



## **Lead isotopes as a tool for understanding the formation of the coal seam in the Cenozoic Most Basin (Czech Republic)**

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The deposition of the Cenozoic (Oligocene to Miocene) sedimentary sequences of the Most Basin in northern part of the Czech Republic is connected with the formation of the NE-trending Eger-rift zone. Determination of the lead isotopic composition in coal is important for the understanding of numerous aspects of the formation of coal seams in this area. Lead can be present in coal in the form of its own minerals such as galena (PbS), as admixtures in Ba minerals, in the pyrite crystalline structure substituting for Fe, or can be bonded to organic matter (Mihaljevič et al., 2009, *Int. J. Coal Geol.*, 78, 38-46). The isotopic composition of lead was studied on selected coal samples from the 220-m-deep drill core of the Most Basin. The  $^{206}\text{Pb}/^{207}\text{Pb}$  and  $^{208}\text{Pb}/^{206}\text{Pb}$  ratios were measured using quadrupole-based ICP-MS after mineralization by the dry ashing and total digestion in mineral acids (HF+HClO<sub>4</sub>). The total content of Pb in coal samples varies from 0.20 to 80 ppm. The Pb isotopic data exhibit wide range of compositions and split statistically into two main intervals:  $^{206}\text{Pb}/^{207}\text{Pb} = 1.169 - 1.189$  for coals with low (< 10 %) content of mineral fraction, and  $^{206}\text{Pb}/^{207}\text{Pb} = 1.190 - 1.215$  for coals with high (> 10 %) content of mineral fraction, composed mainly of clays and corresponding to lithogenic isotopic signature. Significant variation of isotopic data is probably reflecting complex tectono-sedimentary evolution and post-sedimentary geochemical processes in the basin.