PAIR SUBSTITUTION OF (FE2+-ZN2+) BY (AL3+-NA+) IN BLUE COLOUR-ZONED SCHORLITE-ELBAITE TOURMALINES

1PINHEIRO, M. V. B., 1KRAMBROCK, K., 1ADDAD, J., 1PERSIANO, A. I. C., PANIAGO, R. and 1KARF- UNKEL, J. 1UFMG, Belo Horizonte, Brasil.

Research work has been done to cor- relate the chemical composition of tourmalines with their colours. However, due to the vast range in composition as well as the multitude of colours, this study is often very complex. Usually tourmalines show different substitutions accounting for very distinct optical absorption processes that may contribute for very similar colours. In this work we present a study of a rare cobalt blue-colourless type of tourmaline from Linópolis (Minas Gerais, Brazil) with concentric colour zoning on (0001) planes. The experimental tech- niques used in this study were electron microprobe and Mössbauer. Based on its average chemical composition determined with electron microprobe,this tourmaline has been classified as Schorlite- Elbaite. Electron microprobe chemical maps with spatial resolution of 20mm have been done in order to investigate the abrupt change from blue to colour- less. From quantitative analyses between colours and impurity levels we conclude that in the blue region, pairs of (Al3+-Na+) were substituted by pairs of (Fe2+-Zn2+). With Mössbauer it was confirmed that in the blue region Fe was present as Fe2+, the impurity responsi- ble for the blue colour.