

THERMOMETRIC AND BAROMETRIC STUDIES APPLIED TO KIMBERLITE MINERAL PHASES FROM NORTHEASTERN BRAZIL

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Recently, several kimberlite pipes have been studied in the Brazilian northeast part; they were studied above all by geological/geophysical and remote sensing techniques. Kimberlite xenoliths present in the Brazilian pipes are very rare. These xenoliths are represented mainly by peridotites (garnet lherzolite) which texture is frequently granular or sheared. The first variety dominates remarkably in the majority of bodies. The rocks studied here came from the northeast and the north of Brazil (paleo-mesozoic sediments of Piauí and Rondônia states) and are constituted of five mineral phases (clinopyroxene, orthopyroxene, olivine, spinel, garnet). In this paper we studied the mineral phases and we present the application of geothermometric and geobarometric combinations for garnet-peridotites samples for the regions mentioned above. We only used barometers well adapted to the deeper peridotites of garnet facies. The observation of many produced diagrams came from electron microprobe studies permit us to note that the studied rocks have been equilibrated between 1050° and 1250°C in all thermo-barometric combinations adopted. Otherwise, the mineral phases used in barometers indicate a variation of the pressure between 30 and 50 kbars, this one dependent of the used barometer. One also notices, on the whole of the used diagrams, is that these high temperature peridotites nearly present the same tendency and the same magnitudes of standard deviation that the geotherme 40mW/m².