

Metamorphic Grade and Geochemical Behaviour of B and P in the Lazulite-Dumortierite-Metaquartzites of the Serra de Macaúbas (State of Bahia, Brazil)

¹MORTEANI, G. and ²ACKERMAN, D.

¹Lehrstuhl für Angewandte Mineralogie und Geochemie, TU München, Lichtenbergstr. 4, 85747 Garching, Germany.

²Mineralogisch-Petrographisches Institut, Christian-Albrechts-Universität Kiel, Ohlshausenstraße 40, 24105 Kiel, Germany.

Aluminum-phosphates and -borosilicates are quite uncommon in metamorphic rocks. The dumortierite and lazulite-bearing metaquartzites of the Serra de Macaúbas, also called Serra de Vereda (Bahia, Brazil) is probably the most spectacular world wide. Whole rock analyses show that in these metaquartzites high boron contents are incompatible with high phosphorous contents. This agrees with the microscopical observation that dumortierite and lazulite are never in contact. A prerequisite of phosphorous enrichment in sediments is rich organic life, but high boron concentration is toxic for animals and plants, and therefore stops the phosphate production.

Microscopical observation and EMP analyses show that in addition to lazulite, dumortierite, quartz, muscovite, hematite and kyanite also the phosphates svanbergite, augelite and trolleite can be found.

From stable isotope data on quartz/hematite the P,T conditions of the tectonometamorphic event which determined the actual parageneses and the textures of the metaquartzites are at least 4 kb and 470 °C. Preliminary age data indicate that this event was the Brasileiro.