

When to use a Powder Vibrator

For Use in R&D • Pharmacy Compounding • Nutritional Supplements • Clinical Studies

A) Overview & Examples of Powders

We recommend vibration and spreading alone or in combination with tamping for powders that are:

- sticky
- fluid-like (including fine or flour-like)
- bridge across the capsule bodies
- granules or pellets

A more detailed definition of these powder types is in Section C.

Examples of Powders Recommended For Filling Using a Vibrator

Powder	Properties			
	Sticky	Fluid-like	Bridge	Granular or Pellets
Calcium Carbonate			√	
Charcoal		√		
Creatine Monohydrate				√
D-Glucosamine Sulfate 2 KCL			√	
Diatomaceous earth	√			
Dolomite	√			
Frankincense	√			
Ginseng		√	√	
Griseofulvin	√			
Lactose Fine Powder	√		√	
Milk Thistle P.E. Min 80% Silymarin		√		
Omeprazole				√
Starch	√			
Talcum	√			
Tyrosine			√	
Aluminum Hydroxide		√		

B) Benefits of Powder Vibration:

- Filling Time: For almost all the above powders a vibrator used alone or in addition to tamping will reduce filling time. The filling time can be reduced by 60 seconds or more.
- Average Fill Weight: In general, to get the maximum fill weight we recommend a combination of vibration and tamping.
- Fill Weight Variation: For powders that are fluid-like, bridge or are granular a vibrator will reduce fill weight variation from capsule to capsule compared to tapping or tamping alone.



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C) Powder Vibration Method

We recommend a vibration time of 30-60 seconds for most powders. Longer vibration times do not result in higher fill weights for most powders other than fluid-like powders. While vibrating we recommend spreading the powder across the capsule bodies to reduce fill weight variation.

For fluid like, fine and fluffy powders we recommend a combination of vibration, spreading and tamping. Vibrate and spread the powder for 30-60 seconds. Use a tamper to press powder gently into the capsule bodies without forcing powder out of the capsule bodies. Repeat vibration and spreading followed by tamping. After the final tamping, spread any remaining powder across the capsule bodies. For maximum fill weights, you can do up to a total of four vibration/spreading and tamping cycles.

Due to wide variations in properties between powders, their grades and suppliers, your results will vary.

D) Definitions of Powders

Sticky Powders

Powder that sticks to Tamper pins can pull up capsule bodies after tamping, or can stick to tamper pins and fall off onto Filler surface. Use of a powder Vibrator eliminates Tamper pin contact with powder during filling.

Fluid-like or Fluffy Powders

Fluid-like, fine and fluffy powders are pushed out of the capsule bodies as the Tamper pins enter. If you have to tamp more than 2-3 times because powder is flowing out, a vibrator is very useful. A vibrator reduces the filling time by a few minutes or more. For more information on vibration and tamping see the section above "Powder Vibration Method."

In general we do not recommend tamping more than 2-3 times as we have found with all the powders we have worked with the fill weight does not increase by more than a few percent after the 3rd tamping.

- If you have to tamp more than 3 times and are applying excessive pressure then you are over-filling the capsules. Use less powder, less excipient or a larger capsule.
- If you have to tamp more than 3 times and the tamper pins move freely through the powder, you probably have a fluid powder and should use vibration alone or in combination with tamping.

Powders that Bridge

Some powders form a bridge at the top of the capsule body, leaving air pockets inside the capsule body. The capsule appears full but it is not. A Vibrator breaks up powder bridges and eliminates the air pockets resulting in a reduced filling time and more even fill weights.

Granular Powders or Sustained Release Pellets

Tamping can damage granules or pellets. A powder Vibrator allows you to fill granules and pellets without damaging them.



P78 VIB Vibrator For ProFiller 3700 & 3800



PM VIB HH Vibrator for ProFiller 3600

