

PETROLEUM GEOCHEMISTRY

GEO008

COURSE DESCRIPTION

This course focuses on characteristics and chemical makeup of petroleum, tracing maturation of organic matter to petroleum. It emphasizes on the development of kerogen and bitumen as transitional steps and explains modification of intermediate material during diagenesis, catagenesis and metagenesis. It will also present examples of source-rock studies, crude oil correlations and crude oil source rock pairings. It demonstrates uses and limitation of geochemical techniques and their importance in exploration and production.

COURSE GOAL

To enhance the participants' knowledge, skills, and attitudes necessary to understand the origins of petroleum, tracing the maturation of organic matter and detailing how geochemistry can be applied to petroleum exploration and production.

COURSE OBJECTIVES

By the end of this course, participant will be able to:

- Understand the concept of petroleum geochemistry.
- Apply sampling and geochemical analyses tools.
- Understand the concept molecular geochemistry.
- Be familiar with Biomarkers in Oils and Source Rocks.
- Assess maturity using molecular data.
- Understand petroleum alteration.
- Understand reservoir geochemistry.
- Understand oil mixing and contamination.
- Understand stable isotopes in petroleum geochemistry.
- Understand oil-oil and oil-source correlations.
- Understand the concept of gas geochemistry.
- Understand the generation and alteration of hydrocarbon gases.
- Modelling source and maturity of HC gases.
- Modelling mixing and alteration of HC gases.

WHO SHOULD ATTEND

Geologists, geoscientists, petroleum engineers, managers and supervisions concerned with exploration and production in new basins.

COURSE DURATION

5 Working Days

COURSE OUTLINES

- Introduction to Petroleum Geochemistry.
- Sampling and Geochemical Analyses.
- Introduction to Molecular Geochemistry.
- Biomarkers in Oils and Source Rocks.
- Biomarkers: Origin and Source.
- Biomarkers: Depositional Environment.
- Biomarkers: Source Rock Age.
- Maturity Assessment Using Molecular Data.
- Petroleum Alteration: Migration and Fractionation.
- Petroleum Alteration: Biodegradation.
- Reservoir Geochemistry.
- Oil Mixing and Contamination.
- Stable Isotopes in Petroleum Geochemistry.
- Oil-Oil and Oil-Source Correlations: Theory.
- Oil-Oil and Oil Source Correlations: Case Histories.
- Introduction to Gas Geochemistry.
- Generation and Alteration of Hydrocarbon Gases.
- Isotope Geochemistry – Modelling source and maturity of HC gases.
- Isotope Geochemistry – Modelling mixing and alteration of HC gases.

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