MICROMERTICS

1. Particle Size and Distribution

1. One micrometer is equal to:
a) 10−6 centimeter
b) 10−3 centimeter
c) 10−6 meter
d) 10−3 meter

2. Which of the following properties of a particle significantly affects a drug's physical, chemical, and biological properties?

a) Density
b) Sedimentation
c) Size
d) Surface area

3. In the formulation of emulsions and suspensions, what type of diameter is most important?
a) Sieve diameter
b) Projected diameter
c) Stokes' diameter
d) Volume-surface diameter

4. The sieving method is typically used to determine the particle size of powders in which range?
a) Sub-sieve range (less than 50 µm)
b) 50-2000 µm
c) 0.1-50 µm
d) Less than 0.1 µm

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2. Derived Properties of Powders

5. The true density of a powder is defined as the mass of the powder divided by its:
a) Bulk volume
b) Tapped volume
c) True volume

d) Void volume

6. The angle of repose is a measure of a powder's:
a) Density
b) Compressibility
c) Flowability
d) Porosity

7. A high angle of repose for a powder suggests:
a) The powder is cohesive and has poor flow properties.
b) The powder is free-flowing and has good flow properties.
c) The powder has low bulk density.
d) The powder has high true density.

8. Carr's compressibility index is a derived property of a powder that indicates its:
a) True density
b) Bulk density
c) Flowability and compressibility
d) Particle shape

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3. Particle Analysis Methods

9. Which method of particle size analysis works on the principle of change in electrical resistance as a particle passes through an orifice?
a) Optical microscopy
b) Sieving
c) Coulter Counter
d) Sedimentation

10. The Fisher Subsieve Sizer is used to determine the surface area of a powder based on the principle of:
a) Gas adsorption
b) Sedimentation
c) Air permeability
d) Light scattering