International J. of Engg. Research & Indu. Appls. (IJERIA).
ISSN 0974-1518, Vol.3, No. IV (November 2010), pp. 47-58

THE EFFECT OF XANTHATES AGES ON ZINC AND LEAD SULPHIDE ORE BY FLOTATION

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Abstract

The effect that fresh and aged xanthates have on the recovery of zinc and lead from sulphide ore by flotation was investigated. Flotation tests were performed using powder xanthate and solution xanthate. With the powder xanthate, tests were done using the aged xanthate and purified xanthate. Solution xanthate, prepared from purified xanthate, was immediately used after preparation and some was left to be used after five days. The material floated was of a size of 80 % passing 75 μm screen. The flotation tests were performed for ten minutes, each run with concentrate collected every five seconds. The head grade for Zn was 4.6 and for Pb were 4.8 mass %. The % activity of purified powder, fresh solution, 5 days old solution and old powder for Potassium Amyl Xanthate (PAX) was 70.0, 69.3, 57.15 and 17.01 %, respectively and for Sodium Isobutyl Xanthate (SIX) was 81.73, 79.57, 76.65 and 18.24 %, respectively. The concentrate grades for PAX test work were greater than that of SIBX for all powder and solution xanthates. It was concluded that xanthates will decompose in the presence of water, heat and oxygen in the atmosphere to form carbon disulphide.

Keywords : Fresh and aged xanthate, Potassium amyl xanthate, Sodium isobutyl xanthate, Sulphide ore