

The Impact of Tin (Sn) on the Electronics Market

By Tim Noble

One of the largest challenges we face as a distribution center for soldering supplies, such as bar solder, wire solder, and solder paste, is maintaining competitive prices in a volatile commodity based market. Our goal is to provide fair and competitive pricing on our materials, even if at first glance the pricing doesn't seem so. How can this be? How can we be fair, while the pricing we offer may not seem fair? There are many factors that are beyond our control that affect the pricing of our materials, I will discuss this in detail throughout this document.

We must remember that Tin (Sn) is a commodity susceptible to supply and demand. Which means if either supply or demand, or especially both are effected, the fair market value on the metals will be impacted.

The mining of Sn and the global supply of the material is a major factor on the value of this metal. This is not something that we can control, nor our manufacturers. We are at the mercy of the metals market when it comes to establishing pricing on the raw materials required for our product line. We monitor metals prices from a 3rd party, the London Metals Exchange (<http://www.lme.com/>). This provides us with the base pricing of Sn, the raw material. This is not incorporating the cost of turning that Sn into Bar Solder, Wire Solder or Solder Paste.



Figure 1: Tin (Sn) Prices January 2009-October 2010 (LME.com)

We have charted where Sn prices have been and where they are heading to help forecast the rising price of Sn. As you can see from the chart, Sn prices have been on a sharp increase since June 2010, in fact they have increased almost 40% from July 1st, 2010 through October 1st, 2010. This impacts the cost of raw materials, thus affecting our prices directly. But as I stated previously, we have very little control over what the fair market value of these materials or how it is determined.

So that brings us to why? Why have Sn prices increased so dramatically? There are several factors at play here, first we will address demand.

Demand:

China is restocking inventories after a summer lull, according to bloggingstocks.com. After a slow down in usage, followed by a sudden ramp up, problems in the supply chain can be two-fold. First, the obvious increase in demand causes problems and second the supply chain itself has decreased its' production as a result of the decrease production in the prior period. These factors are supplementary and only make the gap between supply and demand larger. For example, if China increases demand 30%, and mining has decreased its production 20%, that's a 50% disparity in meeting the demand. Overall, this will make the material more valuable with the increased demand.

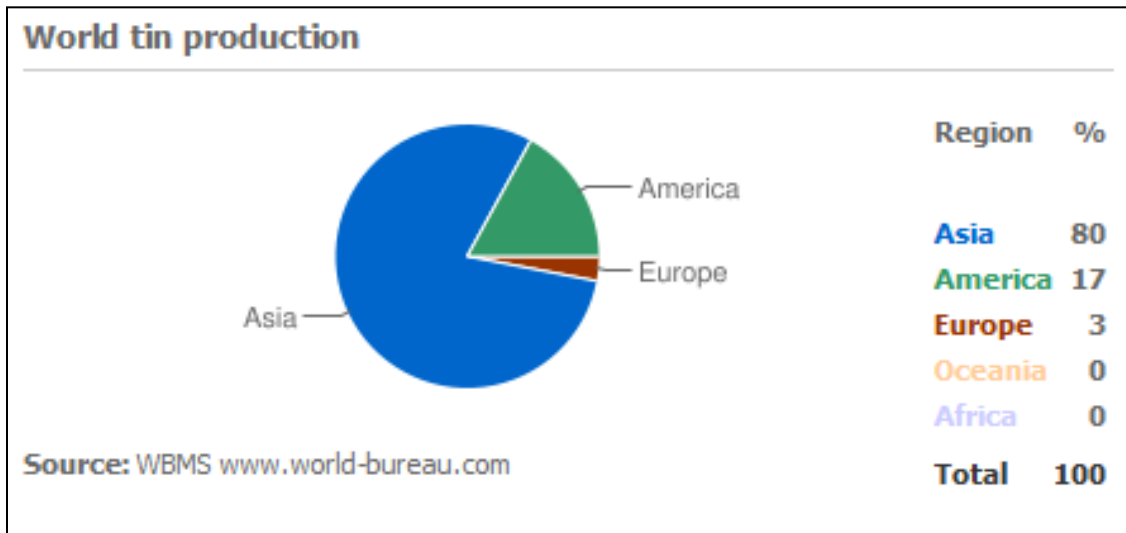


Figure 2: World Tin (Sn) Production by Continent

Supply:

There are other factors that can affect the supply chain as well, such as weather, illegal mining (new regulations making it more difficult to mine for Sn) and electrical shortages in China (according to Yahoo! News). The rainy season in Indonesia can slow down the production and delivery of Sn as well, which decreases the supply of Sn.

Illegal mining was destroying the ecology of the area, so action was taken to make sure that miners would adhere to new restrictions and be more “eco-friendly” in their mining process. These new restrictions made it harder for the mining organizations to meet the demands of the market, in addition

to eliminating the source of Sn from illegal mining operations. According to the International Tin Research Institute (ITRI), they expect Indonesia to produce 95,000 tonnes of Sn, which will be a decrease from the 101,000 tonnes produced in 2009.

Market Impact:

This all leads us to higher costs of the raw materials, and unfortunately leaves us no choice but to increase the costs of our products. But there are some things we have changed about how we operate, in order to protect not only ourselves, but also you, our customers.

When prices are on the upswing, we buy in small increments. Conventional thinking says "higher quantities, means better profitability". However, we also have to remember the adage of "buy low, sell high". If we purchase large quantities, at a high price, and the market value drops then we are locked in at that rate for a long period of time and it becomes prohibitive to both you and us. Where as we buy enough to get us through and avidly monitor the market to ensure that we restock on these items when the pricing is more accommodating.

Also, we can only quote in 1 week increments. Our manufacturers' get new pricing every week and as shown, that pricing can fluxuate significantly in a very short period of time. This fluxuation can be either negative or positive, so this is also a protection/benefit to you, our customer. Tying into this, by not overextending ourselves or our customers, we don't run "blanket orders", in the traditional sense of the definition any longer. With the volatility of the market, nobody, neither I nor you, wants to lock in at a rate knowing that it could go in any direction tomorrow.

Alternatives:

What are some alternatives that could help you decrease your dependency on large amounts of Sn? One alternative is Selective Soldering. A large consumer of Sn is the Wave Soldering process, where you have large solder pots that could hold up to 1,500 lbs of solder per pot. At today's prices, that could equal almost \$20,000 in material, just to fill the solder pot. Wave Soldering was designed for PCBs with a large quantity of PTH solder joints to be soldered in one pass over the wave; however, in today's world the amount of PTH has diminished significantly with the increasing popularity of Surface Mount (SMT) components. So in many cases, the need for a Wave Solder has also diminished and can be completed with a Selective Soldering process with machines like the Ersa Versaflow or Ecoselct. The Versaflow uses a 22 lb (Leaded)/20 lb (Lead-Free) solder pot, which is fed by a spool of solid wire. The amount of materials that you have invested into the process is the 22 lbs of solder in the pot and the 5-20 lbs of solder on the solder spool, as compared to the 1,500 lbs you could be loading into your Wave Solder machine. This is just one alternative that you could consider and feel free to contact us should you want more information on the Selective Soldering process.

A second alternative is a dross recovery powder, such as the Qualitek Super DeOX. This requires a minimal investment in materials, that allows you to get the most out of the Sn in your solder pot. The theory of operation behind this product is to recover the solder dross formed by oxidation of the solder

alloy. The Super DeOX separates the oxides from the Tin (Sn), in turn maximizing your efficiency of Tin (Sn) usage in a Wave Soldering process.

Our Pledge to Fair Pricing:

Our pledge to fair pricing means that we evaluate our costs of supplying the materials, in a fair and honest manner, with both ours' and our customers' interests in mind. It is our belief that you are not just a faceless customer; you are a business partner of our organization. It is our intentions to ensure that we can provide a product at a price that will allow you to be competitive with your competitors, and be successful in your business operation. We remain fair by not taking the opportunity, in a seller's market, to increase our margins at the expense of you, the customer. We thank you for your time, attention and your consideration.