

POSCO's Research and Development works on rare earth reduced NdFeB magnets production process

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Abstract

Since discovery, NdFeB permanent magnet has replaced application of the conventional magnets rapidly because of its superior physical and mechanical properties.

With increasing consumption of power combined with energy resource depletion, energy efficiency is becoming more and more important. According to recent reports, almost almost half of the electric power is consumed by motor, and NdFeB magnets which are the core component of the motor play a key role on improving energy efficiency of the devices.

In parallel with finding alternatives energy resources, research works improving energy efficiency have been conducted world wide.

Although NdFeB magnets usage have been expanded to various applications, key materials such as Nd and Dy, resources lean heavily on specific area, China. Magnetic industry recently experienced skyrocketing price fluctuation of rare earth at around 2008. Chinese government's regulations worsened the situation and arose a necessity to develop methods to minimize rare earth use.

In this presentation, POSCO's recent research works on rare earth reduction is presented including novel powder alloying method using nitrate precursors. Also, future R&D plans for rare earth free magnets is briefly introduced as well.

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