

SMECTITIC MINERALS IN MARLS OF THE POLISH FLYSCH CARPATHIANS: CRYSTAL CHEMISTRY AND PROVENANCE

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Marls of different age and lithology occurring among flysch deposits of all tectonic units of Polish part of the Outer Carpathians contain smectitic minerals as dominant clay component. Complicated genesis of Carpathian marls (flysch sediments redeposited into deeper parts of sedimentary basin) is the cause of obliteration of their primary features.

The studies of natural samples and of their separated fractions ($< 2 \mu\text{m}$ and $2\text{--}0.2 \mu\text{m}$; after removal of carbonates) have shown that in all the representative 24 samples of marls the crystal chemistry of the smectitic minerals is very similar. They are represented by dioctahedral smectitic minerals enriched in magnesium, containing about 90% expandable layers. The Hofmann–Klemen effect confirms the localisation of charge mainly in octahedral layer of this minerals. K-satu-

ration test has shown charge heterogeneities, i.e. the presence of high and low charge layers, whereby the former ones are prevailing. Dehydroxylation temperatures below 600°C and $> 650^\circ\text{C}$ indicate that the structure of these minerals consists of *tv* and *cv* layers.

These properties indicate that the parent material of the smectitic minerals occurring in Carpathian marls was volcanic in character. Consequently, the occurrence of marly sediments in the Flysch Carpathians can be related to the periods of tectonic activity within their sedimentation basin.

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