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Several Issues in Studies on Fine-grained Sedimentary Rocks

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Fine-grained sedimentary rocks are composed of complicated fine-grained sediments that mainly less than 0.0625 mm^[1]. Researchers pay less attention to it compared to coarser sediments. Classification, lithofacies and brittleness evaluation of fine-grained sedimentary rocks remain a relatively weak research field.

The classification of fine-grained sedimentary rocks is based on the X-ray diffraction data. With the three-unit division system, fine-grained sedimentary rocks are divided into 12 types of rock in 4 main categories (fine-grained felsic sedimentary rock, carbonate rock, clay rock and fine-grained mixed sedimentary rock). The three units are carbonate minerals, clay minerals and felsic minerals. Meanwhile, with the fourth component, fine-grained sedimentary rocks are named according to the concrete content of special mineral.

The study of lithofacies is mainly focused on the differences in components, texture, structure, reservoir physical property, source rock character, oil-bearing property. A great emphasis should be placed on sedimentary environment, sedimentary progress, dynamical mechanism of different lithofacies to identify advantaged lithofacies for oil and gas exploration.

Brittleness of fine-grained sedimentary rock is of vital significance to the fracturing effect^[2]. Due to the demerits of elastic parameters method and mineral constituent method which are commonly used to evaluate the brittleness of fine-grained sedimentary rock, a new accurate and rational method should be proposed.

References:

[1] Aplin A.C. and Macquaker, J.H.S. (2011) AAPG Bulletin 95(12):2031-2059

[2] Rick R, Mike M, Erik P, Bill G and Henk B (2008) SPE 115258

