

Raw Material Jitters

Unless you have been disconnected for a while, you know that raw material prices, especially for rare earths, have been on an upward trend of late. Reports on the exact amount of the increase vary slightly among informed sources^{1, 2}, but the price of neodymium metal has roughly doubled over the last year. After getting used to historically all-time low prices for rare earths, it may have come as a bit of a surprise to many purchasers of rare earths along the supply chain that prices could be headed back up again.

Before we can discuss how this situation could be resolved, we should explore how this situation arose. For a long time, rare earth prices were controlled mainly by Molycorp and Rhodia, with a few other smaller players. That started to change in the late 1980's as the Chinese came on the scene in a big way, as the graph below clearly shows. The most recent data are even more lopsided; the rare earth market is controlled by China, since it is dominant miner, separator and refiner of rare earths.

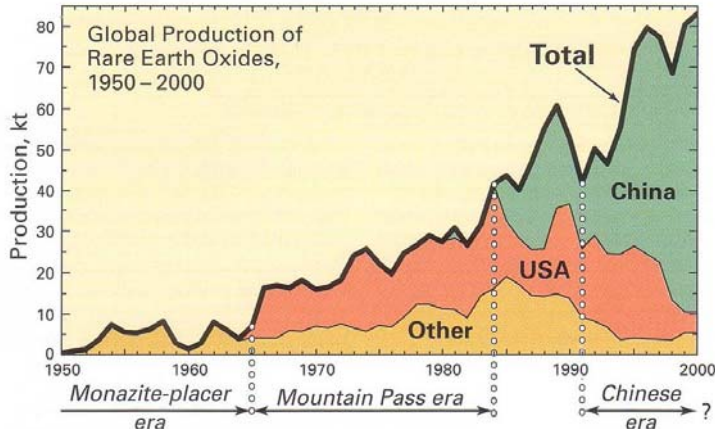


Figure 1. Global rare earth element production (1 kt=10⁶ kg) from 1950 through 2000, in four categories: United States, almost entirely from Mountain Pass, California; China, from several deposits; all other countries combined, largely from monazite-bearing placers; and global total. Four periods of production are evident: the monazite-placer era, starting in the late 1800s and ending abruptly in 1964; the Mountain Pass era, starting in 1965 and ending about 1984; a transitional period from about 1984 to 1991; and the Chinese era, beginning about 1991.

Source: United States Geological Survey, fact sheet 087-02, reference 3

But lower prices came along with Chinese dominance, so it was very hard for anyone buying rare earths to complain about the shift. The Chinese mix of central planning and unbridled capitalism created a market of falling prices with occasional bouts of chaos, when supplies of certain materials would temporarily become short. The disruptions never lasted too long, so it was seen as a minor inconvenience in an otherwise favorable market for consumers.

The situation we are in today was completely inevitable, at least in my opinion. To gain market share, most Chinese suppliers kept cutting prices without regard to profitability. This is the key problem. In the end, suppliers either had no business at all or a thick portfolio of unprofitable accounts, neither is healthy in the long run. Faced with these conditions, there are two clear choices for a business: go bankrupt or hang on, hoping for a better day. But an integral part of the latter strategy is to cut back on all investment

until conditions improve. The idea being that demand would eventually catch up with supply and the business could start growing again.

The first sign that demand caught up with supply was the first set of price increases roughly a year ago. For the first time in a long time suppliers have profitable business and have been able to think about investment in the future.

But why do prices keep going up? The short answer is because the demand is there. The longer answer is that many suppliers have been reluctant to invest in expansion because of the beating they took over the last few years and because there is pressure in China to address its growing pollution and infrastructure issues. At best, this has caused them to wait a bit longer before investing. At worst, they decide to make no investment at all. The other factor at work is the long delay between investing in expanded capacity and seeing product produced by the added capacity. New capacity has a very long gestation period, typically one to two years, or more. So it is unrealistic to expect any quick fixes.

So what's left? Should we just roll with the rise and fall of rare earth prices, and not do anything? I am sure many companies will follow this course, believing erroneously there is really nothing they can do. But I am hopeful that some key people in the industry will start a frank discussion on the subject, with an eye toward what can be done to keep the industry healthy, stable and profitable. This important step will reduce the extremes of the price cycle and put some stability in the marketplace for everyone. That's my food for thought for us all.

And finally, let me say something about my fall adventure. You may recall from my last article that I spent the fall semester teaching physics at Alma College in Michigan before returning to my job as a fulltime consultant. I have to say that it was a truly amazing and invigorating experience. It is easy to be optimistic, after spending a few months with some of the young people who will be our future leaders. It was very satisfying and humbling to be a small part of the process as they prepare themselves for their, and our, future. There is so much enthusiasm, energy and interest, even at 8:30 AM on Monday morning. I think we will be in good hands.

References:

1. Magnequench web site, www.magnequench.com/mag_news/releases/pdf/MQ_Price_Increase_21Sept06.pdf
2. Private communication, Mitch Spencer, Polaris Rare Earth Materials
3. Rare earth elements: critical resources for high technology, Haxel, Gordon B.; Hedrick, James B.; Orris, Greta J.; edited by Stauffer, Peter H.; Hendley, James W., II, USGS report 087-02 (2002). <http://pubs.usgs.gov/fs/2002/fs087-02/>

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