

IDENTIFICATION AND PURIFICATION OF IMPURITIES IN SILICA SAND

A dissertation submitted to the
Faculty of Science and Technology, Uva Wellassa University
In partial fulfillment of the requirements for the award of the
Degree of Bachelor of Science in Mineral Resources and Technology

By

GARTHIGA YOGENDRA

**Faculty of Science and Technology
Uva Wellassa University, Sri Lanka**

January 2017

Abstract

Impurities in silica sand are highly affected for its application in different industries and high technology applications. However, detail investigations on the mode of occurrences of impurities in silica sand deposits of Sri Lanka are rare. Therefore, this study was focused to investigate the mode of occurrences of impurities in silica sand and to develop method to remove them. Microscopic analysis implied that the impurities in the silica sand are present as mineral grains, coating, interlocking grains and inclusions. Physical separation depending on the grain sizes implies that the grain size separation can be effectively used to remove the mineral grains present as impurities together with quartz grain. Furthermore, acid leaching was successfully used to remove the iron coating on the surface of quartz grain. Subsequently the silica sand reached the quality requirements for the glass industry.