Tips of powder filling

1.A technical understanding of powder properties

Powders can be broadly divided into two types.
One is called " free-flowing" , meaning they flow easily.
For example, if you hold a powder in your hand and then open your hand, the powder simply spills out without forming a shape.
The other is called "non-free-flowing" meaning that the powder remains in a clenched form when you open your hand.

These powder characteristics are referred to as flowability.
A powder's flowability is expressed by the "Carr Index"
The index chart shows values for compressibility, angle of repose, spatula angle, and cohesion (uniformity).

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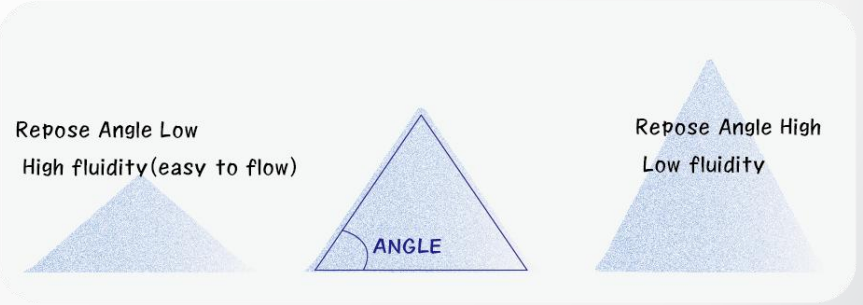
■ Compressibility

Compressibility can be calculated as the ratio of the difference between "loose bulk density" and "tight bulk density."
"Loose bulk density" is the density obtained when a powder is poured into a container by free fall, while "tight bulk density" is the density obtained by tapping the container while pouring the powder into it. The smaller the difference, the closer the powder particles naturally become, resulting in lower compressibility and higher flowability.

■ Angle of Repose

The angle of repose is determined by the tilt and horizontal level of a powder when it is naturally piled up. If the powder has high fluidity, it moves and flows easily, resulting in a low pile and a low angle of repose. If the powder has low fluidity, the powder remains in the powder pile, resulting in a large angle of repose.



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■ Spatula Angle

The spatula angle is determined by the tilt and horizontal level of the spatula when it is inserted horizontally into a pile of powder and then lifted. Similar to the angle of repose, the angle decreases with increasing fluidity and increases with decreasing fluidity.

■ Cohesion (Uniformity)

The cohesion is determined by the amount of powder remaining after sieving. If the powder has high cohesion, the powder particles stick together and are difficult to fall through. This means that the amount of powder that falls is low, indicating poor flowability. On the other hand, if powder has low cohesion, the powder falls through the sieve more easily, indicating a high amount of fall. This indicates high flowability.

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This is how to check briefly the powder property before proposing filler.

Tam Filling machine

Blog –powder property