HETEROGENEITY OF THE EPPAWALA PHOSPHATE AND A CASE FOR SELECTIVE MINING

Kapila Dahanayake*,** and S.M.N.D. Subasinghe**
*Dept. of Geology, University of Peradeniya,
**Institute of Fundamental Studies, Hantana, Kandy.

Eppawala phosphate deposit is presently mined in an indiscriminate manner without giving consideration to the compositional variations observed in the ore. Detailed field studies of the Eppawala phosphate deposit reveal the existence of several distinct zones that can be recognized due to variations in colour, texture and structure. Laboratory studies have shown differering P_2O_5 compositions in samples collected from the distinct zones. Furthermore, significant variations in the P_2O_5 content were noted in different size fractions of the same sample. Thus values ranging from 16 to 38% were noted in different samples.

The phosphate samples of different localities and of varying sizes also recorded significant variations in water and citric acid solubilities. Water solubilities ranged from 0.01 to 0.05 ($\%P_2O_5$) whereas the citric acid solubilities were between 1 to 5.6 ($\%P_2O_5$). The wide ranging variations in P_2O_5 contents and solubility warrant a new approach to mining at Eppawala. Therefore mining on a selective basis is recommended for a better utilization of this heterogeneous phosphate ore.

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