Beitr. Geol. Thüringen	N.F. **17**	83-100, 7 Abb	Jena 2010

The thermal maturity of the Permo-Carboniferous - Conclusion for the burial history of the Thuringian syncline

THOMAS VOIGT, JENNY GROBLEBEN, ROBERT SCHÖNER, REINHARD GAUPP

Abstract

The Permo-Carboniferous in the subsurface of the Thuringian Syncline is considered as one source of the gas reservoirs in Thuringia. Vitrinite reflectance was analysed on samples taken from the well Querfurt 1/64 (Mansfeld Formation, Wettin Formation) and from surface exposures in the Thuringian Forest (Manebach Formation) and the Ilfeld Basin (Netzkater Formation). Coalification values range from 1,6 to 2,1 % VRr for the Manebach Formation, 1,2 to 1,7% VRr for the Netzkater-Formation, and 1,5 to 3,7% VRr for well Querfurt 1/64, indication relatively high maturity (wet and dry gas generation zone).
The burial and thermal history of well Querfurt 1/64 was reconstructed using the software PETROMOD 1D, and calibrated by vitrinite reflectance values available for the depth range of 2200-3000 m. The calibrated model suggests that more than 1000 m of overburden must have been present additional to the entire Triassic succession. Based on regional geological data, we propose that these sediments were deposited during the Jurassic and Early Cretaceous, and were eroded subsequently. Vitrinite reflectance values of the Manebach Formation and the Netzkater Formation most likely require additional overburden, too.