

# A method for evaluating the proportion of free and attached bacteria in the bioleaching of chalcopyrite with *Thiobacillus ferrooxidans*

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A method for evaluating the proportion of bacteria attached to mineral sulfides is presented. The method is based on the determination of the rate of ferrous iron oxidation by attached bacteria on the mineral surfaces. The values obtained with this procedure are in agreement with measurements of attached bacteria using bacteria grown with radioactive ( $C^{14}$ )  $NaHCO_3$ . The methodology was used to evaluate the fraction of bacteria attached to chalcopyrite during bioleaching of this sulfide. It was observed that a significant fraction of the bacteria grow attached to the mineral.