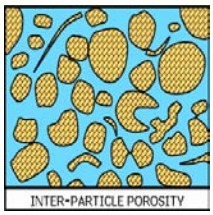
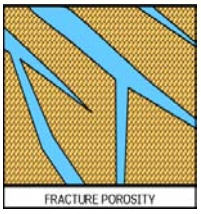
Porosity, Vug Types & Permeability for Reservoir Assessment

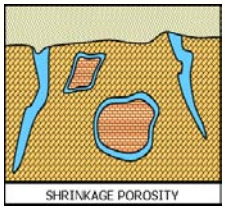
The pore / vug system of rocks and its potential permeability to hydrocarbon flow is vital to explorationists when evaluating the reservoir potential of a depositional area. Though excellent quantifying methods exist for measuring their volumetric size, it is often mandatory to specify type, distribution and quality of the pore / vug system.

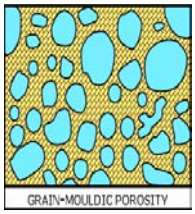
The quality of the pore system is not simply related to porosity values, but is highly dependent on its resulting permeability properties; so many highly porous or even vuggy rocks maybe of poor reservoir quality. For example, inter-moldic or shrinkage pore types generally display very a poor interconnectivity to each other. On the other hand, a moderate pore volume may turn out to provide quite good reservoir conditions should pores have (primarily) an inter-particle character or are highly interconnected fracture pores.

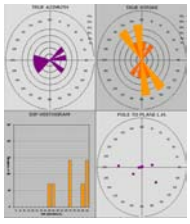
For assessing the success of further well explorations, the cementation history of the pores and their cementing components may be of vital interest, in order to understand the connection of fractures to the migration paths of hydrocarbons.

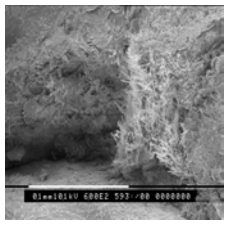


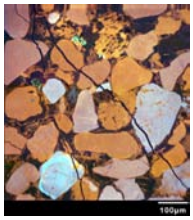












In the oil and gas sector porosity and permeability are one of the main keys to understand the potential and value of a target reservoir. The above images act as a visual aid to these features and show the methods used in Reservoir Geology to analyse them.

Corex offer several conventional methods for analysis:

- Lithological Core Logging
- Thin Section Analysis
- SEM Analysis
- Cathodoluminescence
- Goniometry