

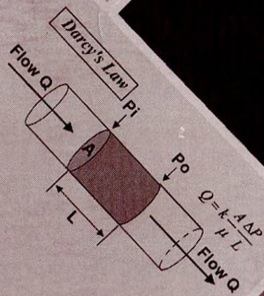
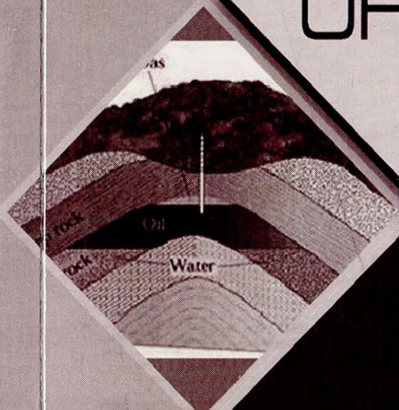
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Hydrostatic
Pressure
Formula

$$P_h = \rho gh$$

V. Toporov
M. Bratakh

PHYSICS OF OIL AND GAS STRATA



$$P = \sum p_i, \quad V = \sum v_i$$

$$\bullet \text{API} = \left(\frac{141.5}{SG_{60}} \right)^{1.415} - 131.5 = \left(\frac{141.5}{70} \right)^{1.415}$$

$$Z = \frac{V_{\text{actual}}}{V_{\text{ideal}}}$$

$$pH = -\log C_{H^+}$$

V. Toporov, M. Bratakh

PHYSICS OF OIL AND GAS STRATA

Training manual in Basis of Petrophysics

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The main aim of this Lecture Notes is to show students the foundations of Petrophysics (physics of oil and gas strata). By their definition, petrophysics is the study of the physical and chemical properties of reservoir rocks and their contained fluids (oil, gas and water). The reservoir and fluid characteristics to be determined are: lithology (rock type), porosity, permeability, fluid saturations and identification, etc. Then the science of petrophysics is used these characteristics to unscramble the hidden world of rock and fluid properties in reservoirs from just below the Earth's surface to several kilometers deep. In practical terms, petrophysics is used for determination of original hydrocarbons in place - original oil in place (OOIP) or original gas in place (OGIP) and their distribution.

The course of lectures is intended for the students of specialty 6.050304 "Oil and gas production" in English.

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