

LIHAN Filter

▣ 製作檢驗簡介

公司簡介

員工人數：110 人

廠房面積：2000 坪

生 產 線：Melt-Blown PP濾心單機產線 5條

Melt-Blown PP濾心併機產線 3條

折疊濾心生產線 2 條

產 能：Melt-Blown PP濾心 70萬支/月

折疊濾心 3萬支/月

生產良率: 全廠良率>98%

國際認證:

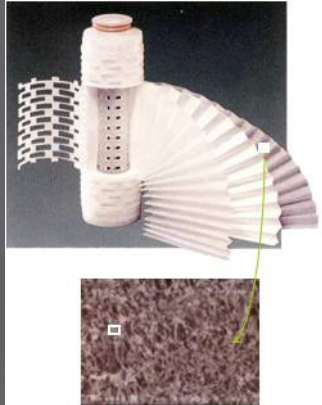
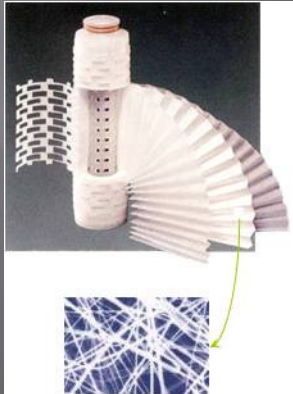
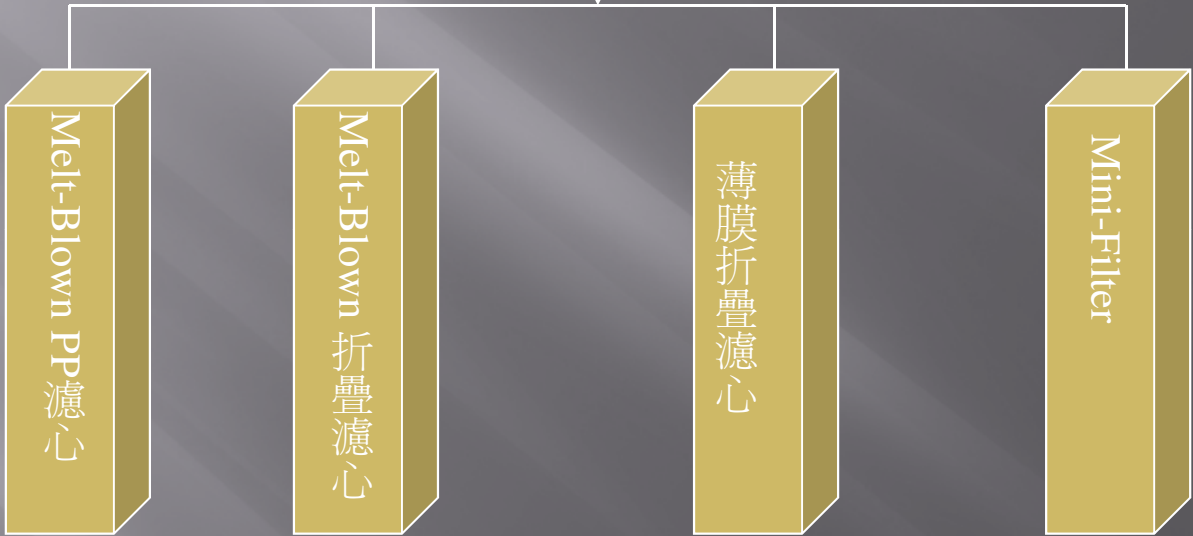
ISO 9001-2000

NSF 42. 濾材品質認證

FDA 21. 食品安全認證

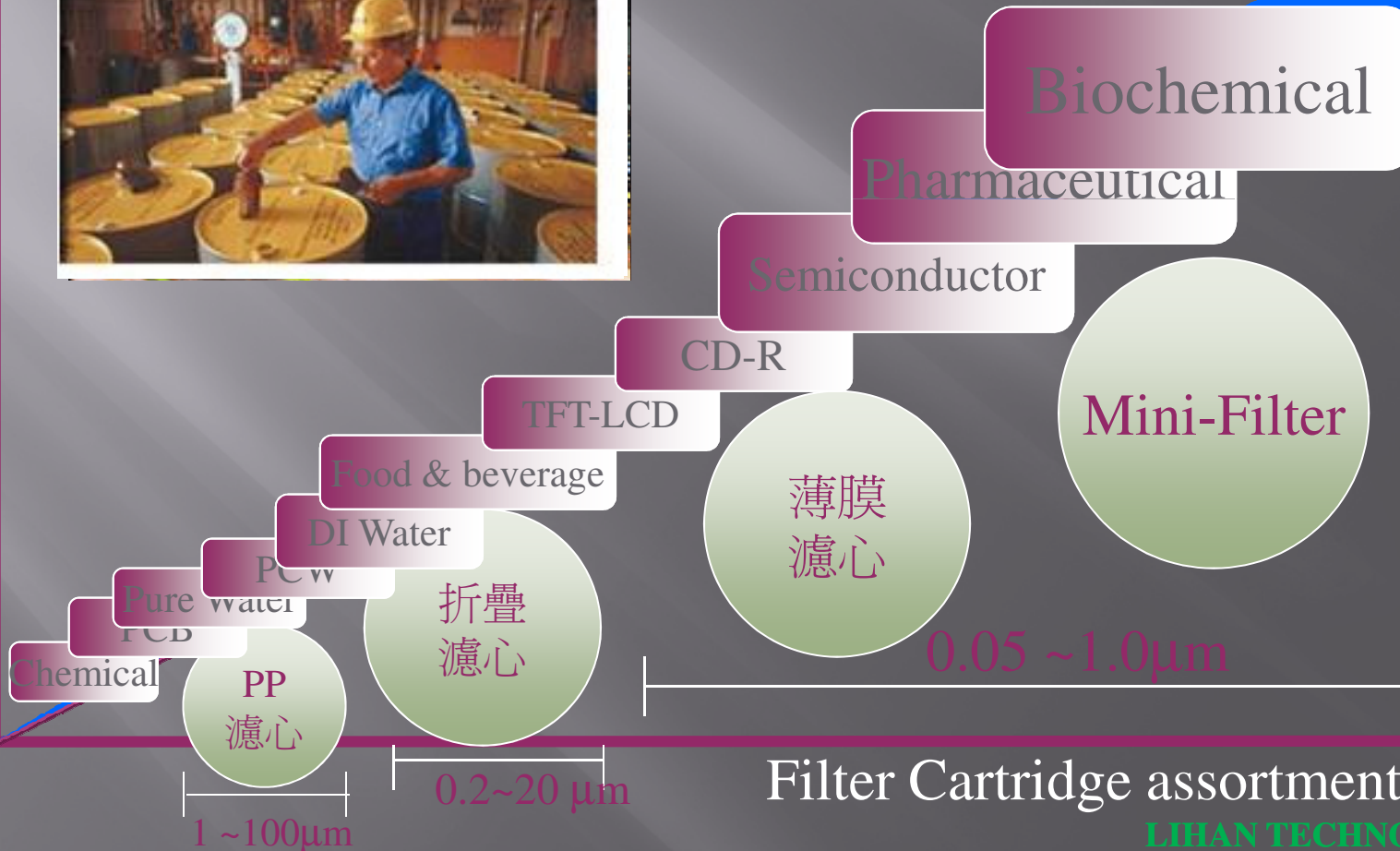
LiHan 濾心產品簡介

濾心種類



LiHan 濾心產品應用領域

Applications of product



LiHan設計與選用

- 1.過濾精度與效能
- 2.壓差與流量
- 3.使用壽命
- 4.抗壓性
- 5.抗化性
- 6.抗溫性
- 7.尺寸與接頭
- 8.清潔度
- 9.成本

濾心的基本性質 Basics of Filter

1. 過濾效能 Efficiency
2. 過濾精度 Accuracy
3. 壓差 Pressure Drop
4. 使用壽命 Volume

過濾效能 Efficiency

$$\text{過濾效能} = \frac{N_{in} - N_{out}}{N_{in}}$$

N_{in} :過濾前雜質濃度

Particle concentration before filtration

N_{out} :過濾後雜質濃度

Particle concentration after filtration

過濾精度 Accuracy

•公稱精度 Norminal :

對某特定粒徑的雜質過濾效能達到80%以上。

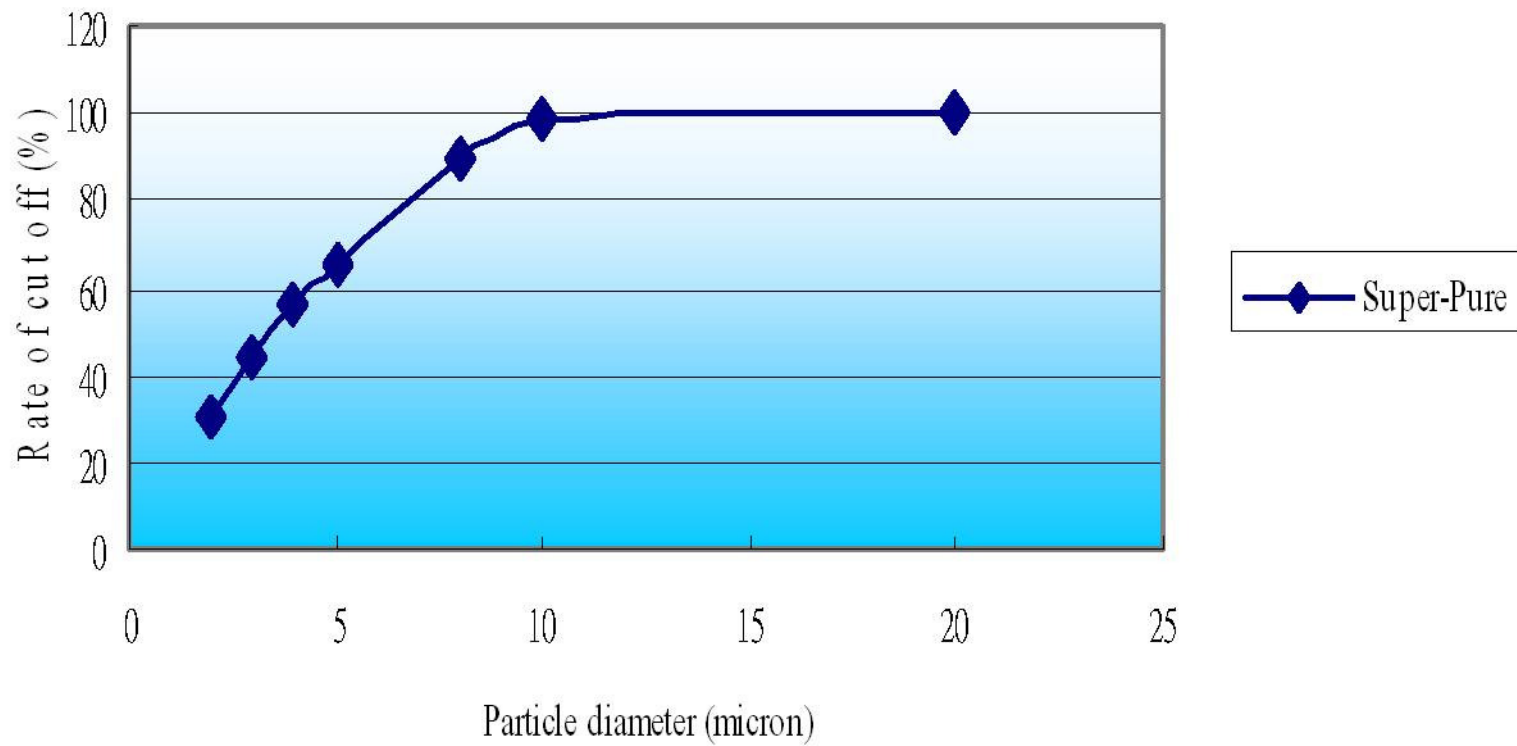
Filtration Efficiency for certain particle size at least 80%

•絕對精度 Absolute :

對某特定粒徑的雜質過濾效能達到99.5%以上。

Filtration Efficiency for certain particle size at least 99.5%

* Curves of cut off rates by particle sizes

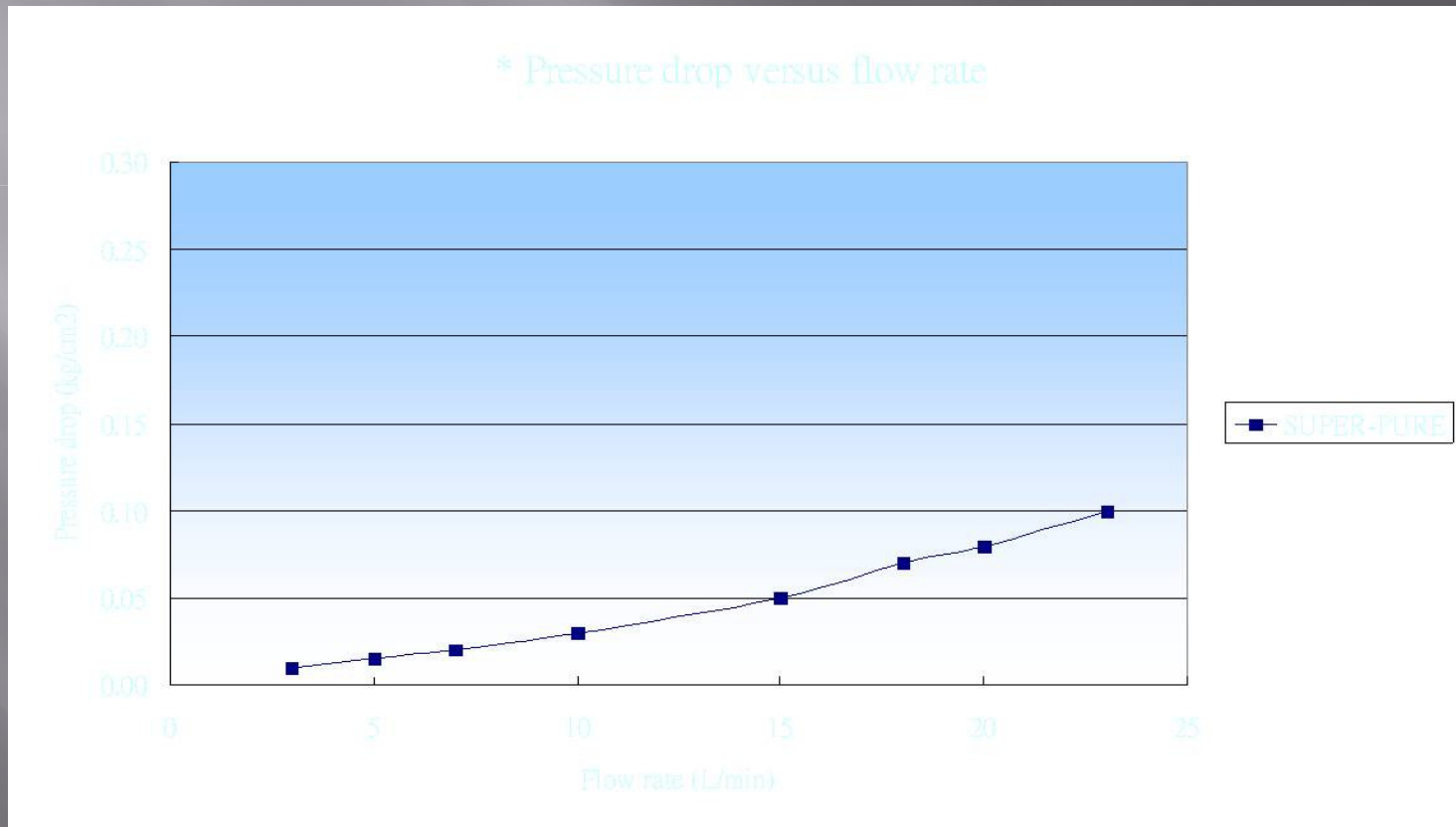


壓差 Pressure Drop

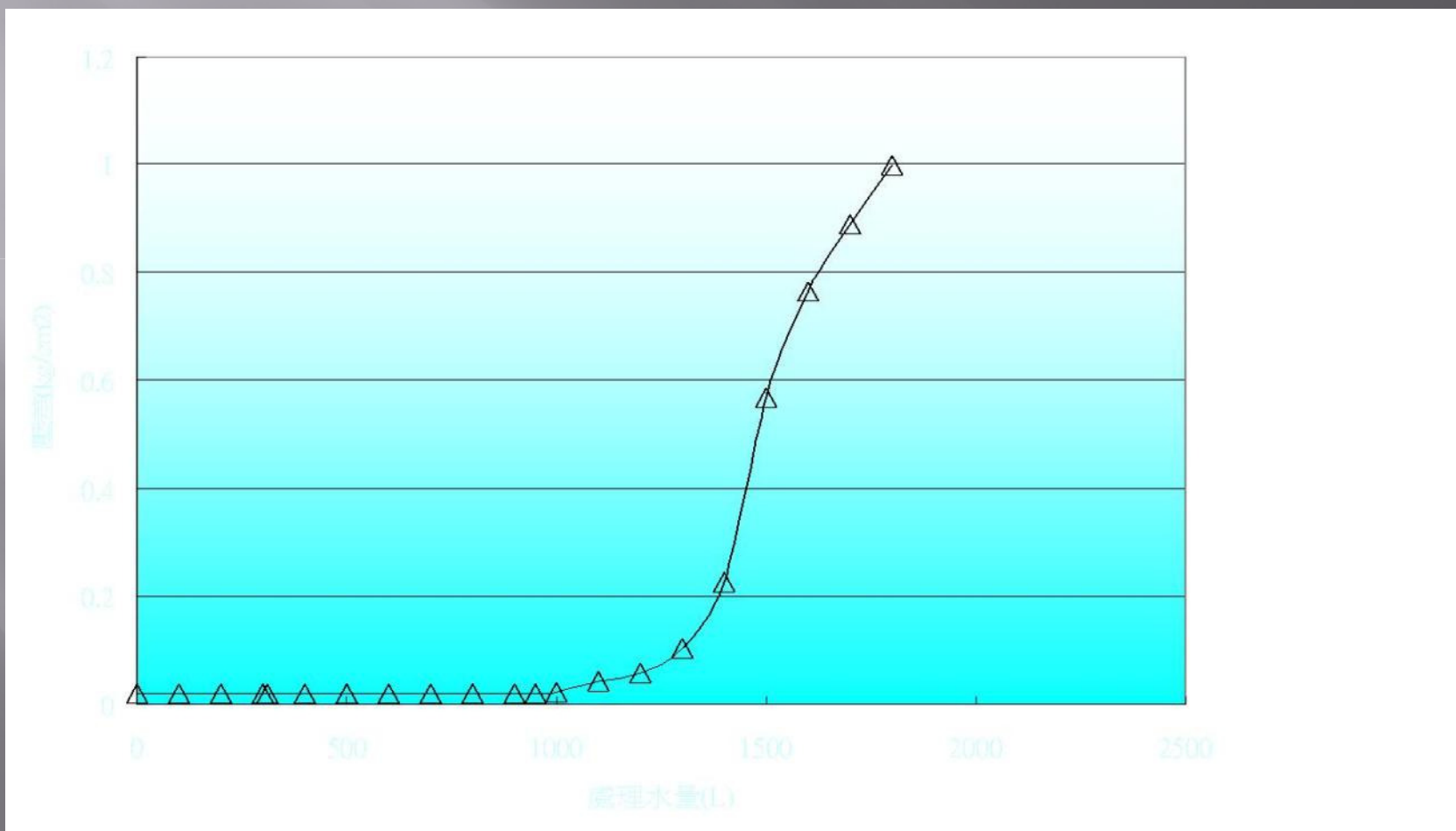
$$\text{壓差}(\Delta P) = P_{\text{In}} - P_{\text{Out}}$$

P_{In} : 過濾前流體壓力 Pressure before filter

P_{Out} : 過濾後流體壓力 Pressure after filter

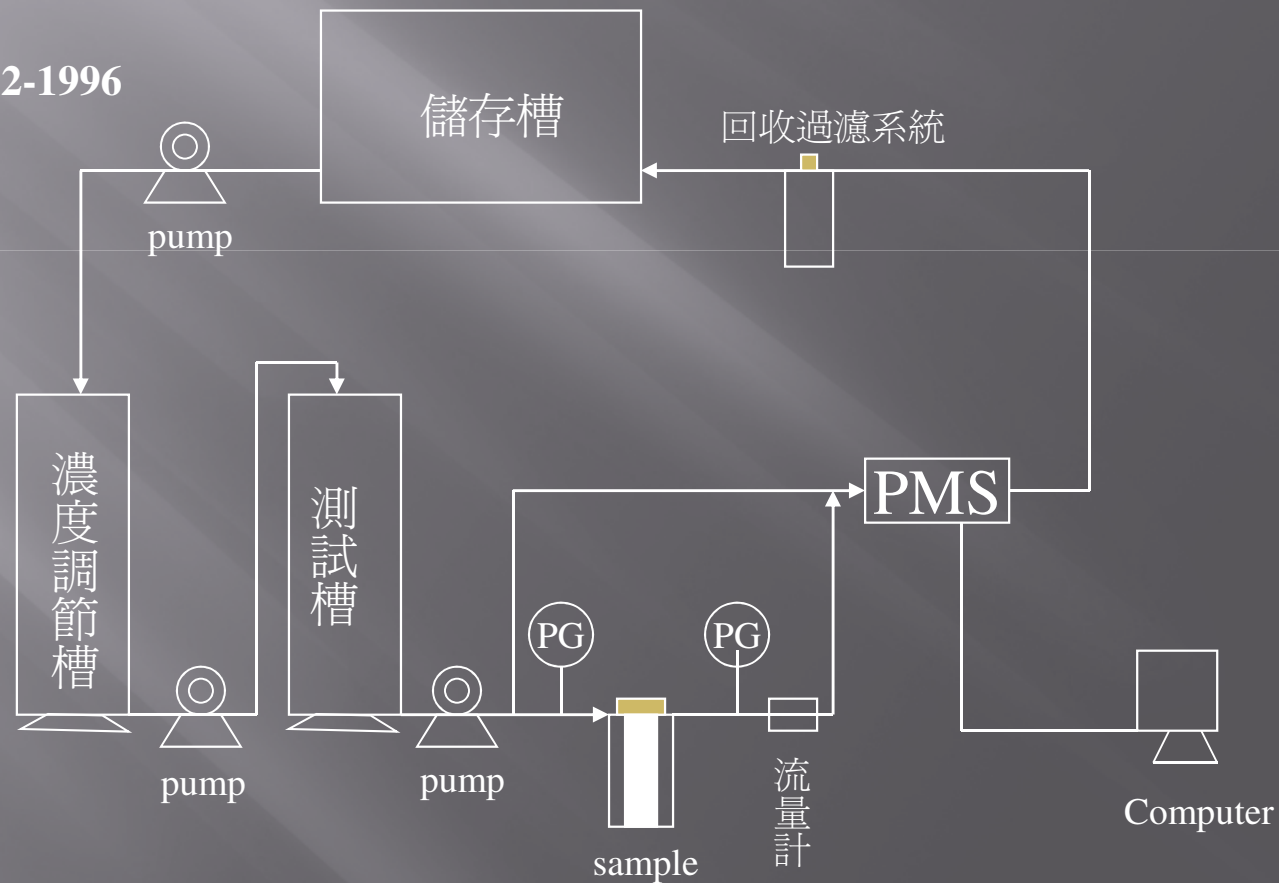


使用壽命



濾心性質檢測方法 NSF Methodology of Performance Test

參考ANSI/NSF42-1996



薄膜濾心的完整性測試

"After a filtration process is properly validated for a given product, process and filter, it is important to assure that identical filter replacements used in production runs will perform in the same manner. One way of achieving this is to correlate filter performance with filter integrity testing data"

-- *FDA Guidelines on Aseptic Processing (1987)*

"The integrity of the filter assembly should be checked by an appropriate method ...immediately before and after use"

-- *European GMP Guide*

0.2 micron 濾膜與最小細菌



薄膜濾心的完整性測試

完整性測試原理:

濾心濾膜本身含有大量微細孔洞,這些孔洞經含浸液體後,具有一定的毛細壓力,當外加於濾膜上的氣體壓力等於濾膜最大孔洞的毛細壓力時,氣體會穿過濾膜而產生第一個氣泡,此時所讀取的壓力值就可利用毛細壓力公式計算出最大孔洞直徑:
毛細壓力公式:

$$P = \tau =$$

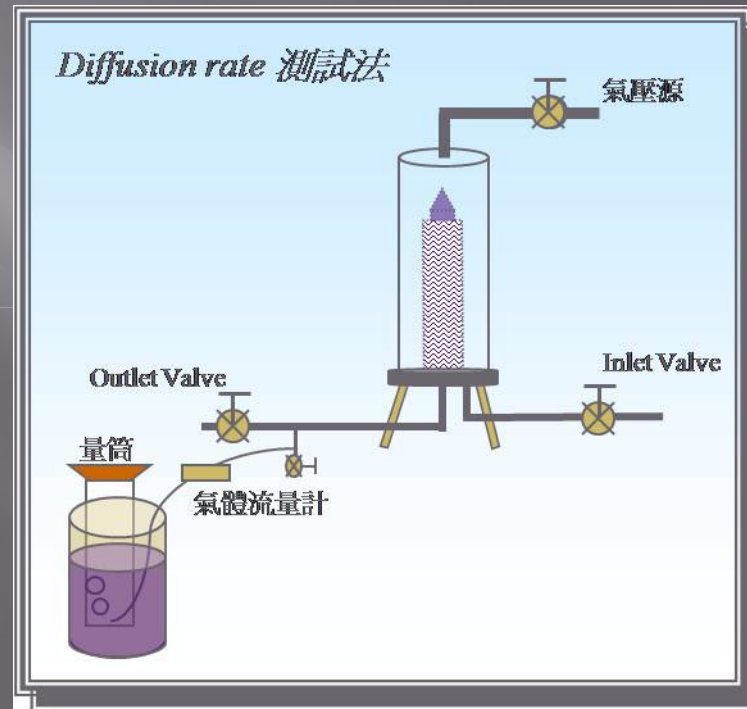
P: 氣泡點壓力 (Bubble point pressure)

τ : 毛細壓力

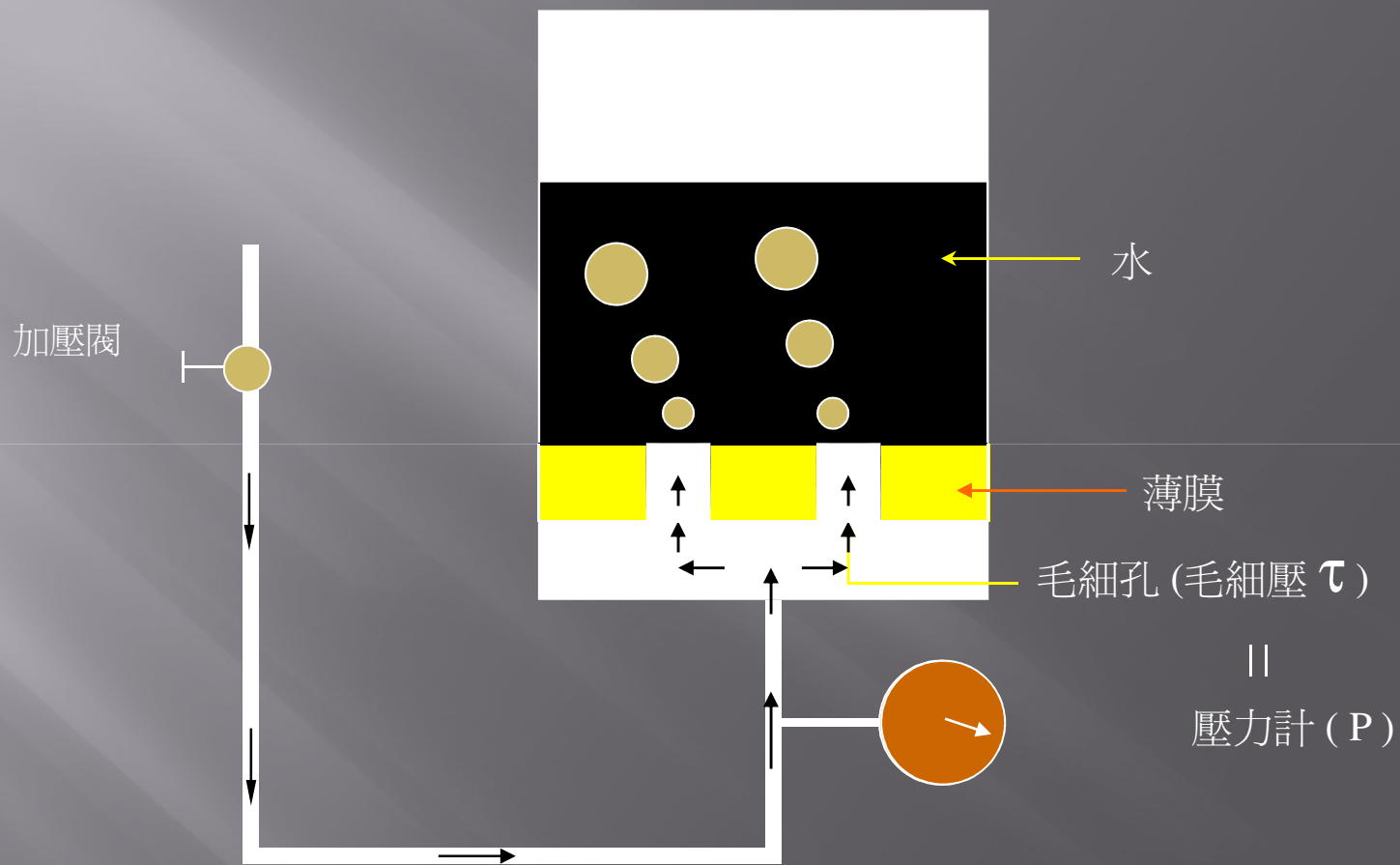
σ : 液體表面張力

θ : 接觸角

r: 孔洞半徑



氣泡點測試模擬



Test Equipment



Integrity tester



Purity reversion
of Purity test



Water flow
rate tester



Leak tester



Perm Porometer



Particle counter 2 Sets



R/O system