The *Platt's Metals Week* average composite price for tin in March was \$3.73 per pound, 3% lower than that in February, and 3% higher than that in March 1999. After reaching an 18-month-high price of \$3.98 per pound in January, the average monthly price of tin has declined in each subsequent month of 2000.

The U.S. Department of Commerce issued stiff preliminary anti-dumping duty tariffs against Japanese producers of tin mill products. Imports of tinplate from Nippon Steel Corp., Kawasaki Steel Corp., and Toyo Kohan were assigned duties of 95.99%. The duties were the result of an anti-dumping duty petition filed in October 1999 on behalf of Weirton Steel Corp., the United Steelworkers Union, and the Independent Steelworkers Union. Commerce Department data show tin mill imports from Japan totaled 232,000 tons valued at \$159 million in 1998. U.S. shipments of tin mill products in 1998 were 3.2 million tons valued at \$2 billion. Tin mill products account for 40% of Weirton's revenue, and the company has a 22% share of the U.S. market. Weirton claimed that Japanese producers cut their prices by 15% in 1999, down by an average of \$70 per ton, and cost the U.S. industry an estimated 200,000 tons per year in shipments. The Commerce Department is due to issue final anti-dumping duty margins June 19, and the U.S. International Trade Commission will make an injury determination on or about August 3 (*American Metal Market*, 2000).

U.S. silver miner, Sunshine Mining and Refining Co., announced that it is still attempting to find sources of funding to develop its Pirquitas silver-tin-zinc mine in Argentina. The company has had an operating permit since 1999 but has been frustrated by financing problems arising from the low price of silver. Sunshine had considered selling the property to pay the \$26 million debt load that was due in March but has instead postponed its debt maturity for a year while it continues to look for financing to develop the mine. Sunshine originally bought the mine in 1995 for \$1.7 million. The property had been mined for many years by

local operators who went into liquidation in 1990. Sunshine has since invested \$20 million in the project (Tin International, 2000d).

Kawasaki Steel Corp. (Japan) has long been an important world tinplate producer, but it is now in a particularly competitive domestic market. Over the past 4 years, consumption of beverages in tinplate cans has fallen as part of an overall decrease in the consumption of canned beverages in Japan. The tinplate makers are facing greater competition from popular, portable half-liter plastic bottles which have garnered a growing share of the packaging market for carbonated and non-carbonated beverages. In 1999, about 35 billion cans made of tinplate, tin-free steel (TFS), and aluminum were used in Japan. This total represents an 8% decline in can consumption compared with about 38 billion cans used in 1998 and a 13% decline compared to the 40 billion cans used in 1996. Steel cans currently are estimated to account for about 60% of all cans used in Japan; of these, tinplate and low-tin cans represent 35% while TFS cans represent the remaining 25% share. Aluminum cans represent the other 40% share of the can market.

In 1999, Kawasaki Steel produced 25,000 tons of tinplate a month for local sale and export; about 11,000 tons of TFS was produced monthly for local and overseas sale. Kawasaki's output included a low-tin coated steel designed for making three-piece cans. In the production process, an iron-nickel-tin alloy layer is formed by electro-tinplating and a flow melting process. The low-tin product accounts for 25% of the firm's tinplate output. Most of the product is supplied to Japanese canmakers to make beverage cans for coffee and sports drinks.

In 1999, Kawasaki exported a total of 170,000 tons of tinplate annually. Half of the firm's tinplate exports are shipped to the United States, while other big markets are China, Indonesia, and the Philippines. Until recently, Japanese steel mills supplied about 350,000 tons of tinplate annually to the United States, accounting for almost 10% of the U.S. tinplate market. In 1999, Kawasaki supplied 88,000 tons of tinplate to U.S. customers, representing 25% of total Japanese tinplate exports to the United States (Tin

International, 2000a).

Researchers at Leeds University in the United Kingdom announced the development of a new method of recycling steel, including steel tinplate, that reportedly is cheaper, requires no pre-sorting of scrap, and may even produce a stronger material. All steel producers recycle a significant proportion of steel scrap. Tin from tinplate scrap and copper from domestic incinerator scrap accumulates in the steel, posing a major quality problem for the steel industry unless properly controlled. Such impurities in anything other than small amounts can have harmful effects on ductility, causing defects in the worked material. Unless removed or controlled by careful scrap selection, these impurities could rise to unacceptable levels over the next few years due to increased recycling targets. The Leeds team discovered that the controlled addition of aluminum to the molten steel during recycling forms alloys with the tin and/or copper rendering both harmless. The new steel alloy may even be improved by this patented process. Initial studies show that the presence of aluminum causes an increase in the hardness of the steel, implying an increase in mechanical strength. The source of aluminum can be pure metal, an alloy, or a compound capable of dissociation at the operating temperature. To the researchers, an obvious source would be aluminum cans, currently recycled separately from steel cans; they reason that, ultimately, the recycling industry could change, and not separate steel and aluminum used cans, but instead charge mixed loads of scrap, thereby saving on sorting costs. The addition of a metal as an alloying agent is a radical departure from conventional treatments such as those used in detinning plants to extract unwanted metals by chemical or electrochemical

methods (Tin International, 2000b).

Update

The London Metal Exchange (LME) announced the start of trading on its new LMEX contract on April 10. LMEX is a futures-based weighted index contract covering the six primary nonferrous metals traded on the LME: aluminum, copper, nickel, lead, tin, and zinc. The new index uses a base of 1,000 points calculated from January 4, 1999. At the end of the first day's trading, the index stood at 1,270 points. LMEX is designed to attract the institutional investor by spreading liquidity across all the metals and thus reducing expected volatility in each individual contract. Initially, LMEX had 15 of the 40 LME member firms involved in the new trading contract; other firms are expected to follow (Tin International, 2000c).

On May 19, 2000, the *Platt's Metals Week* composite price for tin was \$3.69 per pound.

References Cited

- American Metal Market, 2000, US slaps steel duties on Japanese tinplate: American Metal Market, v. 108, no. 67, April 7, p. 1.
- TIN International, 2000a, Kawasaki Steel Japan-tinplate market profile: TIN International, v. 73, no. 4, April, p. 15-17.
- 2000b, Steel recycling innovation neutralises tin and copper impurities: TIN International, v. 73, no. 4, April, p. 18.
- 2000c, Successful start for LMEX: TIN International, v. 73, no. 4, April, p. 5.
- 2000d, Sunshine buys time for Pirquitas development: TIN International, v. 73, no. 4, April, p. 5.

TABLE 1
SALIENT TIN STATISTICS 1/

(Metric tons, unless otherwise noted)

	1999 p/	2000		
		February	March	January- March
Production, secondary e/ 2/	10,800	900	900	2,700
Consumption:				
Primary	40,900	3,550 r/	3,560	10,600
Secondary	10,300	916 r/	870	2,690
Imports for consumption, metal	47,500	4,590	NA	NA
Exports, metal	6,770	578	NA	NA
Stocks at end of period	XX	7,960	7,580	XX
Prices (average cents per pound): 3/				
Metals Week composite 4/	365.98	382.84	373.01	XX
Metals Week New York dealer	254.54	264.88	256.78	XX
London, standard grade, cash	245.00	256.00	247.00	XX
Kuala Lumpur	240.70	254.37	247.43	XX

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

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

2/ Includes tin recovered from alloys and tinplate. The detinning of tinplate (coated steel) yields only a small part of the total.

3/ From Platt's Metals Week.

4/ The Metals Week composite price is a calculated formula, not a market price, that includes fixed and finance charges, and a risk factor. It normally is substantially higher than other tin prices.

TABLE 2
METALS WEEK COMPOSITE PRICE 1/

(Cents per pound)

Period	High	Low	Average
1999:			
March	363.63	356.99	361.19
April	377.31	357.08	365.05
May	384.76	373.61	380.66
June	368.44	354.81	360.01
July	362.56	356.00	357.87
August	362.04	355.27	358.10
September	372.30	357.68	364.61
October	383.67	363.53	369.61
November	397.54	385.56	391.55
December	403.52	381.53	386.61
Year	403.52	343.72	365.98
2000:			
January	405.27	390.75	397.72
February	391.72 r/	377.25	382.84
March	383.26	364.68	373.01

r/ Revised.

1/ The Metals Week composite price is a calculated formula, not a market price, that includes fixed and finance charges, and a risk factor. It normally is substantially higher than other tin prices.

Source: Platt's Metals Week.

TABLE 3
TINPLATE PRODUCTION AND SHIPMENTS IN THE UNITED STATES 1/

(Metric tons, unless otherwise noted)

Period	Tinplate waste (waste, strips, cobble, etc.) (gross weight)	Tinplate (all forms)			Shipments 2/
		Gross weight	Tin content	Tin per metric ton of plate (kilograms)	
1999 p/	W	1,750,000	9,080	5.2	2,370,000
2000:					
January	W	141,000	718	5.1	184,000
February	W	144,000	785 r/	5.5 r/	175,000
March	W	155,000	810	5.2	203,000

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data.

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

2/ Source: American Iron and Steel Institute monthly publication.

TABLE 4
U.S. TIN IMPORTS FOR CONSUMPTION AND EXPORTS 1/

(Metric tons)

Country or product	1999 p/	2000		
		January	February	January- February
Imports:				
Metal (unwrought tin):				
Bolivia	3,850	808	295	1,100
Brazil	4,700	520	260	780
Chile	3,980	491	490	981
China	13,900	1,270	1,170	2,440
Hong Kong	261	116	100	216
Indonesia	7,930	500	440	940
Japan	282	--	--	--
Malaysia	944	20	--	20
Peru	11,000	505	1,680	2,190
Singapore	60	--	20	20
Thailand	20	--	--	--
United Kingdom	60	--	108	108
Other	533	21	28	49
Total	47,500	4,260	4,590	8,840
Other (gross weight):				
Alloys	3,090	274	379	653
Bars and rods	872	101	53	155
Foil, tubes, and pipes	1	--	--	--
Plates, sheets, and strip	122	--	--	--
Waste and scrap	2,730	99	151	249
Miscellaneous	2,290	233	220	453
Total	9,100	707	803	1,510
Exports (metal)	6,770	460	578	1,040

p/ Preliminary. -- Zero.

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

Source: Bureau of the Census.

TABLE 5
CONSUMPTION OF TIN IN THE UNITED STATES, BY FINISHED PRODUCT 1/

(Metric tons of contained tin)

Product	2000							January- March total
	1999 p/	February			March			
		Primary	Secondary	Total	Primary	Secondary	Total	
Alloys (miscellaneous) 2/	W	124 r/	W	124 r/	122	--	122	372
Babbitt	22	35 r/	W	35 r/	36	W	36	105
Bar tin and anodes	244	25	--	25	25	W	25	75
Bronze and brass	3,170	109	155	264	114	144	258	783
Chemicals	8,140	674 r/	W	674 r/	682	W	682	2,020
Collapsible tubes and foil	W	W	-- r/	W	W	W	W	W
Solder	14,000	1,060 r/	439	1,500 r/	1,030	412	1,450	4,390
Tinning	508	53	--	53	59	--	59	196
Tinplate 3/	9,080	785 r/	W	785 r/	810	--	810	2,310
Tin powder	W	48	--	48	W	--	W	97
White metal 4/	W	5	--	5	5	--	5	10
Other	6,120	32 r/	22 r/	54 r/	69	14	83	190
Total reported	41,300	2,950 r/	616 r/	3,560 r/	2,960	570	3,530	10,600
Estimated undistributed consumption 5/	13,800	600	300	900	600	300	900	2,700
Grand total	55,100	3,550 r/	916 r/	4,460 r/	3,560	870	4,430	13,300

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

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

2/ Includes terre metal.

3/ Includes secondary pig tin and tin components of tinplating chemical solutions.

4/ Includes pewter, britannia metal, and jewelers' metal.

5/ Estimated consumption of plants reporting on an annual basis.