

Organic Petrography in Petroleum Exploration

Barcelona (Spain)

23 - 27 June 2025

UK Training

PARTNER



Organic Petrography in Petroleum Exploration

Code: OG28 From: 23 - 27 June 2025 City: Barcelona (Spain) Fees: 5100 Pound

Introduction

Organic petrography plays a pivotal role in petroleum exploration, employing advanced microscopic and analytical techniques to uncover the complexities of organic matter within sedimentary rocks. With the growing global demand for hydrocarbon resources, understanding the organic constituents of source rocks is critical for refining exploration strategies and maximizing resource extraction. This course provides a comprehensive introduction to organic petrography, equipping participants with the knowledge and skills needed to interpret organic components in sedimentary rocks within the context of petroleum systems.

Course Objectives

- Understand the fundamentals of organic petrography: Learn about the origin, composition, and distribution of organic matter in sedimentary rocks, including techniques for soil organic matter analysis and kerogen analysis.
- Master advanced microscopic and analytical techniques: Gain hands-on experience with techniques like optical microscopy, scanning electron microscopy SEM, and Fourier transform infrared spectroscopy FTIR for analyzing organic materials.
- Explore the role of organic petrography in petroleum exploration: Understand its importance in source rock evaluation, assessing thermal maturity, and predicting reservoir quality.
- Interpret organic petrographic data: Learn to reconstruct depositional environments, evaluate hydrocarbon generation potential, and predict petroleum migration pathways using geochemical analysis.
- Apply organic petrography to real-world exploration: Develop the skills to interpret coal petrography and evaluate petroleum systems through practical case studies.
- Understand the importance of vitrinite reflectance in thermal maturity assessments and its impact on hydrocarbon exploration.

Course Outlines

Day 1: Fundamentals of Organic Petrography

- Introduction to organic matter in sedimentary rocks.
- Principles of organic petrography and petroleum exploration methods.
- Classification and characterization of organic matter.
- Sample preparation techniques for organic petrographic analysis.

Day 2: Microscopic Techniques in Organic Petrography

- Basics and applications of optical microscopy.
- Use of scanning electron microscopy SEM in organic petrography.
- Image analysis and interpretation of organic petrographic data.



- Vitrinite reflectance interpretation for thermal maturity assessment.

Day 3: Analytical Techniques in Organic Petrography

- Fourier transform infrared spectroscopy FTIR for organic matter analysis.
- Principles and applications of Raman spectroscopy.
- Pyrolysis-gas chromatography/mass spectrometry Py-GC/MS for organic geochemical characterization.
- Practical session: data interpretation and integration of analytical results.

Day 4: Applications of Organic Petrography in Petroleum Exploration

- Source rock evaluation and organic facies analysis.
- Thermal maturity assessment using organic petrographic proxies.
- Reservoir quality prediction based on organic petrographic data.
- Characterization of dispersed organic matter in sedimentary rocks.

Day 5: Advanced Topics and Future Directions

- Cutting-edge developments in organic petrography research.
- Emerging trends and technologies in organic matter analysis.
- Practical considerations and challenges in organic petrographic studies.
- Final assessment: synthesis of key concepts and practical applications.

Conclusion

This course emphasizes key aspects of petroleum exploration, including kerogen analysis, source rock evaluation, and geochemical analysis, preparing participants to utilize organic petrography in real-world exploration scenarios. By integrating advanced techniques and theoretical knowledge, participants will gain valuable insights into the exploration of hydrocarbon resources, ensuring a more efficient and informed approach to petroleum exploration techniques



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