

Influence of demagnetization-temperature on magnetic performance of recycled Nd-Fe-B magnets

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Recycling rare earth permanent magnets is becoming an important alternative source of supply of raw materials for neodymium-iron-boron (Nd-Fe-B) permanent magnets. This article documents a recycling case-study in which isotropic binder-free magnet powder is extracted and recycled from hermetically-sealed rotors. The extraction process is detailed, and the influence of demagnetization-temperature on the magnetic performance of the recycled product is studied and reported on. Both intrinsic coercivities and the squareness factor of the demagnetization curves are observed to decrease with demagnetization-temperature. Back-emf measurements of recycled rotors support the relatively low reduction in remanence flux density measured. The results suggest that a protective atmosphere is needed during the heat treatment, by which the rotors are demagnetized, in order to avoid oxidation of the powder.

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