

Magnetics: Industry Overview *by* **Walt Benecki**

A Call for More Industry Innovation and Technical Investment.....

A quick review of the magnetics industry during the first half of 2003 clearly indicates that industry participants continue to labor under the pressure of soft demand for their products and continuing competition from offshore competitors, mainly the Chinese. Even the impact of SARS has not had a measurable effect on the competitiveness of the Chinese. What SARS has done is to temporarily slow down many companies from traveling to China to seek out new sources or establish their own operations on the mainland.

A few of the magnetic materials producers have forged ahead with key announcements. Group Arnold, earlier this year, announced that their new manufacturing facility in Shenzhen for powder cores was fully operational. More recently, Magnequench International has announced the planned closing of their sintered NdFeB facility in Valparaiso, Indiana. Production of Magnequench's NdFeB magnets will be transferred to China. Arnold and Magnequench, along with companies like TDK, Vacuumschmelze and EPCOS continue to implement strategic commitments to China.

Another industry trend that has continued into 2003 is that of industry consolidation. Magnetic Metals announced the acquisition of all the assets of National Arnold Magnetics, a leading manufacturer of soft magnetic wound cores. Hitachi Metals Ltd. recently announced the acquisition of Metglass Solutions from Honeywell International. Each of these acquisitions strengthens the acquirer's market share and positions them to provide a broader range of capability to their customers. The recent blockbuster announcement of the strategic coupling of Hitachi Metals and Sumitomo Special Metals represents a significant step in the worldwide consolidation of the permanent magnet industry.

Unfortunately, industry consolidation and transitioning to China will not totally satisfy the buyers of magnetic materials and components! One of the areas generating considerable concern centers on the need for technical product development. Most companies in our industry are so "hunkered down" that technical development activities are limited to incremental product modification aimed at meeting a specific customer's application

requirements. Few companies, especially in the west, are capable of (or choosing to) invest in new products and new materials development.

The major exception to this trend may very well be the Japanese. Numerous Japanese companies have continued to invest in technology advancement. During the first quarter of this year, Hitachi Global Storage Technologies announced their new “Pixie Dust” technology, a data storage breakthrough that offers the potential to increase computer disk capacity. Also during the first quarter, TDK Corporation announced the availability of their new DN45 soft ferrite material which was specifically designed for advanced pulse transformer applications.

Hitachi Metals, in February, announced the commercial availability of a new Ni-Zn ferrite material that significantly reduces transformer noise and is expected to offer attractive performance improvements in bi-directional CATV systems. In April, Aichi Steel Corporation announced the development of their MAGFINE bonded magnet technology which is expected to offer DC motor designers the opportunity to reduce motor weight by as much as 50%. A lighter weight, more energy efficient DC motor has attractive potential in a wide range of automotive and appliance applications.

Also during the second quarter, TDK Corporation unveiled their new PC95 Mn-Zn ferrite core material that features reduced core loss over a temperature range of 25-120 degrees C. This material is expected to find wide application in power supply transformers and DC-DC converters used in electric, hybrid and fuel cell vehicles.

One 2003 new product announcement made by a US-based company was a high temperature bonded NdFeB magnet developed by Kane Magnetic International. Kane’s new product is capable of sustained operation at 225 degrees C. Kane expects this improved product to serve customer requirements in both automotive and power tool applications.

This short summary of recent technology advancements clearly indicates that Japanese companies continue to fund technology advancement as an integral part of their overall business strategy. The author acknowledges that he may have missed certain 2003 new product announcements, but the evidence does strongly suggest that many of the Japanese materials manufacturers have sustained a commitment to developing advanced

materials while some western manufacturers may have permitted the depletion of their technical capabilities in the name of cost reduction.

The primary issue is that manufacturers of motors, transformers, power supplies, sensors, etc. are all under extreme pressure to develop products that are faster, lighter, more energy efficient, more flexible and lower cost. Automobile manufacturers need advanced materials for hybrid cars and 42 volt systems. Computer, electronics and telecom designers are pressing for further miniaturization, higher frequencies and lower loss materials. Some of these needs may require new technologies like bonded soft ferrites or thick film magnetic technology.

Without significant improvements in the magnetic materials that these products utilize, some companies may eventually be victimized by broader technological advancements that will supplant their existing product designs. It is not inconceivable that some of these advancements may actually avoid the utilization of magnetic simply because magnetic materials capability is not keeping pace with the market need.

Bottom line: buyers of magnetic materials will continue to reward those suppliers who will meet the need for advanced materials and components. Offering low cost manufacturing capability certainly provides the ability to compete in the short term, but the addition of an effective research and development program will provide the longer term winning combination.

Walt Benecki is the former president of Group Arnold and a past president of the Magnetic Materials Producers Association. Walt has established a consulting practice specializing in operations management, industry analysis, acquisitions, dispositions and strategic alliances. For additional information, contact him at waltbenecki@aol.com