Hydrometallurgical process development for recovery of the dysprosium from permanent magnet scrap leach liquor using 2-ethylhexyl phosphonic acid mono-2-ethylhexyl ester (PC 88A) as an extractant system

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Permanent magnets scrap leach liquor having dysprosium and neodymium metal values. The aim of the present study is to extraction, separation and recovery of the indivisible metal with meaningful percentage recovery. Countries like Korea having the two major problems, one is very limited natural resources of rare earths and other one is highly populated density country facing the land filling problems by occupying the scrap. The hydrometallurgists concentrating to create a wealth from waste as well as recovered metals will full fill the some percent of the countries demand.

The present experimental development focused on dysprosium separation from neodymium and recovered by suitable mineral acids. The fundamental studies like time, pH and influence, at the same time extractant variation studies after that proposed a aqueous mechanism followed a process development studies such as McCabe–Thiele diagrams and counter current extraction (CCE) studies. After loaded organic generation from CCE process proper scrubbing studies as well the recovery studies was established. Maximum loading capacity of the extractant and phase ratio effects was studied.

Scheme of the general solvent extraction processing of the metal ions