

Separation of Rare-Earth Metals from E-Wastes

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Abstract : The separation of rare earth metals (REM) from a neodymium magnet has been widely studied in the last year. The waste of computer hard disk contains 25.41 % neodymium, 64.09 % iron, and $<<1$ % boron. To further the separation of rare-earth metals, the magnet dissolved in open and closed systems with nitric acid. In the closed system, the magnet was dissolved in a microwave sample preparation system at different temperatures and pressures and the dissolution process lasted 1 hour. In the open system, the acid dissolution of the magnet was conducted at room temperature and the process lasted 30-40 minutes. To remove the iron in the magnet, oxalic acid was used and precipitated as oxalates under both conditions. For separation of rare earth metals (Nd, Pr and Dy) from magnet waste is used sorption method.

Keywords : dissolution of the magnet, Neodymium magnet, rare earth metals, separation, Sorption

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