Vitrinite Reflectance Data for Coal Core Samples from Five Tertiary-Age Basins of Wyoming, Montana, and North Dakota, U.S.A.

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Abstract

Maximum vitrinite reflectance (R_o max) measurements were performed on 90 coal core samples from five Tertiary basins (Bighorn, Bull Mountain, Hanna, Powder River, Williston) in the western United States as part of a study on regional basin development in the Rocky Mountain foreland during the Laramide orogeny [Pontolillo and Stanton, 1994a].

Methods

All samples were prepared in accordance with ASTM D2797-85(1990) "Standard practice for preparing coal samples for microscopical analysis by reflected light" [ASTM, 1992a]. To avoid oxidation (*i.e.*, weathering) effects on the measured values, only coal core samples were used in this study. Some problematic samples (*e.g.*, lignites and subbituminous coals) with higher than normal water, clay and calcite contents were prepared using a modified version of the ASTM D2797 standard that included a pre-drying step and a different polishing method [Pontolillo and Stanton, 1994b]. All reflectance data were obtained exclusively on telinite macerals utilizing ASTM D2798-91 "Standard test method for microscopical determination of the reflectance of vitrinite in a polished specimen of coal" [ASTM, 1992b]. Only planar, scratch-free, pyrite-free particles of uniform appearance were measured (away from any particle edges) under polarized light with drift-free stage rotation and an oil-immersion objective. A mean maximum vitrinite reflectance value (% R_o max) and standard deviation were calculated for each sample.

References

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