

Tin

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World mine production of tin was about 190 000 t in 1995 compared to 184 000 t in 1994. Production increases in Indonesia, Peru and China partially offset a decline in Brazil. World tin metal production was about 200 000 t in 1995, similar to the level in 1994. This is well below 1995's demand of about 220 000 t.

The settlement price of tin on the London Metal Exchange (LME) averaged US\$2.82/lb in 1995 compared to \$2.48/lb in 1994. A continuous draw-down on LME stocks and shortages of high-purity and low-lead tin supported the rise.

China exported 44 400 t of tin in 1995, exceeding the export quota assigned to it by the Association of Tin Producing Countries (ATPC) by 122%.

CANADIAN DEVELOPMENTS

Adex Mining Corp. acquired a 100% interest in the Mount Pleasant polymetallic mine in New Brunswick from Piskahegan Resources Limited. Mount Pleasant is a former producer of tungsten and the mine contains significant reserves of tungsten, tin, indium, molybdenum, copper, zinc, bismuth and gallium. Adex is currently initiating a full feasibility study that will include mine dewatering, a pilot plant test, a revised reserve calculation, mill upgrading, sourcing of mine and mill equipment, and an environmental review.

Mount Pleasant currently has proven, probable and possible reserves of 55 Mt in nine polymetallic zones, including the North Zone (proven and probable reserves of 5.1 Mt grading 0.79% tin and 78 g/t indium), the Saddle Zone (possible reserves of 2.0 Mt grading 0.92% tin and 47 g/t indium), and the Fire Tower Zone (proven reserves of 9 Mt grading 0.03% tin, 0.20% molybdenum, 0.40% tungsten and 31 g/t indium). Drilling in 1995 intersected a new copper-zinc-tungsten zone.

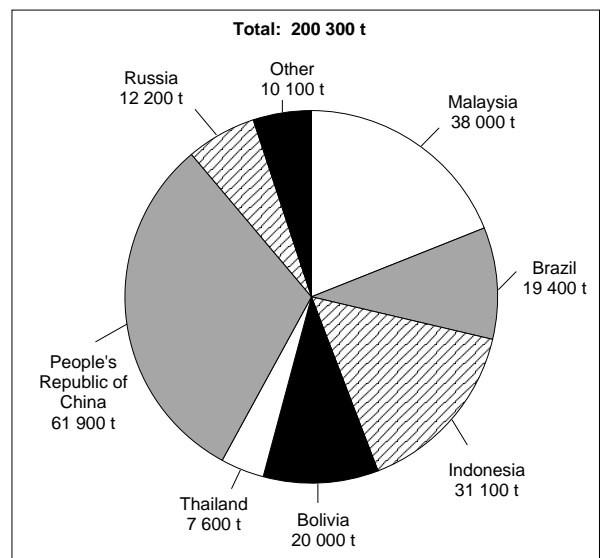
Adex is also testing bioleach technology coupled with solvent extraction to recover indium, zinc, copper, bismuth and gallium after tin-tungsten-molybdenum flotation. The company expects a positive feasibility study with environmental approval and a construction permit by mid-1996 and start-up in mid-1997. At full production, a capacity of 3500 t/y of tin in concentrate is expected.

There are currently no tin smelters or tin mines operating in Canada.

WORLD DEVELOPMENTS

World mine production of tin was expected to reach about 190 000 t in 1995 with notable increases in Indonesia and Peru. The decline of tin mining activities in Malaysia and Thailand continued, but at a lower rate than in previous years. Tin metal production was expected to total about 200 000 t in 1995, similar to that of 1994. Demand for tin in 1995 is

Figure 1
World Production of Tin Metal, 1994^P



Source: World Nonferrous Metal Statistics.

^P Preliminary.

expected to be about 20 000 t greater than the amount of tin metal produced. As a consequence, LME tin stocks fell by over 16 000 t during the year.

China

China remained the world's leading producer of tin in concentrate, accounting for an estimated 58 000 t in 1994. Yunnan Tin Corp., China's largest producer of tin concentrates, sought joint-venture partners to develop its Double Bamboo copper-tin mine.

Primary tin metal production in China in 1994 was 61 900 t, ranking the country first in the world. However, in 1995, concentrate shortages plagued Chinese smelters. Much of China's mine production in recent years has been exported and smelters face 20-30% import duties on foreign concentrates. The Guangzhou smelter, with a capacity of 5000 t/y of refined tin, closed on November 1 after exhausting its concentrate stocks and remained closed for the rest of the year.

China became more selective in issuing export licences and made an attempt to curb smuggling activities after it exceeded the 1994 export quota assigned to it by the ATPC. However, despite greater restrictions on tin metal exports, delays in export tax rebates, and domestic prices that were stronger than LME prices, China exported 44 400 t of refined tin in 1995, well over its 1995 quota of 20 000 t.

Indonesia

Indonesia continued to be a low-cost producer of tin in 1995. State-owned PT Tambang Timah, the world's largest integrated tin company, listed 35% of its shares in an initial offering on the London and Jakarta Stock Exchanges in October. The company continues to increase mine production and was expected to produce 37 000 t/y of tin in concentrate in 1995. The proceeds of the offering were to be used to upgrade its dredging fleet, develop supporting facilities and explore for additional reserves. PT Tambang Timah also plans to add a seventh furnace at its Mentok smelter to raise its capacity by 7600 t/y by 1996 to 50 000 t/y of refined tin.

Renison Goldfields Consolidated Ltd. commissioned a new dredge at its Koba tin operations in October, increasing capacity to over 10 000 t/y of tin in concentrate. The company also commissioned its new 13 000-t/y Koba tin smelter in December.

In 1994, Indonesia ranked second in the world in mine production of tin behind China, producing 30 600 t of tin in concentrate. The country produced 31 100 t of primary refined tin, ranking it third behind China and Malaysia.

Malaysia

Malaysian mine production of tin continued its decline in 1995 and was expected to total about 6000 t of tin in concentrate compared to 6500 t in 1994 and 28 500 t in 1990. The decrease was primarily due to reserve depletion, decreasing grades and rising production costs.

Malaysia produced 38 000 t of primary refined tin in 1994, ranking it second in the world behind China. Malaysia has two tin smelters with a total nameplate capacity of 120 000 t/y of refined tin. Although currently operating at well under full capacity, Malaysian smelters have been increasing production in recent years to meet increasing demand, both domestically and in Southeast Asia as a whole. Malaysia Smelting Corp. Bhd. (MSC) completed a new electrolytic tin plant in late December at its 60 000-t/y Butterworth tin smelter. MSC will now be able to triple its production of 99.99%-purity tin to 360 t/y to meet growing demand in the electronics industry in Asia and Europe.

With declining domestic concentrate supplies, Malaysia is importing greater volumes of smelter feed. MSC is considering an expansion of throughput capacity at its smelter to treat lower-grade ores from China, Vietnam, Africa and Myanmar.

Brazil

Brazil produced an estimated 19 700 t of tin in concentrate in 1994, ranking it fourth behind China, Indonesia and Peru. Production in 1995 was expected to remain around 18 000-20 000 t as both major producers, the Bom Futuro mine in Rondonia State and Paranapanema SA's Pitinga mine in Amazonas State, incurred increased operating costs with the introduction of Brazil's new currency, the Real, in 1994.

Cia Corumbatai Metais Industria e Comercio installed a special furnace at its 7000-t/y tin smelter in Sao Paulo State to treat high-impurity Bolivian ores. The company has increased imports due to shortages of domestic concentrates. Brazil produced 19 400 t of primary refined tin in 1994.

Bolivia

Corporation Minera de Bolivia (Comibol) continued preparations for privatization of its tin, lead, zinc and silver assets. In November, initial bids were accepted from Renison Goldfields, Glencore International AG and Malaysia Mining Corp. Bhd./Malaysia Smelting Corp. Bhd. on Comibol's 20 000-t/y Vinto tin smelter, Huanuni tin mine and Colquiri tin-zinc mine. Comibol has implemented several restructuring measures, including workforce reductions, in order to

make its mines more competitive in preparation for privatization. The final round of bidding is expected in February 1996.

Production at several Bolivian tin mines was hampered by a six-week strike that ended in early May. The dispute was in support of teachers protesting a new federal education law. A second 11-day strike in July over privatization concerns affected production at the Huanuni mine. Bolivia produced an estimated 16 100 t of tin in concentrate in 1994.

Yunnan Tin Corp. began construction of an 1800-t/y tin smelter in December with completion expected by April 1996. The US\$1.6 million smelter will be owned 25% by Yunnan Tin and 75% by Bolivian and British companies, and will treat domestic ores. Bolivia produced 20 000 t of primary refined tin in 1994.

Peru

Peru's mine production of tin has been rising steadily in recent years. The country's only tin producer, Minsur SA, was planning to produce 22 000 t of tin in concentrate in 1995 compared to 20 000 t in 1994. The company raised production at its San Rafael mine from 1000 t/d to 1450 t/d during the year.

Meanwhile, Minsur continued construction of its US\$24 million tin smelter located on the coast of Peru. The smelter, which will have a capacity to produce 15 000 t/y of refined tin from domestic ore currently exported to Bolivia, is scheduled to come on stream in January 1996. It will utilize the Australian Ausmelt technology. Peru had no tin smelting capacity in 1995.

Commonwealth of Independent States

The Kara Balta Mining Complex began development of the Sary Dzhaz tin-tungsten mine in Kirghizistan. The deposit contains more than 150 000 t of tin and 100 000 t of tungsten. The first stage of an on-site mill has been completed to treat 100 000 t/y of ore to produce 300 t/y of tin in concentrate, which will rise to 1000 t/y when the second stage is completed in mid-1996.

The Novosibirsk tin smelter in Russia continued to treat both domestic and imported concentrates during 1995. Imported concentrates were toll-smelted with the metal re-exported to the West. In the first eight months of 1995, exports rose 150% over the equivalent period in 1994. The smelter's main source of domestic feed is from the Khrustalnenskaya Tin Mining Company in Russia's Far East.

Thailand

Imports of tin concentrates in the first half of 1995 rose by 84% to 3200 t in the face of declining domestic

production and higher demand by Thailand's tinplate and electronics industries. Thailand Smelting and Refining Co. Ltd. (Thaisarco), the country's sole tin smelting company, was sold by Logam BV to U.K.-based Amalgamated Metal Corp.

United States

The Defense Logistics Agency (DLA) sold 5980 t of tin from its National Defense Stockpile in fiscal year 1995 (October 1, 1994 - September 30, 1995) from an authorized 12 000 t. The amount authorized for disposal in fiscal year 1996 is also 12 000 t. Meanwhile, the DLA awarded 9090 t of Longhorn brand tin on a long-term basis under a Solicitation of Offers on September 27. The award went to three companies including American Iron and Metal Co. (1969) Inc. of Montréal.

Other

Norminco Ltd. commissioned its Leichhardt alluvial tin dredging operation in Queensland, Australia, in October. The first stage of the project is designed to produce 600 t/y of tin in high-grade concentrate with an expansion to 1600 t/y in 1996. However, a number of operational difficulties and a later-than-planned start-up led to liquidity problems, causing the company to set up a new management and technical plan. Norminco plans to operate at below capacity until the reliability of the excavator is proven and dewatering and tailings disposal are stabilized.

South Crofty Holdings Ltd. of Vancouver successfully raised \$9 million in a private placement in June. The company plans to use the money to deepen the shaft and replace existing equipment at its South Crofty tin mine in Cornwall, England.

Hamco Mining and Smelting Co. Ltd. of India acquired several Indian tin mines and plans to produce up to 8000 t/y of tin in concentrate from local and foreign sources. In addition, Hamco currently has a capacity to produce 6000 t/y of primary refined tin and is considering construction of a new smelter to expand capacity by a further 6000 t/y in 1996. The company is expected to apply for registration of its Hamco brand tin on the LME.

RECYCLING

Efforts to improve the recycling rate for tin-plated steel containers continue to be made. According to the Tin Can Recycling Council, the amount of tin-plated steel recycled in Ontario in 1994 was about 77 000 t, up from 69 000 t in 1993, indicating a recycling rate of about 77%. The fact that the beverage can industry in Ontario switched from tin-plated steel to aluminum in 1994 suggests that more food and general-line containers, such as aerosol and paint cans, are being recycled.

Steel cans are cheaper to manufacture than aluminum cans. They are also easy to recycle, do not require detinning when reintroduced into the furnace, and aluminum tops for the cans provide the aluminum that steel-makers use to remove oxygen in the remelting process.

In the United States, according to the Steel Recycling Institute, almost 1.4 Mt of steel cans were recycled in 1994, resulting in a recycling rate of 53%. This compares to a rate of 48% in 1993, 41% in 1992 and 34% in 1991. The U.S. steel industry's current goal is for an overall recycling rate of 66%.

The lowest rate of recycling for steel cans is in the general line, which includes containers for such products as paints, varnish and aerosols. Once only collected through household hazardous waste collection programs or magnetically at some specialized facilities, more of these cans are now being recycled through curbside and drop-off recycling programs. The Steel Recycling Institute has called for the increased recycling of general-line steel containers in the United States.

INTERNATIONAL ORGANIZATIONS

The Association of Tin Producing Countries

The Association of Tin Producing Countries (ATPC) is an organization consisting of eight tin-producing states: China, Malaysia, Indonesia, Thailand, Bolivia, Australia, Zaire and Nigeria. With Brazil agreeing to join the Association in 1996, ATPC members will represent 70% of world tin production.

The ATPC began a supply rationalization scheme in March 1987. Its objective was to accelerate the absorption of the huge tin inventories caused by the cessation of the International Tin Council buffer stock operations and to prevent further price declines. The program involved the establishment of yearly export quotas among its members. Brazil, although not a member of the ATPC, cooperated in past years in limiting its exports of tin.

After the formation of the supply rationalization scheme, stock levels dropped from 73 000 t to an estimated 31 500 t at the end of 1992, and then climbed to an estimated 41 000 t by the end of 1994. Since that time stocks had again dropped to an estimated 27 000 t by June 1995. The ATPC considers 20 000 t to be a normal stock level for tin. In September the ATPC agreed to extend the supply rationalization scheme for the first half of 1996. Some members in recent years have called for a discontinuation of the scheme, contending that it is ineffective in reducing global tin stocks. The ATPC established an overall export quota by member countries of 50 900 t for the first half of 1996. Individual quotas are as follows:

Australia, 5000 t; Bolivia, 8300 t; China, 12 500 t; Indonesia, 18 000 t; Malaysia, 3800 t; Nigeria, 1000 t; Thailand, 1750 t; and Zaire, 550 t. Brazil has agreed to keep its first-half 1996 exports at 14 168 t.

Research Organizations

The International Tin Research Institute (ITRI) is entrusted with the task of maintaining and extending the use and effectiveness of tin in modern technology. Its headquarters and laboratories are in Uxbridge, England. Formerly funded by ATPC member countries, the organization was privatized as of January 1, 1995, and is now known as ITRI Ltd. As a result, private tin-producing companies are now responsible for funding and any liabilities arising from research and development activities. Several new members joined the ITRI in 1995, including Companhia Estanifera Do Brazil, China's Kinmet Nonferrous Metals Industry Co., Norminco of Australia, and Belgium's Metallo-Chimique International. The goal of the new association is to create an additional 20 000-30 000 t/y of tin consumption within three years.

The ITRI is currently concentrating on research in a number of end-use fields such as tin-based flame retardants and smoke suppressants, lead-free solders and solderable coatings for use in electronics, new plating techniques for tinplate applications, lead-free high-tin alloy capsules for wine and spirit bottles, and tin as a replacement for lead in shot for shotgun cartridges.

The ITRI has also commercialized a cyanide-free tin-zinc plating system known as Stanzec (75% tin, 25% zinc). Commercial development of the Stanzec plating process has recently been completed and is now ready for testing. The alloy is considered to be a cheaper, environmentally friendly, anti-corrosion coating on steel. Applications are also expected in the automotive and aerospace industries in fasteners.

CONSUMPTION AND USES

Solder is the largest market for tin and currently represents approximately one third of tin consumption in the Western World. In Canada, it accounts for about 51% of tin consumption. Strong growth in the electronics industry, which accounts for over 50% of tin used in solders, has provided a new impetus for tin use. Increasing miniaturization in electronics has led to the development of higher-quality solder pastes capable of finer printings. Increasing environmental concerns over the lead content in solders have resulted in research and development of lead-free products for the electronics industry to meet possible future legislation. The ITRI has recently developed a solder containing over 90% tin. In recent years, demand for tin with a purity of 99.99% has increased for electronic applications.

The amount of tin in solder depends on the application, with the current average being 30-70%. In tin-lead solders, tin is the active metal forming the bond with the metals being joined. The lead serves to lower the melting point of the solder. For higher-temperature applications, alloys of high tin content (above 95% tin) are often used. The tin is alloyed with small amounts of antimony or silver.

Metals such as bismuth or indium may be added to tin-based solders to lower the melting point. Such solders are known as fusible alloys. One such alloy is Indalloy 227, which has a composition of 77.2% tin, 20% indium and 2.8% silver. A recently developed use for fusible alloys is in the manufacture of plastic components with complex internal structures for use in the automotive and aerospace industries. These components are made using a casting of tin-bismuth or tin-lead-antimony alloy that can then be melted away without damaging the delicate internal configuration of the plastic part.

Tinplate is the second most important use and accounts for almost one third of world tin metal consumption and 36% of Canadian consumption. Tinplate use in the canning industry has been under severe competitive pressures from aluminum, except for large containers where, due to rigidity problems with aluminum, tin-plated steel is still preferred. Can manufacturers in Canada and the United States have increasingly switched to aluminum in the production of beverage cans. However, the volatility of aluminum prices has led can manufacturers in Europe to consider switching back to tin-plated steel. Continental Can Europe Inc. announced such a switch in June at its can-manufacturing plant in Wrexham, United Kingdom.

Initiatives to reduce the weight of steel cans have been ongoing for several years. Weirton Steel Corporation and its joint-venture partners, Usinor Sacilor SA and Nippon Steel Corporation, have developed a tinplate using light-gauge, high-tensile steel which, they hope, will enable can-makers to produce a beverage can 20% lighter than existing steel cans. British Steel Corp. has developed an "ultimate can" that is supposedly 30% cheaper than aluminum cans and uses thinner steel but similar proportions of tin to current steel cans.

Tinplate competition also comes from non-tin-coated steels, polymer-coated steel, and tin-free steel (TFS). TFS is steel plate that is electrolytically coated with a thin layer of metallic chrome and chrome oxide.

The fastest growing use for tin has been in chemical applications where consumption has risen steadily in the past few decades. Tin is used in an array of inorganic and organic chemicals, for application as plastic (polyvinyl chloride) stabilizers, in agricultural pesticides, in anti-fouling paints for ships, and in biocidal compounds for the protection of materials such as paints, textiles and building materials.

Recent research has shown the effectiveness of tin-based compounds as flame and smoke inhibitors. As fire retardants, these compounds are non-toxic, safe and easy to handle, and have a wide range of applications. Two such compounds, zinc hydroxystannate and zinc stannate, are being marketed worldwide for use as fire retardants and smoke inhibitors for polymeric materials. Tin is also used for tinning (which includes electronic uses, hot dipping and electroplating in the electronics industry), in the manufacture of pewterware, and in bronze, brass and other tin-containing alloys.

Indium-tin oxide is a vital component in computer display panels. A rapid expansion in the market for display technology in uses such as liquid crystal displays in laptop computers and televisions has increased the demand for tin.

Tin-containing alloys are used in construction, machinery and equipment, and consumer durables. Recently, the U.S. Fish and Wildlife Service issued an interim approval of bismuth-tin shot for the 1995/96 migratory bird hunting season. Ongoing toxicity studies have indicated that bismuth-tin shot is non-toxic when ingested by waterfowl.

Tin-zinc alloys are known for their corrosion resistance. A recently developed and commercialized tin-nickel alloy electroplating process has led to coatings that are characterized by their hardness, good lubricating qualities and attractive appearance. The requirement for environmentally safe plating systems and finishes has, as with most other applications of tin, resulted in increased research into developing and promoting tin-based products as non-toxic materials.

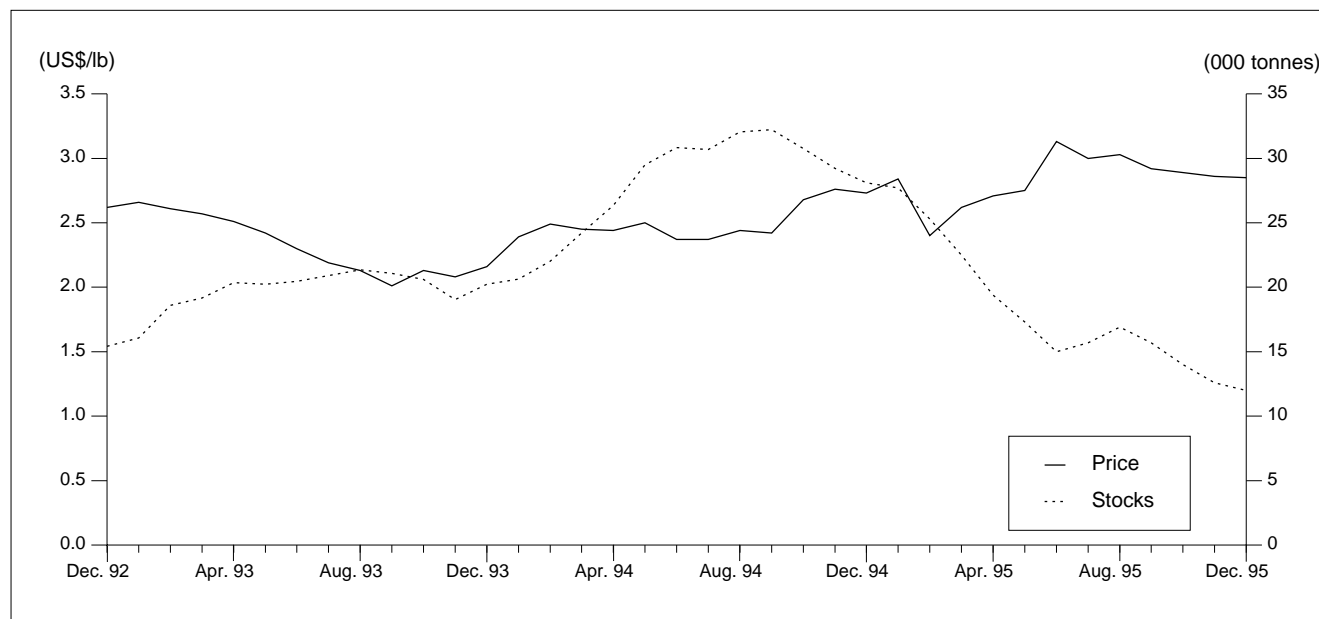
The use of tin capsules for sealing wines represents a promising new market for tin. Recent bans on the use of tin-lead capsules for sealing wines have led to the successful introduction of tin capsules in wine bottling. Tin is suitable for this purpose because it is considered to be non-toxic, is easily adapted to existing capping technology, forms an attractive, high-quality product, and can be easily and safely opened.

World tin consumption was about 207 000 t in 1994.

PRICES AND STOCKS

The settlement price for tin on the LME started the year at US\$2.73/lb, but rose to just under \$3.00/lb by late January. It then fell throughout February as investment funds divested of metals, including tin. The price of tin reached the year's low of \$2.34/lb on March 1. Prices rose again at the end of May and exceeded \$3.20/lb for much of August based on continued steady demand, physical shortages of metal, especially in the high-purity category, and falling LME stocks.

Figure 2
LME Tin Stocks vs. LME Settlement Price, 1993-95



Sources: Reuters; World Nonferrous Metal Statistics.

Note: End-of-month data.

The price of tin reached the year's high of \$3.31/lb on August 18. Fund-selling again caused prices to decline at the end of August despite strong market fundamentals. Tin ended the year at \$2.85/lb, and the average price for tin on the LME for 1995 was \$2.82/lb.

At the beginning of 1995, LME tin stocks stood at 28 100 t. They dropped steadily throughout the year to end 1995 at 12 000 t. World tin stocks were estimated by the ATPC to be 27 000 t in June 1995, and it forecast stocks to reach 22 000 t by the end of the year. The ATPC considers 20 000 t to be a normal stock level.

OUTLOOK

Western World tin consumption is expected to increase by about 4% in 1996 with the strongest growth in the manufacture of tinfoil, especially in the European steel can industry. Western tin smelters are again likely to operate at well below capacity due to a scarcity of quality concentrates. Despite increased production in Indonesia and Peru, mine supply is expected to again fall well below demand due to the large number of mine closures and cutbacks in recent years brought about by low tin prices and falling grades.

The future course of the tin market will rest, to a significant degree, on developments in China. As in 1994, China exceeded its ATPC quota despite tighter restrictions in 1995 on exports and a crackdown on illegal smuggling. With stocks likely to continue their decline in 1996, prices are forecast to rise, thus testing China's resolve to limit excessive exports of tin. Should China be successful, a substantial rise in the price of tin could be expected. However, it is forecast that China will again exceed its quota, thereby limiting the draw-down in stocks. Tin prices are therefore predicted to average US\$3.25/lb in 1996.

Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 70. (2) Information in this review was current as of January 31, 1996.

TARIFFS

Item No.	Description	Canada			United States	EU	Japan ¹
		MFN	GPT	USA	Canada	MFN	GATT
2609.00	Tin ores and concentrates	Free	Free	Free	Free	Free	Free
7204.30	Waste and scrap of tinned iron or steel	Free	Free	Free	Free	Free	Free
8001.10	Tin, not alloyed	Free	Free	Free	Free	Free	Free
8001.20	Tin alloys						
8001.20.10	Tin-antimony alloys	Free	Free	Free	Free	Free	3%
8001.20.20	Tin-lead-antimony alloys	Free	Free	Free	Free	Free	3%
8001.20.90	Other	Free	Free	Free	Free	Free	3%
8002.00	Tin waste and scrap	Free	Free	Free	Free	Free	Free
8003.00	Tin bars, rods, profiles and wire						
8003.00.10	Bars and rods, not alloyed or of tin-antimony alloys	Free	Free	Free	Free	2.6%	3.5%
8003.00.20	Bars and rods, of tin-lead-antimony alloys	3.6%	Free	Free	Free	2.6%	3.5%
8003.00.30	Bars and rods, of phosphor-tin alloys	3.6%	2%	Free	Free	2.6%	3.5%
8003.00.40	Wire of tin-lead alloys (tinsel), for use in the manufacture of braids, cords, tassels, ribbons or trimmings	Free	Free	Free	Free	2.6%	3.5%
8003.00.50	Bars and rods, of other alloys; profiles; other wire	3.6%	2%	Free	Free	2.6%	3.5%
8004.00	Tin plates, sheets and strip, of a thickness exceeding 0.2 mm						
8004.00.10	Of tin-lead-antimony alloys	2%	Free	Free	Free	2%	3.5%
8004.00.20	Of phosphor-tin alloys	2%	1%	Free	Free	2%	3.5%
8004.00.90	Other	2%	1%	Free	Free	2%	3.5%
8005.00.10	Tin foil of a thickness (excluding any backing) not exceeding 0.2 mm	Free	Free	Free	Free	3.2%	4.5%
8005.00.20	Tin powders, not alloyed	3.5%	Free	Free	Free	2.3%	4.5%
8005.00.30	Tin alloyed powders, flakes	7.3%	4%	Free	Free	2.3%	4.5%
8006.00	Tin tubes, pipes and tube or pipe fittings (i.e., couplings, elbows, sleeves)	2%	1%	Free	Free	3.6%	4.5%
8007.00	Other articles of tin	7.3%	4%	2%	0.6-0.8%	4.2%	5.2%

Sources: Customs Tariffs, effective January 1996, Revenue Canada; Harmonized Tariff Schedule of the United States, 1996; The "Bulletin International des Douanes," Journal No. 14 (17th Edition), European Union, 1994-1995, "Conventional" column; Custom Tariff Schedules of Japan, 1995.

¹ GATT rate is shown; lower tariff rates may apply circumstantially.

Note: Where there is a tariff "range," a complete match of the HS code was not available; therefore, the high and low for the product in question is shown.

TABLE 1. CANADA, TIN PRODUCTION AND TRADE, 1994 AND 1995, AND CONSUMPTION, 1993 AND 1994

Item No.		1994		1995p	
		(tonnes)	(\$000)	(tonnes)	(\$000)
PRODUCTION					
	Tin content of tin concentrates and lead-tin alloys	-	-	-	-
EXPORTS					
2609.00	Tin ores and concentrates				
	Malaysia	19	26	47	144
	Brazil	18	16	-	-
	Total	37	43	47	144
7204.30	Waste and scrap of tinned iron or steel				
	United States	4 595	1 204	13 330	2 171
	Other countries	23	9	329	137
	Total	4 618	1 214	13 659	2 310
8001.10	Tin, not alloyed, unwrought				
	United States	176	1 365	185	1 751
	Total	176	1 365	185	1 751
8001.20	Tin alloys, unwrought				
	United States	670	4 451	925	6 237
	Other countries	35	60	-	-
	Total	705	4 512	925	6 237
8002.00	Tin waste and scrap				
	United States	617	580	15 048	3 572
	Other countries	20	7	21	9
	Total	637	588	15 069	3 582
8003.00	Tin bars, rods, profiles and wire				
	United States	324	2 185	419	3 431
	Total	324	2 185	419	3 431
8004.00	Tin plates, sheets and strip, of a thickness exceeding 0.2 mm				
	United Kingdom	1	14	28	40
	United States	10	10	4	93
	Other countries	..	6	1	20
	Total	11	31	33	154
8005.20	Tin powders and flakes				
	South Korea	3	102	1	43
	Other countries	1	58	..	15
	Total	4	160	2	59
8006.00	Tin tubes, pipes, and tube or pipe fittings				
	United States	4	19	-	-
	Total	4	19	-	-
8007.00	Tin articles, n.e.s.				
	United States	..	4 548	..	5 190
	Other countries	..	2 776 ^r	..	3 175
	Total	..	7 328 ^r	..	8 371

TABLE 1 (cont'd)

Item No.		1994		1995P	
		(tonnes)	(\$000)	(tonnes)	(\$000)
IMPORTS					
2609.00	Tin ores and concentrates	7	67	5	53
7204.30	Waste and scrap of tinned iron or steel	6 584	574	4 195	427
8001.10	Tin, not alloyed, unwrought	4 438 ^r	33 485	4 291	36 526
8001.20.10	Tin-antimony alloys	18	134	16	137
8001.20.20	Tin-lead-antimony alloys	59	289	96	765
8001.20.90	Other tin alloys	168	1 421	90	821
8002.00	Tin waste and scrap	305	1 235	319	1 119
8003.00.10.10	Tin bars and rods, not alloyed	2	16	15	140
8003.00.50	Tin bars and rods, of other alloys; profiles; other wire	79	702	67	677
8004.00	Tin plates, sheets and strip, of a thickness exceeding 0.2 mm	87	897	107	947
8005.20.10	Tin powders, not alloyed	6	56	8	97
8005.20.20	Tin alloyed powders, flakes	36	638	47	879
8006.00	Tin tubes, pipes, and tube or pipe fittings	17	176	23	220
8007.00.00.10	Other articles of tin, anodes for electro-plating	7	76	12	122
8007.00.00.20	Tin cooking utensils	}	13 934	}	12 067
8007.00.00.30	Collapsible tubes				
8007.00.00.99	Tin articles, n.e.s.				
		1993		1994P	
CONSUMPTION¹		(tonnes)			
	Solder	1 606		1 608	
	Tinplate and tinning	1 351		1 145	
	Babbitt	126		157	
	Bronze	41		120	
	Other uses (including collapsible containers, foil, etc.)	126		112	
	Total	3 250		3 142	

Sources: Natural Resources Canada; Statistics Canada.

– Nil; . . Not available or not applicable; . . . Amount too small to be expressed; n.e.s. Not elsewhere specified;

P Preliminary; r Revised.

¹ Available data as reported by consumers.

Note: Numbers may not add to totals due to rounding.

TABLE 2. CANADA, TIN PRODUCTION, TRADE¹ AND CONSUMPTION, 1975, 1980 AND 1985-95

	Production ²	Exports ³	Imports ⁴	Consumption ⁵
	(tonnes)			
1975	319	1 052	4 487	4 315
1980	243	883	4 527	4 517
1985	119	358	3 696	3 511
1986	2 356	3 727	3 925	3 270
1987	3 388	2 778	3 792	3 780
1988	3 787	3 591	4 004 ^r	3 489
1989	3 479	2 790	4 020 ^r	3 567
1990	3 844	2 828	3 625 ^r	3 600
1991	4 392	3 716	3 176	3 178
1992	58	401	3 195	3 042
1993	–	–	3 793	3 250
1994	–	37	4 438 ^r	3 142
1995 ^p	–	47	4 291	..

Sources: Natural Resources Canada; Statistics Canada.

– Nil; .. Not available; ^p Preliminary; ^r Revised.

¹ Beginning in 1988, exports and imports are based on the new Harmonized System and may not be in complete accordance with previous method of reporting. ² Tin content of tin concentrates shipped plus tin content in lead-tin alloys produced. ³ Tin in ores and concentrates (HS class 2609.00). ⁴ Tin metal (HS class 8001.10).

⁵ Available data as reported by consumers; current coverage exceeds 90% whereas, until 1972, coverage was in the order of 80-85%.

TABLE 3. WORLD TIN PRODUCTION, CONSUMPTION AND PRICES, 1985-95

	Production		Consumption	Prices ²	
	Tin in Concentrates	Metal ¹		LME ³	N.Y. Dealer
	(000 t)			(US\$/lb)	
1985	197	213	216	5.57	5.25
1986	188	201	229	2.87	2.94
1987	186	203	229	3.10	3.15
1988	205	260	237	3.25	3.31
1989	232	262	237	3.93	3.97
1990	216	238	235	2.82	2.88
1991	192	203	219	2.54	2.59
1992	183	200	221	2.77	2.83
1993	180	205	209	2.34	2.39
1994	184	200	207	2.48	2.55
1995	2.82	2.95

Sources: *World Nonferrous Metal Statistics*; *Metals Week*.

.. Not available.

¹ From primary and secondary material. ² *Metals Week*. ³ London Metal Exchange. For 1987, 1988 and part of 1989, the "Europe Free Market" in-warehouse Rotterdam prices were used to calculate averages.

TABLE 4. WORLD CONSUMPTION¹ OF TIN METAL, 1990-94

	1990	1991	1992	1993	1994 ^P
	(tonnes)				
WESTERN WORLD					
United States	37 000	37 100	45 100	34 700	33 000
Japan	33 800	34 800	31 000	28 600	28 700
Germany	19 300	20 300	20 400	18 600	18 200
United Kingdom	10 400	10 200	10 400	10 400	10 400
France	8 300	8 200	8 300	7 600	9 200
South Korea	7 800	8 400	8 000	9 100	9 800
Brazil	6 100	.	6 500	4 100	3 600 ^e
Taiwane	4 800	6 200	5 900	6 800	7 900
Thailand	4 700	4 700	3 700	4 900	5 100
Italy	6 100	5 200	5 500	5 300	4 700
Hong Kong	5 500	5 200	5 000	—	—
Malaysia	3 100	3 800	4 600	5 200	5 700
Spain ^e	4 000	4 900	5 500	6 800	6 700
Other	34 900	32 100	25 000	23 800	24 300
Total Western World	185 800	181 100	184 900	165 900	167 300
EASTERN COUNTRIES					
Former Soviet Union	20 000	17 000	15 500	14 500	7 000
China, People's Republic of	18 000	17 000	12 800	21 100	26 100
Other	10 700	3 900	7 500	7 300	6 700
Total Eastern countries	48 700	37 900	35 800	42 900	39 800
Total world	234 000	219 000	220 700	208 800	207 100

Source: *World Nonferrous Metal Statistics*.

— Nil; . . Not available; ^e Estimated; ^P Preliminary.

¹ Tin refined from primary and secondary sources.

TABLE 5. WORLD PRODUCTION¹ OF TIN IN CONCENTRATES, 1990-94

	1990	1991	1992	1993	1994 ^P
	(tonnes)				
WESTERN WORLD					
Indonesia	30 200	30 100	29 400	28 600	30 600
Brazil	39 100	29 300	28 500	23 300	19 700
Bolivia	17 300	16 800	16 500	18 600	16 000
Malaysia	28 500	20 700	14 300	10 400	6 500
Peru	4 800	6 600	10 000	14 300	20 000
Thailand	14 600	10 900	8 400	4 700	3 100
Australia	7 400	5 400	6 600	8 100	7 400
Portugal	1 300	3 100	3 000	5 300	4 300
Other	13 900	11 700	6 200	5 600	4 000
Total Western World	157 100	134 600	122 900	118 900	111 600
EASTERN COUNTRIES					
China, People's Republic of	42 000	42 100	43 000	46 000	58 000
Former Soviet Union ^e	13 800	13 700	14 000	11 100	10 600
Other	3 200	1 100	3 500	3 600	4 100
Total Eastern countries	59 000	56 900	60 500	60 700	72 700
Total world	216 100	191 500	183 400	179 600	184 300

Source: *World Nonferrous Metal Statistics*.

— Nil; ^e Estimated; ^P Preliminary.

¹ Recoverable tin content of ores and concentrates produced.

TABLE 6. WORLD PRODUCTION¹ OF TIN METAL, 1990-94

	1990	1991	1992	1993	1994 ^p
	(tonnes)				
WESTERN WORLD					
Malaysia	49 000	42 700	45 600	40 100	38 000
Brazil	37 600	25 800	28 500	23 300	19 400
Indonesia	30 400	30 400	28 200	30 400	31 100
Bolivia	13 400	14 700	14 400	18 600	20 000
Thailand	15 400	11 000	10 900	8 300	7 600
Spain	1 300	1 700	2 100	2 100	2 000
Mexico	5 000	2 300	2 000	2 500	2 300
United Kingdom	12 000	5 200	—	—	—
Other	19 400	13 600	5 700	4 600	3 400
Total Western World	183 500	147 400	137 400	129 900	123 800
EASTERN COUNTRIES					
China, People's Republic of	35 800	36 000	39 600	51 100	61 900
Former Soviet Union	14 000	18 000	20 000	22 000	12 200
Other	5 000	1 800	100	2 400	2 400
Total Eastern countries	54 800	55 800	62 100	75 500	76 500
Total world	238 300	203 200	199 500	205 400	200 300

Source: *World Nonferrous Metal Statistics*.— Nil; ^p Preliminary.¹ Tin refined from primary and secondary sources.**TABLE 7. MONTHLY AVERAGE TIN PRICES, 1994 AND 1995**

	N.Y. Dealer		London Metal Exchange	
	1994	1995	1994	1995
	(US\$/lb)			
January	2.30	2.89	2.24	2.81
February	2.54	2.57	2.47	2.48
March	2.51	2.61	2.45	2.51
April	2.51	2.78	2.44	2.66
May	2.55	2.82	2.50	2.69
June	2.56	3.19	2.50	3.02
July	2.47	3.17	2.41	3.02
August	2.42	3.31	2.34	3.17
September	2.48	3.03	2.41	2.87
October	2.58	2.96	2.48	2.82
November	2.88	3.02	2.79	2.90
December	2.79	2.99	2.70	2.85
Yearly average	2.55	2.95	2.48	2.82

Sources: *Metals Week*; Reuters.