How Much Zinc Is There?
To start this topic, it is important to define a few terms. A resource is the concentration of a mineral that is of economic interest in the earth’s crust. Currently the world’s zinc resource is measured at approximately 1.9 billion tonnes. A reserve is a portion of the resource which has been measured and which is, or may become in the close future, available for production.

As our ability to economically extract resources and as our technology improves, the amount of measured reserves increase. For instance, in 2006 there were approximately 220 million tonnes of zinc reserves measured. As of 2010, there was approximately 250 million tonnes available.

This increase in zinc reserve is associated with new exploration, and the creation or expansion of mines. These activities however may take several years to develop and are dependent on the current and forecast zinc price.

Recycling/recovering of zinc continues to be a growing supply source. Currently 4 million tonnes of zinc are recycled each year. By the 1980’s, the majority of vehicles manufactured in North America were galvanized for corrosion protection. Since then the number of vehicles being galvanized has almost tripled. We are only just starting to see these end-of-life vehicles with zinc coated steel entering the recycling stream. Subsequently the expected amount of recycled zinc should dramatically increase.

How & Where Is Zinc Being Consumed?
The biggest use of zinc in the world is coating steel. It is approximately 50% of the zinc market. Die casting is the second largest consumer of zinc at approximately 17%, followed by zinc metal in alloying (brass), zinc chemicals (fertilizers, skin products, etc.), and rolled zinc (pennies, etc.). Zinc prices are therefore very dependent on the industries that use zinc coated steel such as the automotive and construction.

Another important factor related to pricing of zinc is where zinc is being consumed. The consumption of zinc in mature economies appears to be leveling off, whereas
zinc consumption in developing economies continue to increase. Overall zinc consumption is forecast to continue to increase in these developing economies due to the development of their infrastructure, and the strengthening of their middle class (and subsequent improved purchasing power). As more structures are built and vehicles are made, zinc alloys will continue to be in grow in demand.

For price forecasting, it is important to keep an eye on the main steel coating sectors (auto/construction) in these developing economies. The supply and demand economics of zinc pricing are directly associated on this consumption.

Supply & Demand Economics
We should now look at how zinc supply is keeping up with demand. The following graph shows the current demand (yellow line) with respect to our current and future forecast supply.

As shown in the graph, current mining production (“Base Case Production Capability”) is meeting demand, but there are a series of mine closures scheduled in the near future. Although there are several new mine projects (“ Probably A projects”, “Probable B Projects”, “Possible Mine Life Extensions”), at the current rate, zinc demand is forecast to outpace supply in the next few years, creating a deficit in zinc supply and requiring zinc users to draw on zinc stockpiles.

Although there is certainly plenty of zinc reserves, the current price of zinc is not favoring the development of new mine and smelter projects. If the forecasts in stock levels are correct, it is likely that zinc prices will continue to rise until supply meets demand. The question is how fast this will occur. This relationship of stock volume and price is shown in the graph on the left. Zinc prices have historically peaked during low stock levels, and bottomed at high stock levels.

Another point to make here is the impact investors in zinc commodities have made to zinc pricing. Before 2005, investing in zinc commodities was not common. As zinc stocks fell in 2005 – 2008, prices increased as expected due to supply and demand. However, investors in zinc commodities joined in, further inflating zinc prices. This is apparent in the
above graph where after stocks finally rose (2009-present), but prices remained on average higher than those (pre-investment) historic values.

**What Factors May Affect This Forecast?**

Although the data indicates that zinc pricing will increase, there are many factors that can affect this zinc pricing forecast. Some factors may cause the zinc price to increase at a higher rate, whereas other factors could suppress the zinc price. We simply do not know exactly what will happen. Here are just a few activities that could affect the above forecast causing either higher or lower than expected prices:

![Factors affecting zinc pricing forecast](chart.png)

- Delays in new mine development
- Chinese smelter production does not grow
- Chinese per capita zinc consumption continues to track that of Japan, South Korea and Taiwan
- Growth in zinc’s use as a micro-nutrient in agricultural fertilizers accelerates
- Increase intensity of use of galvanized sheet in developing world automotive markets
- Replacement of galvanized sheet by other materials in developed world automotive markets
- Uncontrolled release of inventories
- Surge in Chinese mine supply
- Chaotic rebalancing of the Chinese economy
- Rebound in Chinese smelter production

These factors are all related to their effect on either supply or demand, which is the main driving force of price.

**Summary**

In conclusion, a few points to consider. First, zinc is still very abundant in the earth’s crust. Zinc reserves are growing, exploration continues, and mine and smelter projects continue to come on line. However, at the current price of zinc, the return on mining and smelting projects is low. As the price of zinc increases, these investments will be easier to finance due to better expected returns, but may take several years to complete.

Second, in the interim, there is general consensus that a deficit in zinc supply will continue until new mines and smelters come online. This deficit requires zinc users to draw on current zinc stockpiles to make up for these production shortfalls. As these zinc stockpiles are reduced, zinc prices will most likely increase.

Third, as customers of Eastern Alloys, we want to help you prepare for a possible increases in the zinc price. Now may be the time to for you and your customer to discuss, strategize and hedge your zinc purchases, so as to not get caught unprepared. Please call us to discuss in detail how Eastern Alloys can help.

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