

INDEX MINERALS FOR THE ALPINE METAMORPHISM OF VOLCANIC-VOLCANICLASTIC ROCKS FROM THE DANUBIAN WINDOW, SOUTH CARPATHIANS, ROMANIA

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Mesozoic volcanic-volcaniclastic sequences from the Danubian Window (South Carpathians) show index minerals for an Alpine metamorphism in prehnite-pumpellyite to pumpellyite-actinolite facies. Microprobe analyses of index minerals from Late Cretaceous volcaniclastic turbidites (Cosustea Nappe) and Late Jurassic basalts (Severin Nappe) are presented.

The chemical analyses indicate that **prehnite** from volcaniclastic rocks of the Cosustea Nappe shows relatively high Fe contents.

For **pumpellyite**, widespread in rocks from both nappes, microprobe analyses show that compositional variation of Fe contents occur only in the prehnite-pumpellyite facies, whereas in pumpellyite-actinolite facies only low Fe pumpellyites occur.

Actinolite occurs in basalts of the Severin Nappe. The chemistry of actinolites varies between $Mg/(Mg+Fe^{2+}) = 0.69$ and 0.81.

Chlorite is present both in prehnite-pumpellyite and in pumpellyite-actinolite facies. On a non-interlayer cation vs. Al plot the chlorite analyses scatter close to clinocllore; on the diagram Si-Fe²⁺-Al the analyses are situated between chamosite and clinocllore.

The **white mica** is ubiquitous in all samples analysed. On a Si vs. Al(total) plot, the results of the chemical analyses plot on the Tschermak exchange vector between celadonite and muscovite. Some analyses fall a little below this solid solution line, indicating a small ferri-muscovite component.

Illite crystallinity values, determined on metapelites associated to the volcanic-volcaniclastic rocks, indicate similar metamorphic grades, i.e. anchizone (which corresponds to the prehnite-pumpellyite facies) and epizone (which corresponds to the pumpellyite-actinolite facies).