20.01 **Correlation Between Organic Carbon Content and Oil Yield of Oil Shale and its Significance**

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How to rapidly, efficiently and scientifically evaluate oil shale resources from the middle of basins that are deeply buried and lacking in oil yield data is an important problem confronting China and the world. Data on organic carbon contents are gathered for many conventional oil and gas wells, and the aim of this study was to assist oil shale resource evaluation by an indirect statistical analysis of these data. There generally exists a clear linear correlation between organic carbon content and the oil yield of dark mudstone or shale that has organic matter of similar types and maturity in the same formation and the same basin. We have pursued this indirect evaluation method for two Chinese basins of different types for which such correlations did not exist.

Taking the Fushun basin as an example of a fault-bound basin, we find that the organic matter is of types I – II, the oil yield is between 3 % and 8 % (with highest values of up to 12%). Statistical analysis of the organic carbon content and oil yield indeed shows that they have a strong linear correlation. Likewise, in the well-known Songliao basin, a depression basin containing oil shale deposits in the upper Cretaceous, the organic matter is of types I - II_1, the oil yield is 5%, and the highest can be as high as 12%. We also found an obvious linear correlation between organic carbon content and oil yield.

Using the above correlations, it is found that when the content of organic carbon of dark mudstone in Fushun basin is more than 6%, their oil yield can be more than 3.5%, which makes it rich enough that it can be classified as oil shale. For dark mudstone or shale in Songliao basin, only when the content of organic carbon is more than 6.5% - 7% does the oil yield reach the 3.5% cutoff for oil shale classification. Thus, according to the correlation, we can get the oil yield value of mudstones with different organic carbon contents in different areas, then further derive the key parameters of oil shale evaluation, which could provide a scientific foundation for oil shale evaluation in conventional oil and gas areas lacking oil yield test data.