



Advanced  
CAKE FORMING POROMETER  
*SLURRY MACHINE*

Not just products... solutions.

# APPLICATIONS

This is a unique instrument - capable of creating cakes in-situ on filtration media and characterizing pore structure characteristics of filtration media with and without cake. The cake is able to be created under a wide range of test conditions. The instrument is used for cost effective analysis of cake filtration processes and development of appropriate technologies.

# PRINCIPLE

A wetting liquid is allowed to spontaneously fill the pores in the sample and a nonreacting gas is allowed to displace liquid from the pores. The gas pressure and flow rates through wet and dry samples are accurately measured. The gas pressure required to remove liquid from the pores and cause gas to flow is given by

$$D = 4 \gamma \cos \theta / p$$

Where:

$D$  = pore diameter

$\gamma$  = surface tension of liquid

$\theta$  = contact angle of liquid

$p$  = differential gas pressure

From measured pressure and flow rates, the pore throat diameters, pore size distribution, and gas permeability are calculated.

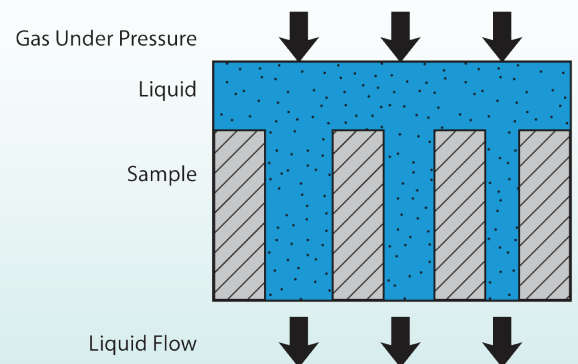


Figure 1  
Principle of liquid permeability test

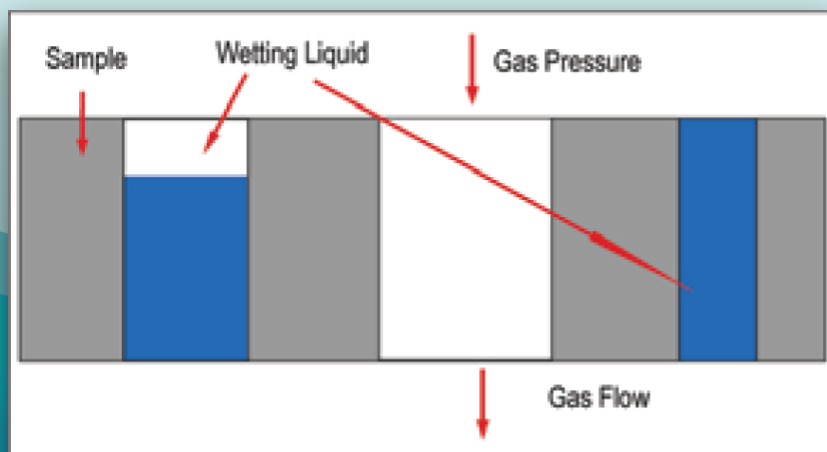


Figure 2  
Basic principle behind analyzing pore structure

# EFFECT OF THE CAKE ON PORE STRUCTURE

Sample	Bubble Point, $\mu\text{m}$	Mean Flow Pore Diameter, $\mu\text{m}$
Filter	25.94	3.11
Filter with Cake due to Oil Filtration	7.15	2.05
% Change	72%	34%

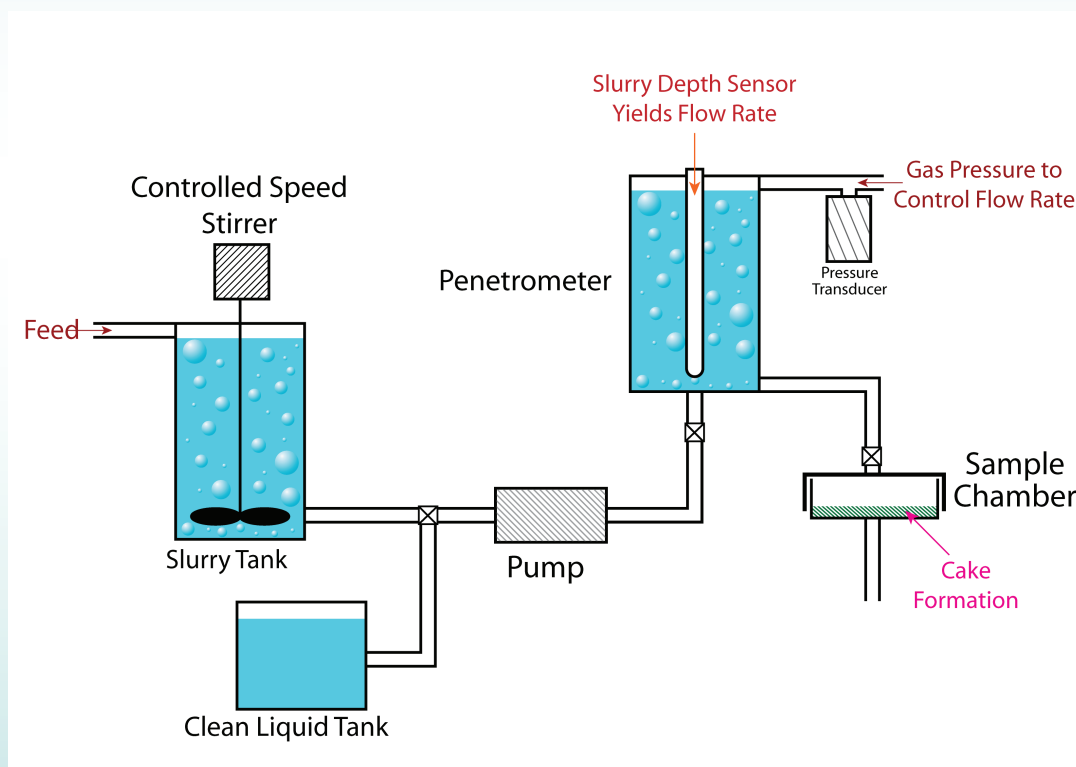


Figure 1  
Outline of the basic principle behind Cake Forming Porometer

# SAMPLE CHARACTERISTICS

- Permeability Range from 0.001 - 100 cc/min
- Pore Sizes from 0.03 - 100 Microns
- 200LPM Flow
- Through-pores only

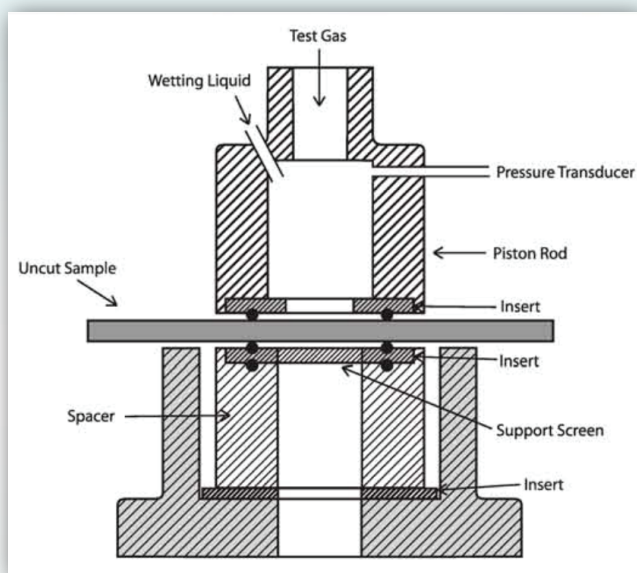


Figure 3  
Sample Chamber

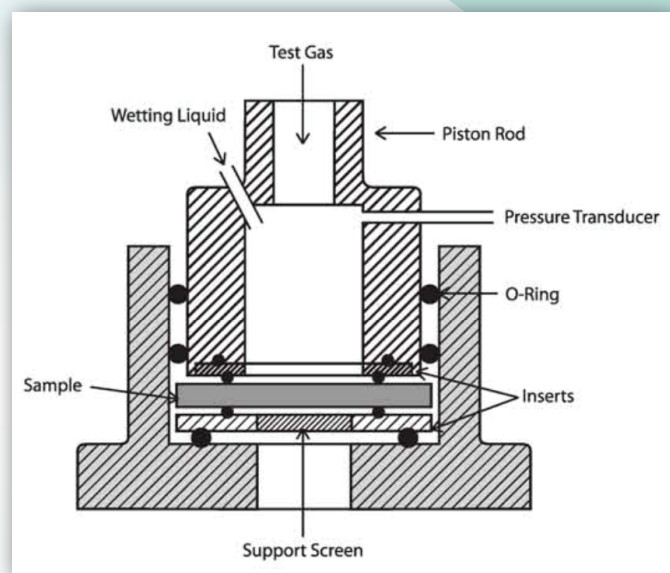


Figure 4  
Sample Chamber with Spacer

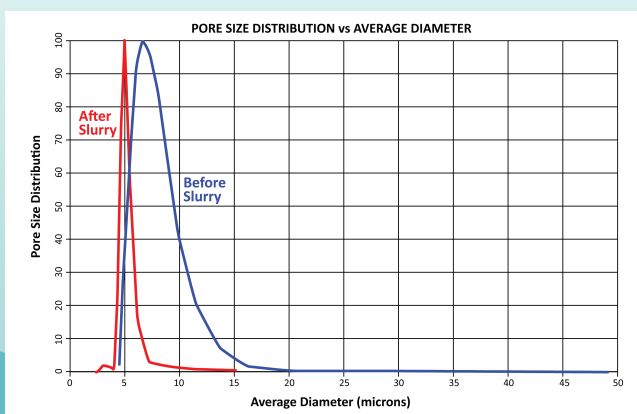


Figure 5  
Pore distribution chart

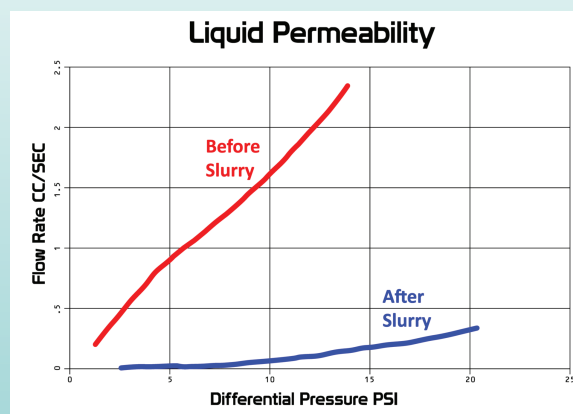


Figure 6  
Variation of flow rate with change in pressure

# FEATURES

3 Sample Chambers for:	<ul style="list-style-type: none"><li>• Pore Size Distribution</li><li>• Cake Forming</li><li>• Liquid Permeability</li></ul>
Capable of forming cakes under user specified:	<ul style="list-style-type: none"><li>• Pressure</li><li>• Flow rate</li><li>• Concentration</li></ul>
Ability to measure pore structure characteristics, including:	<ul style="list-style-type: none"><li>• Bubble point</li><li>• Mean flow pore diameter</li><li>• Pore distribution</li><li>• Liquid permeability</li></ul>
<ul style="list-style-type: none"><li>• Full automation for repeatable results obtainable without much operator involvement</li></ul>	
<ul style="list-style-type: none"><li>• Cleaning of system to prevent clogging</li></ul>	

# SPECIFICATIONS

Pore Size Range:	0.03 to 100 microns
Permeability Range:	0.001 - 100 cc/min
Pressure Range:	0 - 110 psi
Resolution:	1 in 60,000
Accuracy:	0.15% of Reading
Power Requirements:	110/220 VAC, 50/60 Hz
Sample Size:	¼" - 2" diameter 5mm - 50mm 0" - 1" thick

# SALES & SERVICE

Our sales team is dedicated to helping our customers find which machine is right for their situation. We also offer custom machines for customers with unique needs. To find out what we can do for you, contact us. We are committed to customer support including specific service products, short response times & customer specific solutions. To quickly & flexibly meet our customer's requirement, we offer a comprehensive range of services.



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