A DEGRADING PHENOMENON IN THE EPPAWALA PHOSPHATE DEPOSIT

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Tropical weathering processes active on the Eppawala phosphate deposit have caused both enrichment and degradation of the ore. Thin section observations suggest silicification as the most critical process of degradation.

Due to diagenetic activity in the tropical weathering profile of the Eppawala deposit, primary apatite crystals seem to undergo processes of dissolution and replacement which eventually transform them to a multitude of finer quartz grains. The silicification process initiates along the fractures of apatite crystals and gradually spread to their centres. The chemical analyses reveal that the P_2O_5 content is extremely low in regions affected by silicification. At some points of the deposit, P_2O_5 content could be as low as zero and in the field, the degraded ore shows as fine grained dark patches interspersed with rare apatite grains. These observations were confirmed by a number of tests carried out with the DTA, XRD, and EPMA.