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不同成因原油全扫描定量荧光特征及其影响因素 [点此下载全文](#)

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摘要:

为揭示不同成因类型原油的三维全扫描荧光特征及其主控因素,对50个不同成因类型的原油的三维荧光特征进行了分析。原油样品代表了未熟—低熟至高成熟度范畴原油、淡水与咸水湖相、沼泽相成因原油、高蜡低硫与低蜡高硫油、常规油与重质油等类型。结果表明,分析原油三维荧光谱图及其定量参数有所差异。原油的荧光强度随芳烃含量增加而增加,沼泽相高蜡油荧光强度总体高于湖相原油;荧光强度随成熟度增加而降低、荧光主峰波长随成熟度增加而变短,反映芳烃总量与相对高分子量芳烃丰度具有降低趋势。稠油的荧光谱图不同于常规油,具有波长分布范围宽、主峰不明显等特征。成熟度、母源岩有机质类型与生源、次生改造等多种因素对原油的三维荧光特征有控制作用。

关键词: [原油](#) [全扫描定量荧光](#) [成熟度](#) [有机质类型](#) [次生变化](#)

Total Scanning Fluorescence for Oils with Different Genetic Types and Controlling Factors [Download Fulltext](#)

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Abstract:

Totally 50 samples of crude oils with different genetic types were investigated using TSF (Total Scanning Fluorescence) techniques to unravel their 3D fluorescence features and controlling factors. The oils analyzed include immature to highly matured oils, lacustrine oils with source rocks developed in fresh water and brackish-hypsaline environment, oils from paludal facies, high waxy oils with relatively low sulfur content and low waxy oils with high sulfur content, light oil and heavy oils. The investigation shows that the oils are different in both fluorescent fingerprints and TSF parameters. It was observed that the TSF intensity of the oils increases with aromatic concentration, and the oils from paludal facies have higher TSF intensity than that of the lacustrine oils. It was also observed that there is an increasing trend of the oil TSF intensity with increasing maturity, and a shortening trend of the wave length of the prominent peak, indicating a decreasing trend of the total aromatic concentration as well as those aromatics with relatively higher molecular weight. The results show that the fluorescent fingerprints of the heavy oils are different from that of the normal oils obviously, which are characterized by much wider excitation and emission wavelength without apparent main peak. We suggest that maturity, kerogen type and secondary alteration all have a strong influence on the 3D fluorescence of the oils.

Keywords: [oil](#) [TSF](#) [maturity](#) [kerogen type](#) [secondary alteration](#)

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