

Clay mineralogy of Miocene mudstones of the Lower Austrian Molasse Basin

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The stratigraphy of the Lower Austrian Molasse Basin (LAMB) was investigated in a joint project of OMV and the University of Vienna which aimed at a revision of the local lithostratigraphy. Herein, we analysed the clay mineralogy of 7 wells across the LAMB.

In the LAMB Karpatian sediments overlying a carbonate minimum interval are attributed to the Laa Formation. Beneath the Laa Formation the Traisen Formation, formerly Oncophora/Rzehakia Beds, comprises the uppermost Ottnangian sand-dominated and calcite poor sediments south of the Danube river. In the north the newly defined late Ottnangian Wildendürnbach Formation represents central basinal turbiditic and pelitic deposits and is also poor in calcite. The fine grained and carbonate bearing sediments below the Traisen and Wildendürnbach Formations are named Robulus Schlier s.l. The lower boundary of the pelitic Schlier-succession is marked by bioturbated sandstones. The also informal term Basal Sands shall be used here for the basal quartz, K-feldspar and kaolinite-rich, but mica-poor sands, covering the basement. These sands are partly attributed to the Linz-Melk-Formation.

The results of the qualitative and quantitative evaluation of clay minerals in the seven wells allow some correlation with recently proposed formation boundaries. In wells Schaubing and Streithofen 1 the sediments of the Traisen Formation exhibit distinctly higher kaolinite contents and smectite/illite(mica) ratios than the underlying Robulus Schlier s.l. Very reduced smectite and increased kaolinite content distinguish the Basal Sands from Robulus Schlier s.l. in well Streithofen 1. High smectite peaks in well Wildendürnbach K4 occurring in parts of the Wildendürnbach Formation can be explained by volcanic ash input.