The physico-chemical characterization of the rejects resulted from the gold ore treatment

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Abstract. Gold mine rejects are the waste materials generated after extraction of gold ore, the disposal of which is a major environmental problem for the mining industry. At Amesmessa mine (El Hoggar, Algeria); where mining has carried out for over 15 years, about 2 million tons of mill tailings has been accumulated each year.

This work reports about the characterization of two types of reject products from the different steps of processing chain. These two rejects are the marginal stock (SM) generated by the mining operations of the Amesmessa mine and the reject generated at the downstream end of the gold ore treatment named RAT.

Several investigations were carried out based on the characterization of solid rejects from gold ore processing. The chemical and physical analysis of the two rejects mainly revealed the dominance of quartz and especially the existence of heavy metals (Fe, Pb, Zn, Cr) for the RAT reject detected by x-ray diffraction and x-ray fluorescence, as well as the high degree of finesse indicated by laser diffraction. These physico-chemical investigations indicate the importance of the treatment of these rejects to preserve the environment.

Keywords: Gold ore , Reject, Environment.