

# Mineral Industry Surveys

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## TIN IN OCTOBER 2002

Domestic consumption of primary tin in October was estimated by the U.S. Geological Survey to be 4% higher than that in September and 5% lower than that in October 2001.

The Platts Metals Week average composite price for tin in October was \$3.02 per pound, an increase of 6% over that in September and an increase of 12% over that in October 2001.

European Union (EU) environmental ministers have agreed to a directive calling for a sizeable increase in the recycling of packaging, including tin-plated cans, by the end of 2008. The directive states that EU-member countries must recover between 55% and 80% of all packaging wastes. The measure received wide support, although Belgium and the Netherlands wanted higher recycling targets and a quicker implementation plan. Varying pan-European targets were approved—15% for wood, 23% for plastics, 50% for metal (including tinplate), and 60% for paperboard and glass (Container Recycling Report, 2002).

Recent advances in surface-mount technology, and especially the miniaturization of microelectronics, have significantly altered the basic functions of solders, including those that are alloyed with tin. The role of solders in providing mechanical support to devices on circuit boards has become more critical compared to their traditional purpose of providing electrical contact. To improve the mechanical properties of solders and solder joints, one approach has been alloying strategies which vary antimony, bismuth, or copper contents. One promising area of research involving a tin and 3.5% silver solder incorporates copper and silver reinforcements (Advanced Materials and Processes, 2002).

China remains the world's major tin producer but has had to adjust to the reality of lower tin prices. Yunnan Tin Corp. (YTC) has developed a strategy of acquiring smaller mines and smelters in China. YTC does not want an oversupply of tin, so the acquisition strategy allows the company to limit excess output. The first attempt by YTC to make such an acquisition began last year and is now coming to fruition. Through a \$2.4 million investment, YTC has taken the majority of a joint venture with private interests at the Chenzhou Mineral Resource Investment Co. in southern Hunan Province. The 3,000-metric-ton-per-year (t/yr) Chenzhou smelter will be ready to begin

operating by yearend after extensive repair work, though YTC only expects to produce between 1,000 and 2,000 t/yr of tin there. Through the Chenzhou venture, YTC also acquired six major mines in Hunan Province. YTC restarted its tin smelter in late November, after a 2-month closure that cost the company at least 3,000 metric tons (t) of tin output. YTC plans to finely tune its tin production to London Metal Exchange prices and stocks.

China recorded a 14% decline in tin concentrate output and a 15% decline in tin metal production in the January-to-September period, compared to the same period in 2001. According to the China Nonferrous Metal Industry Association, the country produced only 49,000 t of tin-in-concentrate and 57,000 t of refined tin during the first 9 months of 2002. China's second largest producer, Liuzhou China Tin, will also produce substantially less refined tin this year than in 2001 (Metal Bulletin, 2002).

China's Ministry of Foreign Trade and Economic Cooperation announced cuts in tin export quotas for 2003. The announced quotas for 2003 were 65,000 t, about 20,000 t less than in 2002. Industry observers expect China's 2002 total tin exports to reach about 40,000 t, only one-half the quotas issued for 2002. The move is expected to reduce world tin supply and increase the tin price (Platts Metals Week, 2002).

### Update

On December 6, 2002, the Platts Metals Week composite price for tin was \$3.06 per pound.

### References Cited

- Advanced Materials and Processes, 2002, Solders strengthened with copper and silver particles: Advanced Materials and Processes, v. 160, no. 12, December, p. 41.
- Container Recycling Report, 2002, Around the world: Container Recycling Report, v. 13, no. 11, November, p. 6.
- Metal Bulletin, 2002, Chinese tin producers adjust to low prices: Metal Bulletin, no. 8727, November 25, p. 7.
- Platts Metals Week, 2002, Tin prices to firm on China's export cuts: Platts Metals Week, v. 73, no. 45, November 11, p. 1.

TABLE 1  
SALIENT TIN STATISTICS 1/

(Metric tons, unless otherwise noted)

	2002			
	2001	September	October	January- October
Production, secondary e/ 2/	13,900	900	900	9,000
Consumption:				
Primary	34,200	3,060	3,180	31,100
Secondary	6,990	775	771	7,850
Imports for consumption, metal	37,500	4,220	NA	NA
Exports, metal	4,350	276	NA	NA
Stocks at end of period	14,800	7,130 r/	6,830	XX
Prices (average cents per pound): 3/				
Metals Week composite 4/	314.88	286.19	302.39	XX
Metals Week New York dealer	211.48	190.94	204.11	XX
London, standard grade, cash	203.00	179.00	192.00	XX
Kuala Lumpur	200.77	180.05	192.54	XX

e/ Estimated. 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
2001:			
October	275.81	264.30	270.42
November	301.03	272.87	287.17
December	297.98	283.04	289.64
Year	359.89	262.81	314.88
2002:			
January	287.97	277.20	280.68
February	280.03	267.12	273.15
March	283.34	276.69	278.81
April	291.33	283.90	288.55
May	299.15	290.78	296.72
June	311.49	299.48	304.92
July	316.83	290.53	308.64
August	286.95	272.37	279.74
September	295.72	277.95	286.19
October	308.99	294.63	302.39

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 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)	
2001	97,800	2,000,000	7,800	3.9	2,010,000
2001:					
December	3,880	136,000	668	4.9	130,000
2002:					
January	W	187,000	683	3.6	191,000
February	5,330	191,000	640	3.3	152,000
March	4,440	188,000	588	3.1	163,000
April	5,310	173,000	535	3.1	173,000
May	5,290	204,000	757	3.7	178,000
June	5,080	207,000	615	3.0	178,000
July	5,430	210,000	572	2.7	189,000
August	4,980	208,000	598	2.9	186,000
September	5,070	205,000	581	2.8	183,000
October	4,760	207,000	615	3.0	NA

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	2002			January- September
	2001	August	September	
<b>Imports:</b>				
<b>Metal (unwrought tin):</b>				
Bolivia	6,040	468	494	4,270
Brazil	5,510	441	426	3,590
Chile	122	--	--	--
China	6,360	977	1,160	6,470
Hong Kong	20	--	--	--
Indonesia	3,880	900	120	2,200
Malaysia	674	--	16	101
Peru	14,000	2,250	2,000	15,500
Russia	143	--	--	21
Singapore	145	--	--	--
United Kingdom	118	--	--	--
Other	434	12	3	165
<b>Total</b>	<b>37,500</b>	<b>5,050</b>	<b>4,220</b>	<b>32,300</b>
<b>Other (gross weight):</b>				
Alloys	3,830	201	237	2,610
Bars and rods	539	20	13	143
Foil, tubes, pipes	1	--	(2/)	(2/)
Plates, sheets, strip	529	5	2	124
Waste and scrap	3,700	23	73	415
Miscellaneous	13,900	416	348	7,180
<b>Total</b>	<b>22,500</b>	<b>665</b>	<b>673</b>	<b>10,500</b>
Exports (metal)	4,350	249	276	2,150

-- 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	2002							
	2001	September			October			January- October 2/
		Primary	Secondary	Total	Primary	Secondary	Total	
Alloys (miscellaneous) 3/	W	139	W	139	141	W	141	1,410
Babbitt	770	26	18	43	26	18	43	433
Bar tin and anodes	570	15	W	15	15	W	15	168
Bronze and brass	2,790	93	109	202	97	105	202	2,040
Chemicals	7,590	630	W	630	630	W	630	6,290
Collapsible tubes and foil	W	W	W	W	W	W	W	W
Solder	16,800	858	339	1,200	936	339	1,280	12,100
Tinning	1,070	34	--	34	36	--	36	342
Tinplate 4/	7,800	581	--	581	615	--	615	6,180
Tin powder	W	W	W	W	W	W	W	W
White metal 5/	1,390	W	W	W	W	W	W	W
Other	2,390	83	9	92	84	9	93	950
Total reported	41,200	2,460	475	2,930	2,580	471	3,050	29,900
Estimated undistributed consumption 6/	--	600	300	900	600	300	900	9,000
Grand total	41,200	3,060	775	3,830	3,180	771	3,950	38,900

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 revisions to previous months' data.

3/ Includes terne metal.

4/ Includes secondary pig tin and tin components of tinsplating chemical solutions.

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

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