

PETROPHYSICS LABORATORY

This laboratory is equipped with latest equipment covering a wide range of Petrophysics experiments. Equipment details are given below:

Core Cutter and Grinder

The core cutter and grinder is used to resize the given core sample. Proper length and diameter of the given core sample are basic requirements for the calculation of petro-physical properties like porosity and permeability. This tool is provided with an electric motor which provides means of rotation to cut the given core sample.



Dean-Stark Apparatus

Dean-Stark apparatus is used to determine the water and liquid hydrocarbon contents of a core quantitatively. The method involves direct distillation of oil from the core sample. As the core is heated, any water present vaporizes. The water vapors are then condensed and collected in a graduated collection tube, such that the volume of water extracted by distillation can be measured along with volume of oil retrieved from core sample.



Gas Permeameter

The Gas Permeameter measures the permeability by forcing a gas of known viscosity through core sample of known cross section and length. Pressure, temperature and the flow of gas through the sample are measured. A compressed inert gas such as nitrogen is recommended as a measuring medium. The instrument follows Darcy's Law for its operation and measurement.



Helium Porosimeter

The Helium gas expansion Porosimeter enables the determination of a sample's (1" to 1.5" diameter) grain and pore volume via an isothermal helium expansion and the application of Boyle's Law and Charles' Law. Subsequently, porosity and grain density can be calculated.



MERCURY INJECTION CAPILLARY PRESSURE APPARATUS

The mercury injection capillary pressure apparatus is employed for the rapid, accurate determination of pore size distribution and capillary pressure-fluid saturation relationships in porous media. In particular, the determination of capillary pressure curves lead to the evaluation of connate water percentages associated with the reservoir rock. This apparatus has a working pressure up to 2000 psi.



SOXHLET EXTRACTOR

Soxhlet Extractor prepares core samples by in-situ fluids extraction. It works by boiling a solution that has a solute of limited solubility in a percolator, then cooling and collecting the condensate in a reservoir from which the concentrated solute can be extracted. Soxhlet Extraction is important as, before a core sample can be tested for porosity and permeability, it must be thoroughly cleaned.

