

Permanent Magnet Industry Outlook - 2013

By **Walter T. Benecki**

Rare Earth Raw Material Issues

It seems that the number 1 question in the magnet industry is, "What will be the trend in rare earth raw material prices next year?" Nobody wants to experience the pain felt in 2011. And I doubt that we will.

The permanent magnet industry will start to see the beginning of the end of serious RE shortages as new supplies begin to hit the market during 2013. In spite of new technologies and new product designs aimed at reducing Dysprosium requirements, Dy will certainly continue to be in short supply. As a result, Hitachi and Shin-Etsu will likely enjoy continued growth for their Dy-diffusion magnets.

Recycling will continue to be one of the "green buzzes"...but with limited impact on the magnet industry. Certain magnet producers will continue to do selective "recycling" within their production process, but generic magnet recycling efforts will be challenged by compositional variations, as well as complex and costly separation challenges.

One area that will get continued attention will be to improve process efficiency as it relates to raw material conservation. Chinese magnet manufacturers will continue to reduce "cut to shape" processes and adopt more "press to shape". But if you are a magnet buyer, don't expect any significant cost reduction tied to pressing to shape. Don't forget the impact of increased tooling costs!

Bottom line: rare earth prices will probably exhibit a relatively stable trend as we navigate through 2013.

Redesign and Rare Earth Conservation Initiatives Will Continue

Efforts continue to eliminate the use of NdFeB magnets. General Electric is evaluating superconductor technology so that it might remove neodymium magnets from its larger wind turbines. Many motor producers are actively evaluating designs that will move them away from high-Dysprosium content magnets. Some have not discounted a move to SmCo or hard ferrite if rare earths prices were to spike again.

Japan's Ministry of Economy, Trade and Industry recently announced it has earmarked some \$65 million in subsidies in an attempt to encourage manufacturers to reduce their reliance and consumption of rare earths. Toyota has already announced plans to eliminate NdFeB-based motors in its hybrid cars.

Chinese Will Maintain Their Dominance

China has outlined a plan to speed up the development of the country's rare earths industry. Experts believe this is intended to reduce downward trends and stabilize rare earth prices. The plan also includes initiatives to fast track the development of China's domestic downstream industries that use rare earths, like the magnet industry!

Efforts to develop additional rare earth manufacturing will reportedly focus on selective cities including Beijing, Baotou and Ganzhou. The Chinese government plans to promote a capacity increase of 20,000 tons of rare earth permanent magnet materials by 2015.

It's abundantly clear that China will continue their domination of the global permanent magnet industry. Despite Hitachi's start-up of their new NdFeB facility in North Carolina, Molycorp's new NdFeB joint venture in Japan, Chinese wage inflation, and adverse exchange rate trends, the Chinese will continue to be the low cost producer of permanent magnets throughout 2013.

Hitachi in the Limelight

On August 20, 2012 Hitachi Metals, Ltd. announced that they had filed a formal complaint with the United States International Trade Commission (ITC) against 29 manufacturers and importers of sintered rare earth magnets and products containing sintered rare earth magnets. Hitachi Metals is requesting exclusion orders from the ITC prohibiting the entry into the United States of unlicensed, infringing sintered NdFeB magnets and products containing those magnets.

The key question I've heard many times over the past month or so is, "What will be the consequences of Hitachi's appeal to the ITC?" As it relates to 2013, I think this is an easy one. My answer is, "Probably not much." Longer term, that may be a different issue.

We are approaching the 30th anniversary of the invention of NdFeB and disagreements surrounding NdFeB patents will likely be on the table. I don't think that we will see rapid resolution of Hitachi's ITC appeal for a number of reasons. First, I think it will take an extended time period for the ITC to sort through responses from over two dozen named companies. Second, it is difficult to predict whether any (or all) of the patents now cited by Hitachi will be challenged. Third, we do not know what continuing relationship will evolve between Hitachi and their current licensees.

No doubt, there are dozens of unlicensed Chinese NdFeB producers quite interested in the outcome of Hitachi's recent initiatives. They would love to enter the US market, and a ruling unfavorable to Hitachi would turn dozens of Chinese producers loose to offer their products into the North American marketplace. If this were to occur, it is likely that the current Chinese licensees would continue to dominate the sintered NdFeB market based on their customer relationships, specification commitments, technical expertise, manufacturing know-how and capacity dominance. Regardless how this all eventually sorts out, there will be little impact on the magnet industry in 2013.

General Economic Outlook

Obviously, the general economic conditions in the USA will impact everyone's business. On the plus side, the University of Michigan's preliminary October 2012 reading of overall consumer sentiment indicated a significant improvement, the highest since September, 2007. In addition, over the course of this year the stock market has reflected optimism and the housing market clearly appears to be on the mend.

However, a mild economic downturn starting sometime in 2013 is considered likely by many economists. Some recent corporate earnings have been disappointing and that could weigh heavily on the stock market. The Purchasing Managers Index continues to indicate weakness. And since the PMI is a leading indicator, this does not bode well for the coming year.

ITR Economics has forecasted that a mild economic downturn is likely to begin during the second half of 2013 and will probably carry over into 2014. This downturn is not expected to be serious, but it would impact the automotive, appliance and consumer electronics segments of the economy....translating into a negative influence on the magnet industry. This possibility should be considered when preparing your 2013 budget.

Politics Impacting the 2013 Economy

Since I'm finalizing this article a couple months before year end, I can only theorize what negative events may occur in the last few months of 2012: we may see a serious conflict break out in the Middle East, accelerated economic chaos in Europe, and Congress may continue to be paralyzed when it comes to the "Fiscal Cliff." I don't see any of these events having much of a positive impact on 2013.

With President Obama's re-election, we face the likelihood of continued gridlock in Washington, higher taxes, rising healthcare costs, increased domestic spending, continued deficits and sluggish economic growth. There will simply be no "quick fix" at hand to turn around the US economy. That's like dunking a paddle off the stern of a battleship and expecting something dramatic to happen.

Summary

2013 should be a decent year for the permanent magnet industry. There should be no rare earth price jumps, the short-term market outlook remains positive, but the economy may pause or begin to experience a mild correction during the second half. Some major NdFeB magnet users will continue to pursue alternate technologies and we will continue to follow the "Hitachi saga". So it's recommended to be cautious when finalizing your 2013 budget, especially when forecasting the second half of the year.

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