

Development of Technology to Make Use of Iron from Nickel Ore

Sumitomo Metal Mining Co., Ltd. (SMM) produces nickel-cobalt mixed sulfides*¹ using HPAL*² technology in the Philippines, and the tailing left by this technology contains iron in the form of hematite*³. However, the grade of this hematite is low at approximately 30% to 40% and as such cannot be used as a raw material for iron and steel, meaning it is subject to disposal in landfills.

SMM has, however, through a review of the process after the leaching and recovery of nickel and cobalt using HPAL technology, succeeded in raising the grade of the iron in this tailing to approximately 60%, which is equivalent to normal iron ore.

When this technology is developed for commercial use, not only will it allow a more efficient utilization of resources but it will also make a large contribution to reducing the amount of waste disposed of in landfills. Through its majority owned subsidiary Taganito HPAL Nickel Corporation (THPAL, investment ratio SMM 62.5%, Nickel Asia Corporation 22.5%, Mitsui & Co 15%) located in Makati City in the Philippines, SMM plans to commence production of nickel-cobalt mixed sulfides using HPAL in 4th quarter of 2013, and is also planning the construction of a pilot plant that uses the aforementioned technology. SMM shall henceforth move forward with investigations into making this technology viable for commercial use.

SMM was the first company in the world to succeed in using HPAL technology to commercially produce nickel and cobalt from low-grade nickel ore, and is also making efforts in the recovery of valuable metals from ores and residues in order to achieve an even more efficient usage of resources. Coral Bay Nickel Corporation, located on Palawan Island in the Philippines, is already producing nickel-cobalt mixed sulfides using HPAL technology, and construction of a pilot plant for the recovery of scandium and chromium is also underway. Along with these efforts, it is hoped that making use of iron from nickel ore will promote the efficient utilization of resources in line with the 2012 3-Year Business Plan key strategy "Expansion of Metal Recovery".

*¹ Nickel-cobalt mixed sulfides: These are intermediate products for the production of materials including electrolytic nickel. SMM processes all of these mixed sulfides at its nickel refinery (Niihama City, Ehime Prefecture, Japan) where they are processed into electrolytic nickel and electrolytic cobalt products.

*² HPAL: High Pressure Acid Leach

*³ Hematite: Chemical composition Fe₂O₃, mainly used as raw material for iron and steel.

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