Permeability Measurement

Determination of absolute permeability of a core by flowing air Steady State Method

Darcy's law, is the main equation by which one can describe laminar flow of an incompressible fluid in a porous medium. It is the relationship of the macroscopic velocity (i.e. flux) of a fluid with a known viscosity to the pressure gradient by a proportionality factor called absolute permeability, expressed in darcies. Permeability is the ability of a rock or porous medium to conduct flow. It is totally dependent to the geometry of the rock and pore network.

Experiment Description
In this experiment nitrogen flows through the Sample from a cylinder. Pressure drop during the test is measured. Permeability of the sample will be estimated using Darcy's equation for compressible fluids.

Specification	SGP -BR01	SGP -PR01	SGP -PS01
Permeability Range	1-500 md	0.1-2000 md	0.01-5000 md
Core Diameter	1.5"	1.5"	1.5" & 4"
Core Length	1 Up to 4"	1 Up to 4"	2 up to 4 inches/ 2 up to 10 inches
Max. Pore Pressure	Up to 145 Psi	Up to 145 Psi	Up to 145 Psi
Max. Confining Pressure	Up to 145 Psi	Up to 400 Psi	Up to 400 Psi
Gas Flow Range	0-200 cc/min	0-10 cc/min; 0-1000 cc/min	0–0.5 cc/min, 0–5 cc/min, 0–100 cc/min, & 0–2000 cc/min
Flow Accuracy	1% F.S.	0.2% F.S.	0.1% F.S.
Pressure Reading Accuracy	0.5% F.S.	0.1% F.S.	0.05% F.S.
Input Power Supply	220 VAC, 50 or 60 Hz	220 VAC, 50 or 60 Hz	220 VAC, 50 or 60 Hz
One Mass Flow Controller	✓	✓	✓
Back Pressure Regulator	✗	✓	✓
Computer System	✗	✓	✓
Digitalized Confining Pressure	✗	✓	✓
Digitalized Upstream and Downstream Pressure	✗	✓	✓
User Friendly Automated Data Acquisition, Calculating and Reporting Software	✗	✓	✓
Electronic or Pneumatic Control Valves	✗	✗	✓
Automatic Core Loading	✗	✗	✓

Contact info:
+98 71 3624 6968 / +98 71 3624 7604
info@petroazma.com
www.petroazma.com

Address:
Fars Science and Technology Park,
Aryan St., Dr.Hesabi Blvd., Shiraz, I.R.Iran
P.O Code: 7197687811