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Izbrane vrednosti kemijskih elementov v sledovih v triasnem apnencu iz zgornje Šlezije na Poljskem

Selected trace elements in the triassic limestones of the Opole Silesia in Poland

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POVZETEK

V članku so predstavljeni rezultati raziskav vsebnosti izbranih kemijskih elementov v sledovih: Ti, Cr, Mn, Na, K, Ni, Cu, Zn, Sr, Y, Zr, Mo, Ba, Pb, Rb, ki so bili izmerjeni v karbonatnih mineralih triasnih apnencev iz zgornje Šlezije na Poljskem. Meritve smo izvedli z dvema metodama: ICP MS spektrometrijo in rentgensko fluorescenco. Za te meritve je značilna visoka natančnost in občutljivost rezultatov.

Rezultati raziskav kažejo, da vsebnost analiziranih elementov v sledovih variira od vrednosti pod 1 ppm do nekaj sto ppm. Največje vsebnosti so bile izmerjene za stroncij in barij, elemente značilne za aragonitno karbonatno fazo, ki se med diagenozo transformira v visoko Mg kalcit oz. nizko Mg kalcit. Sr in Ba označujeta prisotnost aragonita v primarnem karbonatnem materialu. Drugi elementi v sledovih verjetno tvorijo substitucije v glini ali karbonatnih mineralih. Nekateri elementi v sledovih, kot so Zn, Pb, Cu, Mo, Ni, so lahko povezani tudi s sulfidnimi minerali in Ti, Cr, Mn, z oksidi.

Ključne besede: Opole Silesia, trace elements, Triassic apnenec.

ABSTRACT

The results of researches of the selected trace elements content: Ti, Cr, Mn, Na, K, Ni, Cu, Zn, Sr, Y, Zr, Mo, Ba, Pb, Rb, measured in the carbonate minerals of Triassic limestones of the Opole Silesia in Poland were presented in this article. The measurements were determined using two methods: ICP MS spectrometry and X-ray fluorescence. They are characterized by high precision and sensitivity of measurements.

The results of researches show that the content analyzed trace elements varies in from value below 1 ppm up to some hundreds ppm. However, the highest contents were measured for strontium and barium, elements characteristic for aragonite carbonate phase which is transformed such as high-Mg calcite into low magnesium calcite during diagenesis. So as Sr and Ba indicate the presence of aragonite in the primary carbonate material. The other

trace elements probably form substitutions in clay or carbonate minerals. Some trace elements such as Zn, Pb, Cu, Mo, Ni may also be associated with sulphide minerals and Ti, Cr, Mn, with oxides.

Key words: Opole Silesia, trace elements, Triassic limestone.