

ABSTRACT

The Nickel Sulfate plant is designed to continuously operate for 330 days in a year with a capacity of 60,000 tons annually by lateritic nickel ores as raw materials. The production process is divided into four main stages sequentially, namely comminution, reaction, purification, and finishing. The initial stage is comminution, a size reducing process of the ores before it gets reacted in the reactor. Comminution consists of primary crushing by gyratory crusher, secondary crushing by cone crusher, and tertiary crushing by ball mill. The next stage is the reaction of nickel ores with sulphuric acid in high pressured and temperature autoclave. After that, the purification stage comprises of adsorption, elution, and extraction is carried out. Finally, there are crystallization in the crystallizer and drying in the dryer as a part of finishing stage.

This plant will be established on a land of 154,000 m² in the Morowali Industrial Park located in Fatufia Village, Bahodopi District, Morowali City, Central Sulawesi Province. This plant will employ about 319 people for operational needs, both administratively and off the field. This plant also requires 17.98 MW of electricity and 958,335 kg / hour of processed water to operate well.

For plant establishment, fixed capital of \$201.112.269 and working capital of \$102.292.587 annually. This plant is classified as high risk industry with $ROI_{before\ tax}$ 22,63% dan $ROI_{after\ tax}$ 13,68%, $POT_{before\ tax}$ 2,68 tahun dan $POT_{after\ tax}$ 4,22 tahun, BEP 46,21%, SDP 21,33%, serta DCFRR 25,67%. Based on the economic evaluation, this plant is interesting and worthy for further study.

Keywords: Lateritic Nickel Ores, Nickel Sulfate