MODULARIZATION OF HPAL AND POX UNITS IN NICKEL & COBALT INDUSTRIES

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ABSTRACT

The application of the pressure leaching process, especially HPAL and POX, in nickel and cobalt industries has seen dramatic growth in recent years, driven by the rapid development of the EV industry. In the past 3 years, more than 20 autoclaves have been delivered to Indonesia for HPAL projects, all of which were successfully ramped up and exceeded the production target in less than one year. Meanwhile, more and more POX projects are being built in China, Indonesia and South Korea, with nickel matte from laterite as the feedstock.

The success of HPAL projects in recent years is based on the lessons learned on engineering, commissioning and ramp up of previous HPAL projects in Australia, Papua New Guinea, Philippines, New Caledonia, Turkey and Madagascar. Although the POX of nickel matte from laterite is newly introduced, the previous POX projects treating nickel matte from nickel sulphide in China and Canada and MS from laterite in Australia, Madagascar and China, provided the engineering templates and commissioning experience.

Different from previous projects, the process and layout of recent HPAL and POX projects were more like templated, with only distinctions on sizing of equipment, pumps, valves and pipes. Modularization of leaching plants are hence quite suitable for HPAL and POX projects in the nickel and cobalt industries, providing schedule certainty, cleaner and safer environment, skilled worker team, reduced site labor and peak, shorter installation time on site, lower environmental/socioeconomic impact and less disturbance by local situation. For those inland projects subjected to transportation limitations of large size modules, a high degree of prefabrication will be an alternative solution.

Keywords: HPAL, POX, Nickel, Cobalt, Module, Modularization, laterite, matte