

Tonstein sloje 560 sedlových vrstev karvinského souvrství (česká část hornoslezské pánve)

Coal tonstein in the No. 560 Seam of the Saddle Member (Karviná Formation, Czech part of the Upper Silesian Basin)

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Abstract

The paper presents results of a research on the only coal tonstein known from the Saddle Member of the Karviná Formation in the Czech part of the Upper Silesian Basin. It is a tonstein in the Coal No. 560, which was first mentioned in 1966. It forms a thin layer, mostly <1 cm, situated 15 cm below the roof of the coal. Twenty one distinct occurrences were described previously and twenty five new ones were recognized by this study. According to a classification it belongs to a group of crystal tonsteins, because its substantial part consists of aggregates of authigenic kaolinite. Minerals present in the tonstein are mostly kaolinite (cca 71 %), quartz (cca 8 %), mineral of the chlorite group (cca 6 %), sanidine (cca 6 %), muscovite (cca 6 %), and anatase (cca 3 %). Accessory minerals can be grouped into several categories. Primary magmatic ones are apatite and zircon. Those connected with low-temperature hydrothermal fluids are galena, chalcopyrite, and pyrite. Influence of hypersaline brines resulted in presence of Sr-rich anglesite, and celestine. Baryte formation could be connected to both above-mentioned processes. Jarosite originates from weathering of pyrite. Uncertain is a position of REE±Al phosphates, possibly minerals of the monazite, rhabdophane, and florencite groups. Their source material is possibly of volcanic origin, but it was affected by diagenetic processes. The tonstein of the Coal 560 is an important correlation marker and has a potential for radio-isotopic dating.

Key words: Upper Silesian Basin, Late Carboniferous, coal tonstein, petrology, mineralogy

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