

Markets drag down tin

Tin is a fairly balanced market at present, but prices are depressed by bigger issues, reports Steve Karpel

Tin is regarded as having some of the strongest fundamentals of the base metals, with many analysts forecasting another refined metal market deficit both this year and next. Nevertheless, the growing uncertainty that hangs over the global economic situation, led by the eurozone debt crisis, has hit tin just as much as other commodities. Its price has declined from a peak this year of \$25,500/tonne in the second week of February (LME daily cash settlement) to \$18,700 on July 18. Last year it hit a record price of \$33,000/tonne in April, but had another roller-coaster ride as it dipped to below \$20,000/tonne in September and December.

As a relatively small market, tin is often forced to follow the sentiments behind the bigger base metals such as copper. The main story for tin is that, although overall demand has remained fairly stagnant for some time, mine output has also been struggling from many producers for a variety of reasons, which has prevented the market from tipping into a surplus. This has provided some support for the price.

Moreover, although there are a number of new mining projects around the world, they are of generally modest size (a few thousand tonnes per year) and still have some way to go to reach start-up.

World mine output fell last year by 17,900 tonnes of contained tin to 300,600 tonnes, according to UK-based WBMS. The first four months of this year show a further 5.8% fall year-on-year to 91,900 tonnes. Mine output in China, the world's biggest producer, fell by just 1.7% last year to 127,400 tonnes, but there was a steeper drop in January-April by 12.4% year-on-year, to 35,300 tonnes.

Tin mine production in China has been hit by a number of problems, says the UK-based tin industry organisation Itri. These include drought conditions over the past year in some mine areas, attempts to control pollution by local authorities and the economic pressures caused by lower metal prices. In Yunnan province, over 100 small mines and processors were shut down to reduce pollution in two regional rivers, Itri reported in May. The local government is

considering a plan to relocate all ore processors to a new industrial park in order to exert more environmental control.

Lead-free solders strongly boosted tin consumption during a switchover period, but further growth will be slower

China's refined tin production did increase by 4.5% last year to 156,100 tonnes, WBMS reports, but in the first four months of 2012 fell by 7.2% year-on-year, to 46,500 tonnes. The country's refined tin output is noticeably higher than its mine production. China imports some concentrates (nearly 29,000 tonnes gross last year, according to WBMS), while secondary refined metal also contributes to the total.

There has been a marked increase in refined secondary tin production from scrap in recent years, notes Peter Kettle, Itri markets manager, who says that it is now slightly over 60,000 tpy, of which around three-quarters is from China. "This could continue to rise if there is an increase in old scrap recycling, but on the other hand, more efficient soldering/electronics assembly techniques could mean less plant scrap being generated," he adds.

Two dominant sources

Tin is an unusual base metal in that about two-thirds of its production comes from just two countries, China and Indonesia. The big difference between them is that China is the world's largest consumer of tin and is now a net importer of refined metal, while Indonesia exports most of its production as refined or semi-refined tin, the latter being re-refined to higher grades elsewhere in the region. The restrictions on minerals exports that Indonesia has imposed this year have applied to its tin ores and concentrates – in the form of a total ban – for some years, and its industry has adapted to it by expanding smelting capacity.

About 60% of Indonesia's mine production is from artisanal and small-scale miners, estimates Itri, and their output has held up well in recent years owing to higher prices offsetting the effects of poorer grades, says Kettle. In fact, they are still holding up, he adds, even though the price has dropped to below \$19,000/tonne. Itri estimates that marginal costs for small-scale operations are about \$15,000/tonne, and so most of them should still be viable.

Last October, the 28 tin smelters on Indonesia's Bangka island

made an attempt to raise the tin price from its then \$21,700 to \$25,000/tonne or more by imposing an export ban, but this failed when one of the main producers, PT Koba, started to export again in November.

This year, Indonesia's tin exports rose sharply in June, by 22.6% month-on-month, to 9,647 tonnes, although this was 11.3% lower than last June's volume.

In order to gain more influence in the market, the Indonesia Commodity & Derivatives Exchange (ICDX), supported by the government and main producer PT Timah, initiated a new physical tin contract on February 1, as an alternative to the LME and Kuala Lumpur tin contracts. The new contract is based on an online auction for tin certificate deposits for 99.90% tin, 5 tonne lots, fob registered loading ports in Indonesia. Trading volumes have so far been low. "Small markets like this just tend to follow the LME and have no impact on the world price," says Kettle.

In South America, Peru, the third largest producer, saw mine output fall to 29,000 tonnes last year from 33,800 tonnes in 2010 and 39,000 tonnes in 2008. Production was depressed in 2011 by temporary limitations placed on tailings disposal at the country's sole operation, Minsur's San Rafael mine. These limitations were lifted last June, but the mine has been experiencing further hurdles owing to the veins becoming narrower as the orebody is depleted. San Rafael – the world's largest tin mine – is due to be exhausted by 2017, but exploration is being carried out to see if its life can be extended. The mine also has a large tailings stockpile that can be processed.

Minsur also owns the Pitinga mine in Brazil, and it plans to increase its current output of 2,500 tpy to 5,000–6,000 tpy by the end of this year. The target is for Pitinga to reach 10,000 tpy by about 2016.

Bolivian tin production is experiencing other issues, as the government announced plans in June to nationalise Glencore's subsidiary Sinchi Wayra zinc-tin mine in Colquiri. The mine was closed on May 31 after hundreds of



WORLD MINE PRODUCTION*

	2010	2011	2011 Jan-Apr	2012 Jan-Apr
Europe	1.0	0.7	0.2	0.2
Africa	11.4	10.8	3.2	3.8
Asia	223.2	216.2	69.7	64.9
<i>of which:</i>				
China	129.6	127.4	40.3	35.3
Indonesia	84.0	78.0	26.0	26.0
Americas	63.6	57.6	18.3	18.5
Oceania	18.6	15.4	6.1	4.4
Total	317.9	300.6	97.6	91.9

*'000 tonnes of tin.
Some latest data are provisional. Source: WBMS

WORLD REFINED PRODUCTION*

	2010	2011	2011 Jan-Apr	2012 Jan-Apr
Europe	11.7	11.2	3.2	3.6
Africa	0.6	0.6	0.2	0.2
Asia	283.3	302.7	98.6	97.2
<i>of which:</i>				
China	149.4	156.1	50.1	46.5
Indonesia	64.2	73.0	24.0	24.0
Americas	59.9	52.2	18.6	16.1
Oceania	-	-	-	-
Total	355.5	366.7	120.6	117.1

*'000 tonnes, including secondary.
Some latest data are provisional. Source: WBMS

WORLD REFINED APPARENT CONSUMPTION*

	2010	2011	2011 Jan-Apr	2012 Jan-Apr
Europe	59.4	65.6	22.5	18.2
Africa	2.5	3.1	0.9	1.0
Asia	254.7	266.8	82.1	83.3
<i>of which:</i>				
China	152.8	180.8	52.1	55.3
Americas	50.6	47.4	18.4	14.0
Oceania	0.4	0.6	0.2	0.3
Total	367.6	383.6	124.2	116.6

*'000 tonnes, including secondary.
Some latest data are provisional. Source: WBMS

independent miners took it over by force in an attempt to gain control of it. Glencore has strongly protested the decision, which the government says resolves the conflict between Colquiri workers and local co-operative miners. Up to this point, Bolivian mine output had been slowly rising to 20,400 tonnes last year.

The Democratic Republic of Congo (DRC) is potentially a substantial supplier of tin, and its mine output rose to 10,800 tonnes in 2008. However, its political instability and internal conflicts reduced its mine output to 4,800 tonnes last year, reports WBMS. Global concerns about buying "conflict minerals" that may be financing militias have put further pressure on mining activity, although a joint industry programme, ITSCI, is being implemented to address the concerns of traceability and due diligence which the international community needs for DRC minerals.

In spite of mining problems affecting various countries, global refined tin production rose 3.2% to 366,700 tonnes last year, says WBMS, including secondary metal. Refined production dropped by 2.9% year-on-year to 117,100 tonnes in January-April, however.

Although demand has been affected by continuing economic sluggishness in many parts of the world, the tin market had been in deficit until last year, and may be so again this year. Refined tin consumption was put at 383,600 tonnes last year by WBMS, giving a deficit of 16,900 tonnes. Metal Bulletin Research (MBR) estimates production of 353,000 tonnes and demand of 363,000 tonnes, or a shortfall of 10,000 tonnes. Barclays

Capital posits volumes of 351,000 and 359,000 tonnes respectively, or an 8,000 tonne deficit in 2011.

So far this year, demand has softened in most parts of the world compared with the same period of 2011, including Europe, the USA and most of Asia – including Japan, the third largest consumer after China and the USA. China is the prominent exception: while its growth may be slowing, its tin demand rose by 6.1% year-on-year to 55,300 tonnes in the first four months, WBMS reports. Last year, its consumption jumped by 18.3% to nearly 181,000 tonnes.

With problems affecting some of its production, China has been importing more tin to meet domestic demand. In 2011 it imported 22,176 tonnes (a 38.8% increase), while in January-April it imported 9,634 tonnes, a 265% year-on-year rise. Imports this year have been sourced mainly from Indonesia and Malaysia.

At the moment, the base metals are trading as a group, all weighed down by macro-economic uncertainties, and if tin were trading on its fundamentals, prices would probably be higher

TIN MARKETS AND FORECASTS*

	2010	2011e	2015f
Solder	191,300	185,600	215,000
Tinplate	58,500	59,400	60,000
Chemicals	53,600	55,500	60,000
Brass/Bronze	18,900	17,500	19,000
Float glass	7,100	7,200	7,000
Others	32,600	34,300	39,000
Total	362,000	359,500	400,000

*tonnes. Source: ITRI, May 2012

than the current \$18,500-19,000/tonne range, says MBR. The longer that prices are below \$20,000/tonne, the more production will be lost at under-hedged marginal producers who are uneconomic at these levels, it adds.

MBR forecasts a balanced market this year, with an average LME cash price of \$21,602/tonne. But this could be as high as \$24,000/tonne if there is a swift recovery in the electronics sector and continuing supply constraints, with demand boosted by restocking. In the low case scenario, a deep recession in electronics, plus the release of Chinese provincial government stockpiles, could see an average down at \$20,000/tonne. MBR forecasts the average price in 2013 rising to \$25,000/tonne, with a market deficit of 2,000 tonnes (see *MB Apex*, p16).

Itri's annual tin use survey, published in May, found that solders accounted for under 52% of tin demand last year, compared with a peak of over 54% in 2007. This may reflect a downturn in electronics, as well as a trend towards using smaller quantities of solder per device, it says. Demand from tinplate has been remarkably stable over an extended period, with declines in western markets being offset by increases in developing markets, especially China.

Itri believes that world refined tin use could increase 1.5% to 365,000 tonnes this year, and thereafter an annual growth of about 2% is possible, particularly if certain new applications take off. The organisation forecasts demand rising to 400,000 tonnes in 2015,

with solder use continuing to grow and the chemicals sector expanding strongly to match consumption from tinplate (see *table*).

New opportunities

The great surge in tin demand that occurred from the 1990s to the peak in 2007 with the replacement of lead-containing solders by high-tin, lead-free alloys is more or less over, but there are other enticing prospects for new tin demand in future, says Kettle. One of these is lithium-ion batteries, where a tin-containing anode can significantly extend battery life. Commercial batteries of this type have been introduced by Sony and 3M, while Mitsubishi Materials plans to commercialise a new tin alloy anode this year, and expects to capture a 35% market share within five years.

Sumikin Stainless Steel, a Nippon Steel company, has launched two new grades of stainless that use low additions of tin to replace all the nickel and some of the chromium content. The Forward One grade contains 14% chromium and 0.1% tin, and is claimed to compete with the two main commercial grades (304 and 430) which account for over half of stainless demand. Another grade, Forward Two, is a ferritic alloy with 16% chromium and 0.3% tin.

Each of these new uses could add at least 15,000 tpy to tin consumption if they are commercially successful, while various other developments are also in the wings. Overall, although there are some threats to tin demand, Itri believes that its opportunities outweigh these in the longer term.