

INFLUENCE OF MECHANICAL VARIABLES AND PH ON FLOTATION OF ULTRAFINE FLUORSPAR PARTICLES

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The formation of slime particles in the processes of crushing and grinding of minerals is a factor that limits froth flotation. Minera de Orgiva S.L. (Spain) produces slime sludge containing 41.05 F₂Ca from the benefice of a fluorite ore. Slimes have a very small particle diameter with very high specific surface area making this material difficult to process by froth flotation technique even when the law of the material is high. Furthermore, removing this fraction of the mineral from the flotation process generates waste that causes the appearance of slagheap that affect negatively the environment. In order to make this byproduct salable in the metallurgical fluorspar market, this research studies the influence of physical variables and pH in the flotation process of fluorite slimes. Four variables were studied: aeration flow rate, time of flotation, agitator speed and pH. In order to evaluate the influence of each variable the results were adjusted to a polynomial mathematical model based in the relation between the variables and the measured factors. Optimizing the process 76.21% of fluorite law is achieved in a single rougher steep with a metallurgical recovery of 70.57% using values of 0.8 m³/h air flow rate, 7 minutes of time flotation, 1100 rpm and pH 9.25

Biography

José Raúl Corpas is currently carrying out his PhD studies at the University of Granada. He started his PhD studies in 2017, obtained in 2018 a scholarship from the Spanish state with which he gives a practical application to his studies at the company Minera de Orgiva S.L. He started working at the Orgiva Mining Company under the project: Mineral concentration under physic and chemistry methods. He has published 3 papers in the field of chemical engineering and has participated in 3 international congresses being the last one XIV International Congress of Energy and Mineral Resources, Seville from April 10 to 13, 2018.

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