Magnet Recycling, Second Thoughts, Second Chances

In my last article I mentioned the pressure placed on our industry by the recent increase in neodymium and dysprosium prices and offered recycling as a solution for using these materials more efficiently. I also suggested that, for some designs with very small magnets, samarium cobalt may now be the preferred material over neodymium iron boron, a change in the tipping point due to the relative shift in pricing between neodymium and samarium.

One thing I notice is that for a significant percentage of people in the magnet industry, falling rare earth prices have been the norm and anything else seems unnatural. I suppose this makes sense. Just as on a broader scale the median age of the world's population is just 28 years of age [1], meaning that, to the younger half, the US President has always been named either Bush or Clinton, assuming they have been aware of such things since the age of 10. But to those of us who have been around a while longer and can recall the names of more presidents, the current rare earth pricing situation is far less stressful because we have been through several price cycles, shortages and other significant paradigm shifts in the industry. We know that this is a phase; we must adapt to survive. Just like everyone else, we don't know if this is a permanent shift or if it may just last for a while, but in either case we are better able to cope with the change. Such a major shift might seem like the end of the world as we know it to the less experienced and maybe in some sense it is. But those of us with experience have survived each change and our know-how is now a valuable attribute.

This brings me to my main point, and that is the value of "recycling" people. By this, I refer to bringing people back into the industry who have been away from it for a while. There is a large contingent of people who have retired or left the industry over the last decade with all the changes that have taken place, taking a lot of knowledge with them. We need to recover some of their talents and skills, even if only on a temporary basis, especially in light of the current status with rare earths. I hear many questions about rare earth raw materials and how to use magnets effectively. Many of the questions are not new, except to the people asking them. And some of the answers are not so new either; many are the same ones that have been successfully applied before. The problem is lack of longevity; with so little collective memory, everything seems new.

In addition to recycling materials and people, I'll offer another suggestion while neodymium prices are up: let's review our use of isotropic magnets. An isotropic magnet can potentially be replaced with an otherwise comparable anisotropic magnet that is roughly one-quarter the size due to the marked difference in energy products between the two orientations. For small magnets, there would be very little incentive to redesign, but large isotropic magnets have become a very good target to review recently. Just as people learned to live with less during times of shortage or rationing, we need to apply our engineering skills and the collective memory of the industry to use the materials we have in the most efficient ways.

The next time you have a question or problem, turn to someone who has been through several business cycles. You may be surprised to find that an old dog can teach you new, or at least tried and true, tricks!

[1] World Population Prospects: The 2006 Revision, United Nations Population Division, DESA, www.un.org/esa/population/publications/wpp2006/wpp2006_ageing.pdf

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