EVALUATION OF EXTRANEOUS IRON CONTAMINANT REMOVAL PROCESS OF QUARTZ PROCESSING PLANTS IN SRI LANKA

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High purity quartz is now well-established as a key strategic mineral used in high-tech industries namely, semiconductors, solar silicon applications, microelectronics, etc.. Among the many varieties of high purity natural resources in Sri Lanka, quartz is one of the most popular mineral sought after for export. After the ban imposed on the export of quartz in lump form, the export of quartz in the grit form has increased as it generates higher profits. Consequently, an increase of quartz processing plants in Sri Lanka is being witnessed.

As the main impurities of Sri Lankan quartz are iron, alumina and magnesium, to obtain high grade quartz, the said impurities must be removed. Apparently, removal of internal structure-bound iron content in quartz grains is very costly and need sophisticated metallurgy.

Therefore, this study focuses on the possible situations where, extraneous iron contamination could occur within quartz processing plants in Sri Lanka. In evaluating such, extraneous contamination associated with material feeding techniques, improvements to machineries such as primary crusher, vibrating screens and secondary crushers, use of magnetic separators and use of dust collecting systems are discussed.

Keywords: quartz processing plant, extraneous iron contaminant, quartz grit, magnetic separators