

Surface Characteristics: Analyzing Wettability

NEW PRODUCT

PNT-N

[Peneto Analyzer]

Outline

Measuring speed & weight of the liquid to penetrate into powder layer. This gives affinity between liquid & powder; namely, Wettability. It is widely used in pharmaceutical & chemical industry to evaluate the surface characteristics between powder material & various.

Speciality of new Peneto Analyzer

- Easy measurement through PC operation
- Precise lifting control of the vessel realizes accurate measurement
- High repeatability by specially designed cell shape
- Optimal packing (option)

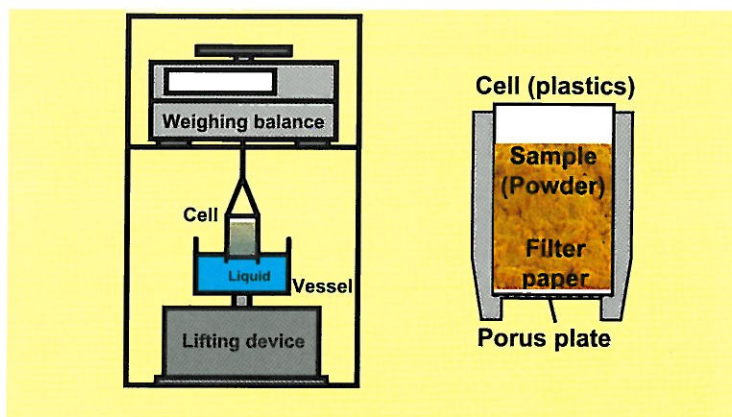
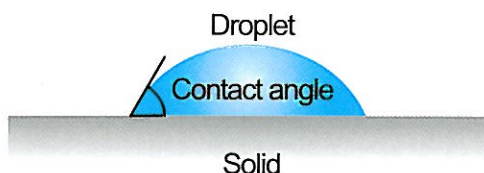


Application

- Evaluation of affinity (Wettability) between liquid & powder
- Battery material(cathode & anode), paint, pharmaceutical, cosmetics, food, ceramics, carbon black, silicon nitride, pigment, dye stuff, ink, toner, magnetics, titanium dioxide, textile, paper, fibre, porous material, ceramic molded object
- Prediction of dispersibility liquid into powder layer
- Evaluation of fine surface characteristics of particle

Principle

Measuring the penetration speed of liquid into powder layer gives wettability of powder and contact angle of liquid & powder .These operation is automated by computer



Composition of Peneto Analyzer

Measurement Sample

Powder : A, B & C , Liquid : water

The measurements give three different curves Fig.1. Penetration speed coefficient through Washburn's equation is shown in Fig.2.

$$\frac{W_L^2}{t} = (S\varepsilon\rho_L)^2 \frac{r\gamma_L \cos\theta}{2\eta_L} \quad \text{Washburn's equation}$$

W_L : liquid penetration weight, t : time, S : cell projection area
 ε : void ratio, ρ_L : liquid density, r : radius of capillary formed in powder layer
 γ_L : surface tension of liquid, η_L : viscosity of liquid,
 θ : contact angle between liquid and solid surface

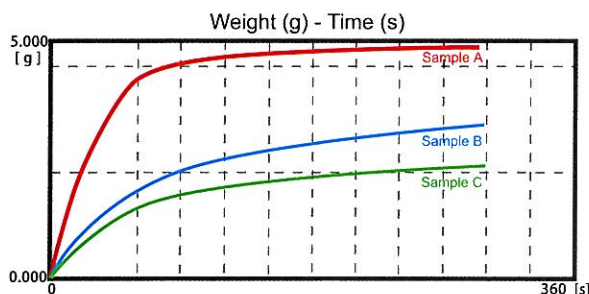


Fig.1 Comparison of penetration speed on each samples

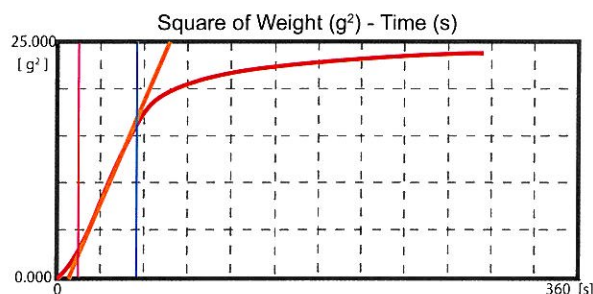


Fig.2 Gradient gives penetration speed coefficient

Specification

Measuring method	By weighing liquid in powder layer
Accuracy	1mg (option for 0.1mg)
Measuring range	Max.300g
Electric supply	AC100-240V 50/60Hz

※Please accept that we may change dimensions/specifications without notice.



Process Technologies for Tomorrow

HOSOKAWA MICRON CORPORATION

URL <http://www.hosokawamicron.com>

Hosokawa Micron Corporation is a member of the Hosokawa Micron Group, responding to global needs through emphasis on materials equipment and systems for powder processing, thermal processing, environmental protection, and plastics processing. The Group maintains facilities for research, engineering, manufacturing, and service in each of the world's industrial markets.



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