

10-1 研究課題名

Development of New Technology for Extraction and Separation of Rare Earth Elements from Magnet Scraps

10-2 研究代表者名及び所属

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10-3 要旨

In order to develop a new process for the recovery of neodymium (Nd) and dysprosium (Dy) from rare earth magnet scraps, selective extractions of Nd and Dy were investigated by using metal halides. For preliminary experiments, magnesium chloride (MgCl_2) was selected as an extracting agent, and molten MgCl_2 was reacted with Dy-containing Nd–Fe–B magnet alloys. Experimental results revealed that the rare earth elements in the magnet alloys were successfully extracted into MgCl_2 with high yields. After the removal of MgCl_2 by vacuum distillation, Nd and Dy could be separately recovered by a wet or dry process. The effectiveness of MgCl_2 and other metal halides as extracting agents and the feasibility of effective recycling of Nd–Fe–B magnet scrap are discussed.

10-4 キーワード

Rare earth elements, recycling process, rare earth magnet, neodymium, dysprosium.