

ABSTRACT

This research is laboratory study of the effect of grain size on concentration process using elutriator (ET1000) for gold deposits which mined from Dusun Plampang II, Desa Kalirejo, Kecamatan Kokap, Kabupaten Kulon Progo, D.I Yogyakarta. The research be held in the laboratory of mineral processing and chemical engineering laboratory of UPN “Veteran” Yogyakarta. In mining industry there are important stages of mineral processing, especially in the processing of gold ore. In the mineral processing operation unit there are three main stages as follows : preparation, concentration and dewatering. Concentration is an important step, therefore it must be considered the method to be used. the concentration method to be used in this research is elutriation. The elutriation is the process of separating solid materials in the form of particles that uses fluid (air). This occurs due to the difference in terminal velocity of each particle.

The samples from Plampang II were made by reducting, grinding and screening until divided into three sizes: -100 + 150 mesh, -150 + 200 mesh and -200 mesh. Each sample size was experimented by concentration stage using elutriator for three times in each sample size. Then the results are analyzed to the recovery, concentration ratio and degree of concentrate which will show the success rate and the effect of grain size on concentration process by using elutriator.

The results showed the best recovery (% Recovery) obtained at grain size - 200 mesh is 73,373% for Ag, 65,586% for Au and 50,698% for Cu. The smallest concentration ratio is on grain size - 200 mesh that is equal to 2,095. The most optimal grain size of the concentration process using the elutriator is -200 mesh which shows the level of 63,006 ppm for Ag with the increase of the level of 54,134%, 9,028 ppm for Au with the increase of level equal to 37,853% and 1187,019 for Cu with increase of level equal to 6.65%. Based on the results of this research, it can be concluded that the most optimal grain size in the process of concentration using the elutriator is - 200 mesh.