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Plagioclase as a protective rim around corundum in metamorphosed carbonate rocks of Sri Lanka

Sri Lanka produces the finest quality corundum. Most of the source rocks of the corundum are considered to be metamorphosed carbonate rocks.

Most of the source rocks of corundum in Sri Lanka are considered to be carbonate rocks but most of them have flaws or are opaque. This type of corundum bearing source rocks are found as thin bands in various parts such as Balangada, Elahera, Bakamuna, Polonnaruwa, Okkampitiya ect.

It was found that corundum bearing carbonate crystal completely enclosed by the plagioclase. The crystal seems to be complete with perfect edges without any damage from the mineral reactions. When corundum is partially rimmed around by plagioclase, the unprotected areas are fractured and some of these fractures contain the totally damaged by the reactions and the spaces formed thus were filled with the reaction product of phlogopite mica.

These observations suggest that plagioclase acts as a shield for corundum to protect it from the damage resulting from the reactions of mica formation. This effect is observed only in micro scale (thin sections) where plagioclase was not resent as an inclusion. In Sri Lanka this phenomenon could not be observed in macro scale (thin sections) where plagioclase was not present as an inclusion. In Sri Lanka this phenomenon could not be observed in macro scale but in countries like Australia and south-west Ruwanda it was observed in macro scale associated with alkali basaltic rocks

In Sri Lanka alkali basaltic rocks are not found and corundum bearing pegmatite is also rare. But according to the plagioclase phenomena (plagioclase shielding effect) the existence of intermediate characteristics between those of 'magmatic' and 'metamorphic' origin in the corundum bearing carbonate rocks of Sri Lanka were found.