

## **IMPORTANCE OF OPTICAL – GEOCHEMICAL ANALYSIS APPLIED TO PLAYS IN THE MARINE BASINS OF MEXICO.**

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**ABSTRACT.** The main objective in the projects of plays in the basins of Mexico, is to define the stratigraphic sequence, as well as the structural, petrophysics and geochemicals characteristics mainly, and in this way to have a dependable guide in the works of exploration, mainly in areas little explored or unexplored totally.

From the concept of play as a group of accumulations and/or prospects, which share a common style of reservoir-seal and generation, migration and load of hydrocarbons common history, we observe that the optic studies and geochemical done to samples of rock (cuttings and cores), and samples of oil and gas they are of great importance for the definition of the plays in the sedimentary Marine basins of Mexico, especially in the horizons of Tertiary age. The interpretation of the analyses and geochemical studies, like they are it: pyrolysis, chromatography, biomarkers and isotopes, as well as the optic studies in fluorescent light and reflected light are very important to optimize the process of exploration referred to plays.

**APPLICATION.** In all the sedimentary basins of Mexico, they have been processed infinity of optic and geochemical analysis, which have application in the different phases of the exploration of hydrocarbons. The application of geochemical - optical modern techniques they provide prominent information for the generating potential of hydrocarbons of each basin. It is of great importance that the crude oils and natural gases they be classified in geochemical families to know the distinctive source. The geochemical modeling utilized to know the thermal evolution, should be calibrated with various optic and geochemical parameters measured in the rock samples: vitrinite reflectance and pyrolysis Rock Eval. Thus same the data are utilized of kinetic to know the increment ratio of the maturity with the possible rock source.

The analyzed geochemical parameters indicate the origin of the oil and the gas, as well as the location of generation kitchen, with the routes and the distance of migration, of course, as a group with the knowledge of the structural geology and petrophysics characteristics of the

rocks. The modeling, as a group of all, the geochemical, geological, geophysical and hydrologic data is utilized for the search of commercially exploitable reservoirs.

**CONCLUSIONS.** The optic and geochemical parameters permit to know the distribution of the kerogen types, as well as to have a control on the hydrocarbons type (oil or gas), as well as the possible prediction of their distribution, also they permit the integration of the stratigraphic and structural information with the data of maturity organic matter and their relation with the geothermal evolution. The assembly of these parameters they permit the hydrocarbons generation kitchen areas identification and their timing when they are used in combination with the modeling thermal, and even to know the heat flow history or geothermal gradient of a part or totality of a basin (modeling 1D, 2D and 3D), and finally as tool for the evaluation of the efficiency of production and the hydrocarbon volumetrics, besides the evaluation of the migration and the areas to drain of the hydrocarbons.

The practical application of optic and geochemical analyses and in the hydrocarbons exploration is done totally along with extensive multicomponent analysis of rocks and fluids, besides the knowledge of hydrodynamics and general geology of each basin.

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