

# Mineral Industry Surveys

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**For information, contact:**

James F. Carlin, Jr., Tin Commodity Specialist  
U.S. Geological Survey  
989 National Center  
Reston, VA 20192  
Telephone: (703) 648-4985, Fax: (703) 648-7757  
E-mail: jcarlin@usgs.gov

Linda M. White (Data)  
Telephone: (703) 648-7986  
Fax: (703) 648-7975  
E-mail: lwhite@usgs.gov

**Internet:** <http://minerals.usgs.gov/minerals>

## TIN IN JULY, AUGUST, AND SEPTEMBER 2008

Domestic consumption of primary tin in the third quarter of 2008 was estimated to be 5,900 metric tons (t). Consumption of primary tin in September 2008 was estimated to be 1,970 t compared with 2,840 t in September 2007. For the first 9 months of 2008, tinplate was the leading consumption category followed by, in decreasing order, solder, chemicals, and bronze and brass.

The Platts Metals Week average composite price for tin in September 2008 was \$11.20 per pound, compared with \$9.28 in September 2007.

Although there has been no or little tin mine production in North America in recent decades, there are three tin projects in the region that show promise. The three projects are in Alaska, New Brunswick (Canada), and Nova Scotia (Canada), with combined resources of more than 100,000 t of contained tin, although they are low grade and/or complex ore bodies that are unlikely to start production for at least 4 to 5 years. The Sleitat property in Alaska was 80% owned by Brett Resources Inc. (Vancouver, British Columbia, Canada). Brett acquired the property from Solomon Resources Ltd. (Armstrong, British Columbia, Canada), which retains a 20% participating interest in the property. Solomon and Brett are working towards finalizing terms of a joint-venture agreement to explore the property further. The deposit originally was explored in the early 1980s, and in 1989, the U.S. Bureau of Mines evaluated the tin potential of the property, and reported an inferred resource of 25.9 million metric tons (Mt) grading 0.22% to 0.37% tin, 0.04% tungsten, and 17 grams per metric ton of silver. Brett performed new drilling since 2006, with promising initial results. Of the two projects in Canada, Adex Mining Inc.'s (Toronto, Ontario, Canada) Mount Pleasant site in New Brunswick was the furthest advanced. The property was separated into zones of tungsten-molybdenum and tin-indium mineralization, and tungsten had been mined there in the 1980s. A 1997 feasibility study on mining of the tin-indium zone by Kvaerner Metals Holdings Ltd. (London, United Kingdom) identified a resource of 3.65 Mt grading 0.8% tin and 107 parts per million indium. Adex was carrying out new drilling work in both zones and has commissioned mineralogical testing that would allow it to produce a new bankable feasibility study in

2009. It is also possible that Canada's last (and only) major tin mine, at East Kemptville, Nova Scotia, could eventually reopen. The low-grade (0.2% tin), large-scale open pit mine was developed by Rio Algom Ltd. (now part of BHP Billiton) and operated from 1986-91, producing about 4,000 metric tons per year (t/yr) of tin-in-concentrate. Mineral title to the property was acquired by Avalon Ventures (La Jolla, CA) in 2005 (Metals Place, 2008d).

Kangaroo Metals Ltd. (Perth, Western Australia, Australia) announced that it had started mining and processing operations at its Riverside Alluvial tin mine in Tasmania, Australia. Kangaroo selected Thailand Refining and Smelting Co. Ltd. (Thaisarco) (Phuket, Thailand) to smelt the tin concentrate (Kangaroo Metals Ltd., 2008).

Glencore International Ltd. (Baar, Switzerland) and the Bolivian Government were close to an agreement on a 50-50 joint venture to operate two tin and zinc mines as well as finally settling compensation terms for the nationalization of the Vinto tin smelter that happened in February 2007. The joint venture would include the Colquiri tin and zinc mine in La Paz and the Porco zinc, lead, and silver mine in Potosi. The Colquiri Mine produced about 2,500 t/yr of tin-in-concentrate, and until 2007, all the mine's output was treated at the Vinto smelter. Both operations are currently leased by Glencore's Bolivian subsidiary Sinchi Wayra from the state mining organization (Metals Place, 2008b).

Brescia Group (Lima, Peru), which owns Peru's only tin producer, announced plans to buy the Pitinga tin mine in Brazil for about \$467 million. The purchase would be made through a Brazilian firm, Serra de Madeira Participacoes, of which Minsur SA owns 50%. Serra has concluded a deal to buy the mining company Taboca, which operates the Pitinga tin mine. Taboca is a subsidiary of the Paranapanema Group. Brescia's purchase of Pitinga was considered somewhat unique because historically most transactions between the two countries involved Brazilian companies buying Peruvian assets (Platts Metals Week, 2008).

Yunnan Tin Co. Group Ltd. (Gejiu City, Yunnan Province, China) announced that it would repay \$6 million of debts incurred by its Singapore joint-venture tin refinery, in which it owns a 42% stake, with local partner KJP International holding

the balance. The refinery, Singapore Tin Industries Pte, was established in 2006, but has struggled to obtain Indonesian feed for refining. Tin output dropped from 8,740 t in 2006 to 2,900 t in 2007, and the plant has been inactive for much of 2008 (CRU International, 2008).

The World Bureau of Metal Statistics (WBMS) announced that there was a slight increase in world tin consumption in the first 5 months of 2008. Global refined tin consumption was estimated to have increased by 1.1% to 147,900 t in the January-May period compared with that of the same period in 2007. WBMS data showed that growth in Asian consumption was partly offset by declines in apparent consumption in Europe and the United States. Chinese demand rose by 11% and Japanese demand increased by 6% compared with the depressed 2007 total. Consumption in the United States was estimated to have fallen by 24%, while that in the European Union declined by 8% (Metals Place, 2008c).

Severstal North American (Dearborn, MI) announced that it had acquired Esmark Inc. (Wheeling, WV) which owned the Wheeling-Pittsburgh Steel Corp. tin mill in Wheeling, WV. Earlier in 2008 Severstal finalized acquisition of the Sparrows Point, MD, steel plant and tin mill. Severstal's parent organization is based in Cherepovets, Vologda, Russia. Wheeling-Pittsburgh Steel was an important producer of tinplate and a substantial tin user (Canmaker, The, 2008).

AGC Flat Glass North America (Alpharetta, GA; a subsidiary of Japan's Asahi Glass Co. Ltd.) announced that it would close three factories and a production line—a float glass and coating plant in Victorville, CA, a coating facility in Hampton, IA, a float glass plant in St. Augustin, Quebec, Canada, and a production line at its Greenland, TN, manufacturing plant by yearend 2008. The company attributed the closings to a severe decline in the housing market in North America. The float glass industry was an important consumer of tin (Glass Magazine, 2008a).

Zeledyne (Allen Park, MI), a newly formed, privately held company, announced that it had finalized the purchase of Ford

Motor Co.'s glass business. The sale included float glass-making plants in Nashville, TN, and Tulsa, OK (Glass Magazine, 2008b).

PT Timah TBK (Bangka, Indonesia), the world's second ranked tin producer, announced plans to build two downstream facilities by yearend 2008 as part of an ambitious business plan. Its solder factory on Kundur Island, Riau Province, was planned for an October startup, and would have an annual production capacity of 2,000 t/yr of solder wire. The second factory would produce tin chemicals to be used mostly in the plastics field. It was expected to be operational by yearend 2008, and would have a capacity of 10,000 t/yr (Metals Place, 2008a).

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TABLE 1  
SALIENT TIN STATISTICS<sup>1</sup>

(Metric tons, unless otherwise noted)

	2008					
	2007	June	July	August	September	January-September
Production, secondary <sup>6,2</sup>	11,900	994	994	994	994	8,950
Consumption:						
Primary	23,700	1,920	1,950	1,980	1,970	15,800
Secondary	7,490	721	715	717	717	8,100
Imports for consumption, metal	34,600	2,200	2,500	2,240	4,230	27,400
Exports, metal	6,410	818	875	786	883	7,500
Stocks at end of period	9,100	7,930	7,960	7,980	7,960	XX
Prices (average cents per pound): <sup>3</sup>						
Metals Week composite <sup>4</sup>	899.48	1,342.82	1,394.67	1,221.28	1,120.90	XX
Metals Week New York dealer	679.50 <sup>r</sup>	1,033.39	1,063.00	945.41	862.22	XX
London, standard grade, cash	659.00	1,007.20 <sup>r</sup>	1,048.87	906.54	832.77	XX
Kuala Lumpur	658.42	1,002.22	1,042.54	913.42	833.84	XX

<sup>6</sup>Estimated. <sup>r</sup>Revised. XX Not applicable.

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

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

<sup>3</sup>Source: Platts Metals Week.

<sup>4</sup>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<sup>1</sup>

(Cents per pound)

Period	High	Low	Average
2007	1,056.54	655.02	899.48
2008:			
January	1,031.54	988.63	1,004.58
February	1,138.12	1,023.31	1,054.61
March	1,255.43	1,147.64	1,206.50
April	1,468.60	1,213.43	1,311.05
May	1,529.29	1,293.17	1,454.06
June	1,414.29	1,266.59	1,342.82
July	1,427.60	1,357.97	1,394.67
August	1,329.80	1,076.18	1,221.28
September	1,198.91	1,058.05	1,120.90

<sup>1</sup>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<sup>1</sup>

(Metric tons, unless otherwise noted)

Period	Tinplate waste (waste, strips, cobble, etc.) (gross weight)	Tinplate (all forms)			
		Gross weight	Tin content	Tin per metric ton of plate (kilograms)	Shipments <sup>2</sup>
2007	58,900	1,780,000	7,010	3.9	1,770,000
2008:					
January	3,350	166,000	532	3.2	140,000
February	2,440	166,000	510	3.1	143,000
March	2,230	175,000	524	3.0	172,000
April	2,590	203,000	584	2.9	183,000
May	2,520	203,000	554	2.7	149,000
June	2,430	194,000	542	2.8	181,000
July	2,710	207,000	579	2.8	153,000
August	2,750	213,000	601	2.8	159,000
September	2,750	174,000	597	3.4	107,000

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

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

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

(Metric tons)

Country or product	2008					
	2007	June	July	August	September	January- September
<b>Imports:</b>						
<b>Metal (unwrought tin):</b>						
Bolivia	4,340	280	60	390	261	3,440
Brazil	2,600	124	99	75	125	1,230
China	4,230	290	180	134	56	1,930
Indonesia	1,680	25	301	190	20	1,100
Malaysia	14	84	12	50	901	1,050
Netherlands	100	--	--	--	--	--
Peru	18,700	1,390	1,180	700	2,870	16,200
Singapore	1,730	--	100	301	--	644
Taiwan	15	--	--	--	--	6
Thailand	--	--	560	395	--	1,670
United Kingdom	881	--	--	--	--	100
Other	299	--	1	1	--	11
<b>Total</b>	<b>34,600</b>	<b>2,200</b>	<b>2,500</b>	<b>2,240</b>	<b>4,230</b>	<b>27,400</b>
<b>Other (gross weight):</b>						
Alloys	1,940	117	159	84	201	1,400
Bars and rods	3,840	298	466	303	367	3,450
Foil, tubes, pipes	--	--	--	--	--	--
Plates, sheets, strip	--	--	--	--	--	--
Waste and scrap	10,200	2,340	3,420	1,180	823	22,300
Miscellaneous	3,780	144	284	278	321	2,250
<b>Total</b>	<b>19,800</b>	<b>2,900</b>	<b>4,320</b>	<b>1,840</b>	<b>1,710</b>	<b>29,400</b>
Exports (metal)	6,410	818	875	786	883	7,500

-- Zero.

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

Source: U.S. Census Bureau.

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

(Metric tons of contained tin)

Product	2008													
	2007	June			July			August			September			January- September
		Primary	Secondary	Total	Primary	Secondary	Total	Primary	Secondary	Total	Primary	Secondary	Total	
Alloys (miscellaneous) <sup>2</sup>	W	126	W	126	126	W	126	130	W	130	127	W	127	1,320
Babbitt	604	19	W	19	20	W	20	20	W	20	19	W	19	342
Bar tin and anodes	788	19	--	19	18	--	18	18	--	18	18	--	18	165
Bronze and brass	2,800	92	99	190	86	93	179	92	95	187	91	95	186	1,750
Chemicals	6,070	242	W	242	242	W	242	242	W	242	242	W	242	2,200
Collapsible tubes and foil	W	W	W	W	W	W	W	W	W	W	W	W	W	W
Solder	10,400	204	277	482	204	277	481	202	277	479	202	277	480	4,320
Tinning	451	29	--	29	26	--	26	27	--	27	26	--	26	245
Tinplate <sup>3</sup>	7,010	542	--	542	579	--	579	601	--	601	597	--	597	5,020
Tin powder	W	18	W	18	18	W	18	18	--	18	18	W	18	170
White metal <sup>4</sup>	W	W	W	W	W	W	W	W	--	W	W	W	W	W
Other	3,000	29	45	74	29	45	75	32	45	77	31	45	76	287
Total reported	31,100	1,320	421	1,740	1,350	415	1,760	1,380	417	1,800	1,370	417	1,790	15,800
Estimated undistributed consumption <sup>5</sup>	--	600	300	900	600	300	900	600	300	900	600	300	900	8,100
Grand total	31,100	1,920	721	2,640	1,950	715	2,660	1,980	717	2,700	1,970	717	2,690	23,900

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

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

<sup>2</sup>Includes terne metal.

<sup>3</sup>Includes secondary pig tin and tin components of tinning chemical solutions.

<sup>4</sup>Includes pewter, britannia metal, and jewelers' metal.

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