

ShaleGasFinder Posidonia Shale Germany

DATABASE AND REGIONAL SYNTHESIS OF THE POSIDONIA SHALE IN GERMANY

A comprehensive data set of source richness, quality and thermal maturity, including basin modelling, mass balancing and phase behaviour prediction.

A conventional source rock revisited: science-based data to explore for its unconventional potential

The geological history of the North German basin is presented with a focus on available geological and organic geochemical information regarding the Lower Toarcian Posidonia shale.

Oil compositions are reviewed focusing on source, maturity and biodegradation. Basin modelling results are used to analyse the timing of hydrocarbon generation and to highlight areas where the Posidonia shale is prospective for unconventional shale oil or shale gas.

Mass balance modelling is performed in order to calculate the masses of petroleum generated. The additional GEOS4 data package provides TOC contents and Rock Eval analyses from more than 400 samples from wells and outcrops.



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GERMANY

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GERMANY'S WORLD CLASS SOURCE ROCK

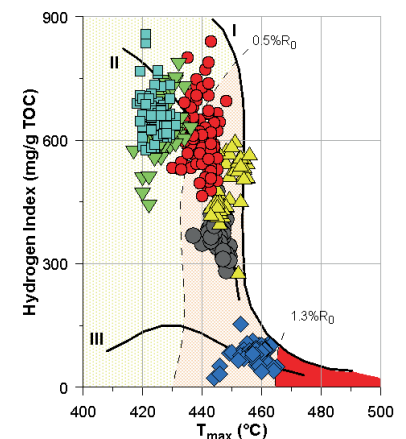
Immature samples of the Lower Toarcian Posidonia shale have TOC contents of up to 20 wt.% and HIs of more than 700 mgHC/gTOC.

The Lower Toarcian, deposited mainly in epicontinental shelf seas, is characterized by the widespread occurrence of organic-rich mudstones in Germany and adjacent areas. Analysis of the hydrocarbon potential requires an understanding of the temporal and spatial distribution of anoxia during the early Toarcian, as well as an integrated multidisciplinary approach.

Formation	Age	Origin	Depth (m)	OM Type
Posidonia	Toarcium	WICK	36	Type II
Posidonia	Toarcium	GRA	1,414	Type II

For the present study an immature Jurassic sample from the southern Lower Saxony Basin was analysed following the PhaseKinetic* approach. In addition a second sample from Mecklenburg-West Pomerania was subjected to bulk kinetic analysis.

The PhaseKinetics approach links source rock organic facies to the petroleum type it generates. Using a combination of open- and closed-system pyrolysis techniques, bulk kinetic and compositional information are acquired; gas compositions are tuned based on a correlation between GOR and gas composition, and corrected compositions are integrated into a 14-component compositional kinetic model which allows the prediction of petroleum properties.



* di Primio, R. and B. Horsfield, 2006, From petroleum type organofacies to hydrocarbon phase prediction: AAPG Bulletin, Vol. 90.