

OCCURRENCES OF EXOTIC MINERALS IN MANTLE XENOLITHS FROM LIMEIRA I KIMBERLITE, COROMANDEL, MG

Vidyã Vieira de Almeida (1); Valdecir de Assis Janasi (2); Darcy Pedro Svisero (3).

(1) INSTITUTO DE GEOCIÊNCIAS. UNIVERSIDADE DE SÃO PAULO; (2) INSTITUTO DE GEOCIÊNCIAS. UNIVERSIDADE DE SÃO PAULO; (3) INSTITUTO DE GEOCIÊNCIAS. UNIVERSIDADE DE SÃO PAULO.

Resumo: We report here the occurrences of exotic minerals (titanates) in mantle xenoliths from Limeira I kimberlite, Coromandel, Minas Gerais, Brazil, identified through electron microscopy (BSE images and EDS) and EPMA (WDS). The minerals consist of priderite (hollandite structural group) and lindsleyite-mathiasite (crichtonite mineral series). Lindsleyite-mathiasite is found enclosing chromite and ilmenite crystals in a spinel lherzolite mantle xenolith whereas priderite occurs as lamellae in ilmenite crystals. The host of priderite is a metasomatized xenolith containing clinopyroxene, phlogopite (both chemically similar to MARID suite chemistry phases), ilmenite, magnetite and relics of olivine. The crystals of priderite are opaque and reddish black; EPMA show 71% TiO_2 , 1.6% Cr_2O_3 , 8.7% FeO, 1% MgO, 3.6% Nb_2O_5 , 0.1% ZrO_2 and 8.6% K_2O . Na, V and Ba were identified in semi-quantitative EDS analyses. Lindsleyite and Mathiasite are the Ba and K members, respectively, of the crichtonite mineral series (Haggerty *et al.* 1983, Am. Mineral. 68:494-505,). The crystals are opaque and EPMA yields 58% TiO_2 , 0.8% Al_2O_3 , 14% Cr_2O_3 , 11% FeO, 3.4% MgO, 1.5% CaO, 0.2% Nb_2O_5 , 5.8% ZrO_2 and 0.9% K_2O . Additional EPMA analyses will be done in both minerals using an analytical routine including other large ion lithophiles elements (e.g. Ba, Sr) and light rare earth elements (e.g. La, Ce). Crystals of LIMA and priderite were not yet described in mantle xenoliths from Limeira I kimberlite, and, to our knowledge, in similar rocks from the Alto Paranaíba Province. Priderite was found by Gaspar *et al.* (1994, Min. Mag. 58:409-415) in a phlogopitite from Catalão I Carbonatite, Goiás, associated with ilmenite and magnetite crystals. The presence of these exotic minerals implies a metasomatic history including interaction of a fluid/melt rich in highly incompatible elements with a depleted peridotite in the upper mantle.

Palavras-chave: mantle xenoliths; exotic minerals; mantle metasomatism.