

# Mineral Industry Surveys

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## TIN IN APRIL 2001

Domestic consumption of primary tin in April was estimated by the U.S. Geological Survey to be about 2% higher than that in March and 9% lower than that in April 2000.

The Platts Metals Week average composite price for tin in April was \$3.43 per pound, down about 2% from that in March and 7% lower than that in April 2000.

Nippon Steel Corp. has long ranked as one of the world's largest steel producers and is also a major tinplate manufacturer and tin consumer. In Japan, pressures to eliminate or reduce lead in a variety of products is leading to increased demand for Nippon Steel's hot dip tin-zinc coatings and its tin-zinc alloy for electroplating. Motor vehicle manufacturers in Japan have shown increased interest in the use of tin-zinc coating for automobile fuel tanks as European governments tighten controls on the use of lead-based fuel tank coatings to reduce the use of lead. Two types of tin-zinc coating are available from Nippon Steel. One application involves the use of hot dip tin-zinc coating while the other involves tin-zinc electroplating. In fact, tin-zinc electroplating is more correctly called tin-zinc-nickel plating as a three layer electroplated coating is used. A layer of nickel is plated first, followed by a layer of tin and finally a layer of zinc, after which the plating is given a reflow treatment. Use of tin-zinc to replace lead-based coatings is expected to grow quickly in Japan where a number of companies are producing tin-zinc coatings. Among Japanese steel companies only Nippon Steel produces hot dip tin-zinc coating at present because the market is still quite small. Nippon developed hot dip tin-zinc coating 10 years ago, and it is now a popular corporate sales item, used mostly for plating small parts for electrical appliances. Currently, an estimated 300 metric tons (t) of tin-zinc coatings for electroplating are produced each month in Japan. Nippon Steel production of hot dip tin-zinc is slightly larger than tin-zinc for electroplating but still less than 1,000 tons per month (t/mo). Nippon, however, believes that output could grow to 5,000 t/mo. Although the automobile gasoline tank market is the principal one in Japan for hot dip tin-zinc, there is stiff competition in that market from aluminized

coatings, which are cheaper.

In its other major use for tin, that of tinplate, Nippon Steel faces diminished prospects. It is one of four Japanese steel producers that make tinplate. Japan's consumption of tinplate for beverage cans has slumped in recent years due to the rapid growth in popularity of non-alcoholic beverages sold in screw-top plastic bottles. The re-sealable aspect of these bottles has considerable market appeal. Nippon operates six electroplating lines at three steel plants in Japan. The Yawata plant in Kyushu is the largest, operating three electroplating lines; the Hirohata plant in Honshu has two lines; the Nagoya plant in the central Tokai region has a single line. The three Nippon plants have a combined production capacity of about 50,000 t/mo (Tin International, 2001d).

In England, Oystertec Ltd. announced the development of a new pipe fitting that requires no soldered joints. The new unit fits over a pipe and is smaller and lighter than conventional fittings and eliminates the need for the welding, soldering, compressing, or screwing. It can be applied to small plumbing and hydraulic pipes as well as large industrial pipeworks (Tin International, 2001c).

BHP Ltd. (Australia), an important steelmaker and tinplate producer, announced its intention to "spin off" its entire steel flat-rolled products business. BHP has recently merged with Billiton BV (Netherlands) and has begun to focus on minerals and petroleum. The anticipated "spin off" may go to BHP's shareholders and may be completed by the end of 2002 (Tin International, 2001a).

Herald Resources Ltd. (Australia), a gold mining and mineral exploration firm, announced encouraging results from a brief drilling program at the Batu Besi Prospect on Belitung Island, Indonesia, where moderate amounts of tin were discovered (Tin International, 2001b).

In China, officials of Chenzhou City in Hunan Province announced the discovery of more tin reserves in its Qitianling deposit zone. Preliminary studies have shown the deposit to have at least 500,000 t of tin reserves, with the possibility of a

further 1 million t of reserves. Chenzhou City currently produces 3,000-5,000 metric tons per year (t/yr) of tin-in-concentrate (Platts Metals Week, 2001).

In England, the mining and trading organization, Allied Deals Ltd., announced that it was considering proposals to build a 10,000 t/yr tin smelter in India, possibly in the western part of the country. India is not an important tin producer; tin concentrates for the smelter would be sourced outside the country. Allied currently operates the Vinto tin smelter in Bolivia (Metal Bulletin, 2001).

### **Update**

On June 1, 2001, the Platts Metals Week composite price for tin was \$3.34 per pound.

### **References Cited**

- Metal Bulletin, 2001, Allied Deals mulls 10,000 tpy Indian tin smelter: Metal Bulletin, no. 8578, May 28, p. 4.
- Platts Metals Week, 2001, Chenzhou finds more reserves: Platts Metals Week, v. 12, no. 17, April 23, p. 7.
- Tin International, 2001a, BHP to spin-out of steel business: Tin International, v. 74, no. 3, April, p. 16.
- 2001b, Excellent tin results continue from Belitung project: Tin International, v. 74, no. 3, April, p. 4.
- 2001c, New development does away with plumbing solder: Tin International, v. 74, no. 3, April, p. 14.
- 2001d, Nippon Steel—Tin/Zinc and tinplate: Tin International, v. 74, no. 3, April, p. 5.

TABLE 1  
SALIENT TIN STATISTICS 1/

(Metric tons, unless otherwise noted)

	2000 p/	2001		
		March	April	January- April
Production, secondary e/ 2/	10,800	900	900	3,600
Consumption:				
Primary	42,000	3,230	3,290	13,200
Secondary	10,700	865 r/	851	3,440
Imports for consumption, metal	44,900	3,130	NA	NA
Exports, metal	6,640	524	NA	NA
Stocks at end of period	XX	8,460 r/	8,270	XX
Prices (average cents per pound): 3/				
Metals Week composite 4/	370.16	348.45	342.70	XX
Metals Week New York dealer	254.92	237.47	232.67	XX
London, standard grade, cash	246.00	229.00	224.00	XX
Kuala Lumpur	244.12	226.99	222.53	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/ Source: Platts 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 is normally substantially higher than other tin prices.

TABLE 2  
METALS WEEK COMPOSITE PRICE 1/

(Cents per pound)

Period	High	Low	Average
2000:			
April	371.49	365.85	368.16
May	369.58	363.91	367.72
June	373.83	362.99	368.23
July	372.25	362.15	366.03
August	372.25	362.15	363.52
September	375.60	365.86	372.11
October	368.35	355.28	362.14
November	364.20	355.77	361.05
December	361.83	355.46	359.43
Year	405.27	355.46	370.16
2001:			
January	359.90	350.60	355.86
February	355.03	349.76	352.96
March	352.74	341.70	348.45
April	346.75	340.32	342.70

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 is normally substantially higher than other tin prices.

Source: Platts 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)	
2000 p/	W	1,720,000	8,990	5.2	2,290,000
2000:					
December	W	107,000	646	6.0	162,000
2001:					
January	W	W	710	7.3	179,000
February	W	92,800	679	7.3	160,000
March	W	102,000	663	6.5	167,000
April	W	90,700	698	7.7	NA

p/Preliminary. NA Not available. 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	2001			
	2000	February	March	January- March
<b>Imports:</b>				
<b>Metal (unwrought tin):</b>				
Bolivia	6,330	100	406	1,580
Brazil	5,860	532	241	1,190
Chile	2,630	60	20	122
China	10,200	1,320	201	3,100
Hong Kong	397	--	--	--
Indonesia	5,320	320	359	1,140
Malaysia	214	6	--	6
Peru	12,800	210	1,850	3,960
Russia	145	140	1	141
Singapore	20	--	--	--
United Kingdom	514	105	--	107
Other	434	27	56	125
Total	44,900	2,820	3,130	11,500
<b>Other (gross weight):</b>				
Alloys	4,370	333	333	1,080
Bars and rods	993	52	70	204
Foil, tubes, pipes	(2/)	(2/)	--	(2/)
Plates, sheets, strip	588	(2/)	15	20
Waste and scrap	2,340	1,060	1,760	2,950
Miscellaneous	8,510	235	902	4,140
Total	16,800	1,680	3,080	8,380
Exports (metal)	6,640	544	524	1,720

-- Zero.

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

2/ Less than 1/2 unit.

Source: U.S. Census Bureau.

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

(Metric tons of contained tin)

Product	2000 p/	2001						January- April
		March			April			
		Primary	Secondary	Total	Primary	Secondary	Total	
Alloys (miscellaneous) 2/	1,430	121	W	121 r/	126	W	126	503
Babbitt	249	24 r/	22 r/	46 r/	29	W	29	130
Bar tin and anodes	294	20 r/	W	20 r/	21	W	21	86
Bronze and brass	2,800	100 r/	114 r/	214 r/	84	123	207	850
Chemicals	8,180	669	W	669	669	W	669	2,680
Collapsible tubes and foil	W	W	W	W	W	W	W	W
Solder	16,900	883 r/	417	1,300 r/	903	393	1,300	5,390
Tinning	666	83	--	83	78	--	78	313
Tinplate 3/	9,020	663	--	663	698	--	698	2,750
Tin powder	195	W	W	W	W	W	W	W
White metal 4/	10	W	W	W	W	W	W	W
Other	2,240	65 r/	12 r/	77 r/	84	35	119	377
Total reported	41,900	2,630	565 r/	3,190 r/	2,690	551	3,240	13,100
Estimated undistributed consumption 5/	10,800	600	300	900	600	300	900	3,600
Grand total	52,700	3,230	865 r/	4,090 r/	3,290	851	4,140	16,700

p/ Preliminary. r/ Revised. 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/ Includesterne 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.