

Abstract

This diploma thesis presents first systematic geochemical and petrographical research of clastic bands in the lower-miocene Main Coal of the Most Basin. The main target of the thesis is evaluation of proxy analyses (EDXRF) of clastic bands and ash yield from coal. This method allows for identification of paleogeographic information about provenance of clastics derived from two different sources. The first source area represents weathered Tertiary volcanoclastics and the second is derived from crystalline basement in southwest part of the Bohemian Massif. Different geochemical signal of these two source areas detected in clastic bands allowed to constrain the switching of provenance into the lower part of the middle bench of the Main Coal in the Bílina open-cast mine whereas in the Doly Nástup-Tušimice mine this change occurs below the Main Coal. This result corresponds with idea of gradual changing of provenance across basin. Anomalous geochemical composition characterised by apparently increased content of Sr-Ba-P-Ca elements in one of clastic bands in the lower part of the Main Coal exposed in the Doly Nástup-Tušimice open-cast mine is related to presence of phosphate group minerals florencite and woodhouseite minerals as confirmed by RTG diffraction. This assemblage suggests possible admixture of altered volcanic ash. Macroscopic observations and microscopic studies of the selected clastic bands indicate that very common brecciated texture of many clastic bands is a product of drying and subsequent erosion and re-sedimentation in a form of intraclasts. The main components of clastic bands are clay minerals, quartz silt and diagenetical minerals, mainly siderite and pyrite. Comparison of the clastic bands of the Most Basin with those of the Antonín Coal in the Sokolov Basin revealed influence of volcanism on coal sedimentation recorded in presence of volcanoclastic admixture in the clastic bands of the Sokolov Basin as well as increased concentration of Ti, Zr and Ba.

Key words : clastic band, Most Basin, Main Coal, proxy analyses, paleogeography, tonstein, micropetrography