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Recycling of critical metals for circulatory economy in Japan

An achievement of circulatory society would be one of smart ways to establish sustainable and low carbon society. 3Rs (Reduce, Reuse and Recycle) concept in end of life products is now well known but further collaboration between manufacture industry and recycling industry to create a circulatory society. Let us consider the economics of cyclical usage. We do not have a sufficient recycling ratio for minor metals, even those with high prices. The recycling ratios for minor rare metals and some non-ferrous metals, all of which are relatively expensive, have not always been high. The reason is partly that it is difficult to collect scrap from in-use markets, and that scrap containing unstable impurities is hardly used in mass-production processes. Therefore, collection system is essential to recycling of critical metals. Dismantling and detachment of parts from e-scrap are essential and involve higher cost techniques in pretreatment processes for physical separation. New techniques are desired for effective recycling of critical metals. Therefore, we are trying to develop new detachment processes such as a new break down process. Also, in the case of metallurgical production, with its intrinsic potential of smelting, extraction, enrichment and separation methods play an important role in the context of critical metals also. Present status of critical metal recycling in Japan will be presented in this presentation.

Biography

Takashi Nakamura has completed his MASC in Metallurgy from Kyushu University, Japan in 1974, PhD in Metallurgy in 1979 from the same university. He became Lecturer in Kyushu Institute of Technology (1977), Associate Professor (1981) and Professor (1991). In 1998, he was appointed as a Professor at Institute for Advanced Materials Processing, Tohoku University. From 2001, he is a Professor at Institute of Multidisciplinary Research for Advanced Materials, Tohoku University.

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