

Multiproxy analysis of the nature and origin of carbonate and non-carbonate microparticles in siliceous chalk

Jurkowska, A.^{1,*}, Bąk, M.¹, Świerczewska-Gładysz, E.², Okoński, S.³

*1) Faculty of Geology, Geophysics and Environmental Protection AGH, University of Science and Technology, Kraków, Poland; *E-mail: jurkowska.a@gmail.com*

2) Institute of Earth Science, University of Łódź, Łódź, Poland

3) Institute of Geography, Pedagogical University of Kraków, Kraków, Poland

Lower Campanian carbonate rocks of the Miechów Synclinorium (southern Poland) were deposited in a epicontinental sea, which was a part of the Late Cretaceous European Basin. The carbonate deposits of the studied sections differ from the typical chalk (e.g., Stevns chalk; HJULER et al., 2007) lower calcium carbonate content (63–89 %) and higher content of insoluble residue (opal CT, chalcedony and clay minerals). Different macrotexture rock features observed during sampling were the basis for distinguishing three different rock type: marly siliceous chalk, siliceous chalk and siliceous marls. The main matrix component of all studied rocks is allomicrite (disintegrated individual coccoliths shields) and pseudomicrite (microcrystalline calcite < 4 µm) (sensu FLÜGEL, 2010) with different admixture of opal CT and clay flakes. Primary sediment composition (microfossils, terrigenous input), palaeoecological factors (sedimentation rate, bathymetry, redox) and later rock transformations after depositions and during diagenesis (physical and chemical compaction, cementation) have the biggest influence on carbonate rock macro- and microtextures.

The multiproxy analysis of a nature and origin of the main microparticles of three different rocks types is presented. The integrated study using SEM-EDS, SEM-BSE analysis combined with XRD, CL analysis allow to recognize the mineralogical composition, origin of the main microparticles and described its influence on the carbonates micro and macrotexture.

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FLÜGEL, E., 2010. *Microfacies of Carbonate Rocks*. Springer-Verlag.

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