

Geochemistry and Mineralogy of Quarry Dusts at Some Selected Locations of Southwestern Nigeria

¹AJIBADE, O.M. ²ADEBAYO, H.A.

³OLADIPUPO, S.D. ⁴BALOGUN, M.S. and

⁵ADEGOKE, C.B.

¹Earth Sciences Department, Olabisi Onabanjo University,
Ago Iwoye, ajibade.muyiwa@oouagoiwoye.edu.ng

²Geography Department, Olabisi Onabanjo University, Ago
Iwoye, adebayooluwasegunhezekiah@gmail.com

³Earth Sciences Department, Olabisi Onabanjo University,
Ago Iwoye, Ogun State. Seunlad50@gmail.com

⁴Earth Sciences Department, Olabisi Onabanjo University,
Ago Iwoye, Ogun State. maymaymayowa@gmail.com

⁵Earth Sciences Department, Olabisi Onabanjo University,
Ago Iwoye, Ogun State. boluwaji@gmail.com

ABSTRACT

Quarrying dusts and its environmental contamination with potentially harmful elements has been assessed with 24 composite samples differentiated into inside and outside categories and detailed interpretation was carried out using SPSS and Microsoft Excel. SiO₂, Al₂O₃, MgO, CaO, K₂O, Na₂O, TiO₂ and Fe₂O₃ range between 0.02-80.88%. The bauxitic portions (Al₂O₃-15.4) specify high clay percentage in the rock aggregate dust. Furthermore, SiO₂, Al₂O₃+TiO₂ and Fe₂O₃ ternary plot signify highly more clastic rock aggregates with the exception of Sagamu (SA) limestone quarry dust. Triangular plot of LREE-MREE-HREE indicated that the LREE were more in all the quarry dust. It also specifies elevated LREE in the limestone quarry dusts. Statistics revealed high degree contamination of Arsenic and Lead signifying likely anthropogenic inputs of these metals. Pollution Load Index values for trace metals and REE revealed Imosan, Ajebo, Kajola and Ago-Iwoye, Kajola, Ajebo and Olonde as polluted quarry sites. Cu Pb As, Ni was high at Onigambari which may specify mineralization. The Chemical Index of Alteration (CIA=60.095-72.775) and the Chemical Index of Weathering (CIW=60.769-75.631) shows close relationship signifying high contents of muscovite and feldspar in the quarry dust.