

Magnetics: World Update

By Port Wheeler

The Structure Factor in the Global Permanent Magnet Industry



The global permanent magnet industry is in the throes of significant structural change. The current pace of change started in the mid-1990's and will not cease in the near term.

Up-Front

In 1996 Wheeler Associates recognized the signals of imminent change and made a presentation at a Gorham Magnet Conference that, in effect, predicted the change of structure that is still in motion. An excerpt from the presentation follows:

"For many years the global magnet industry was extremely provincial. Now, with economic globalization moving rapidly, the future is loaded with opportunity. New factors coupled with vast population totals also brings new problems. The next few years will be a tumultuous period." As is well known, the article referred to the elements of change that are integral in any industry for a major structural change.

Looking Back

In retrospect there have always been significant structural changes in the industry. For example, the invention of hard ferrite magnets brought about the development of small permanent magnet motors. Without those motors automobiles, as we know them, would not exist. Ferrite also brought about a major structural change involving at the start, TDK, NV Philips, Indiana General and Stackpole (now Kane Magnetics). Now, some 50 years later, there are a multitude of producers around the world producing over 500,000 M/T annually, used in dozens of applications. As the late Professor Gerhard Hennig said in his book on magnets, "Ferrite Magnets are Ubiquitous."

Current Status

With regard to the current global structure, it can best be described as being in a classic "paradigm shift." On the doorstep of the industry, even with declining prices, there are a number of solid factors that assure a continuation of the "shift." The two main change factors are:

- Neodymium - Iron - Boron Magnets.
Sintered and Bonded.
- China's Magnet Industry

Without question China dominates the industry in magnet tonnage and number of producers. In addition, the country has some 70 to 75 percent of the world's rare earth ore, low labor rates, government support and a monumental internal market. In summary, all of the above factors, on a collective basis, have major impact on the Global Structure.

As for the other change factor cited above, it is important to realize that every new high volume magnet application on the horizon uses neodymium-iron-boron magnets - some sintered, some bonded.

Additionally, the Nd-Fe-B patents and licenses held by Magnequench International (U.S.) and Sumitomo Special Metals (Japan) are still operative.

Other factors that have kept the current pace of the structural change in motion are included below:

- Developing countries, low labor rates, raw material availability, technical education, magnet assemblies, qualified distributors, customer service, new management, patents and licenses, new high volume magnet applications, research and development and financial stability.

Looking Ahead

The ongoing change in structure of the global permanent magnet industry is far from over. As this is written there are a significant number of events in motion. Such a change can be very progressive. As the industry reconstructs, the result will be exceptional. In the long term the industry will be vibrant - one led by creative managers who exercise strategic vision to the limit.

Mr. Port Wheeler, president of Wheeler Associates, is a consultant to the international permanent magnet industry and market. He has served 20 years in senior management positions in the permanent magnet industry as vice president/general manager of Indiana General (now owned by Magnequench International, Inc.) and later as president of Crucible Magnetics. Contact him at PortMWheeler@msn.com.