

In Focus: FRITSCH Vibrating Cup Mill PULVERISETTE 9

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The most obvious truth concerning the Vibrating Cup Mill is: **it has stood the test of time and is still EFFECTIVE!**

There is hardly any other mill faster at grinding hard and brittle materials down to analytical fineness which is so easy to clean!

By way of introduction:

Operating principle: The grinding set is located on a vibrating disk with a quick-release clamping system. The disk vibrates with a horizontal circular motion which results in the grinding set exerting both high impact and frictional forces on the sample being ground.

Fields of application: Fast dry and wet grinding of hard, brittle as well as fibrous materials down to analytical fineness without weight loss is achievable. The recommended feed size of 12 mm is significantly exceeded by many users. Even a feed-size of 20 mm is not uncommon. Final fineness of the x50 value down to 5 µm can be achieved.

Accessories: We recommend hardened steel grinding sets for most applications, whilst grinding sets of hardmetal tungsten carbide should be used for extremely hard samples or to avoid contamination of the sample with iron, while soil samples should be ground using agate.



Product highlights:

- Top Rank Performance
 - Motor output is not the complete answer - but even more important is the transfer of energy to the sample material being ground. Because of this, we have developed a motor with a frequency converter control. We are the only company in the world using this technology which automatically adjusts the resonant frequency between the motor speed and the load of the vibrating disk to the most effective level.
 - Also, fixed speeds up to 1150 rpm can be selected.
 - Cooling fins and fans control the temperature of the grinding set.
 - All grinding parameters can be accurately reproduced through corresponding configurations.

■ Top Rank Operation

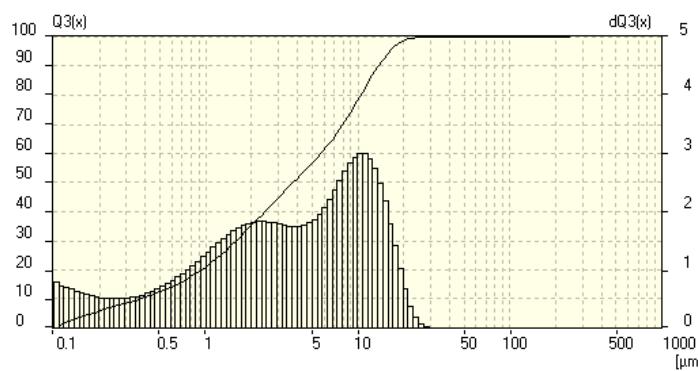
- The grinding set is placed on a carriage directly in front of the operator's body before being moved into the final operational position. The operational height is modified to suit the operator's height for which his back should be eternally grateful!
- The weights of the large grinding sets were reduced.
- Insulated, user-friendly handles on the grinding sets.
- Only a few large parts require cleaning.

■ Top Rank Safety

- Completely new clamping of the grinding set using a symmetrical eccentric cam.
- Final positioning for the grinding set, including an anti-turn locking device for extra safety.
- Automatic monitoring of the grinding set clamping.
- Automatic speed selection for agate grinding sets to eliminate accidental breakage.

■ Moving beyond theory – experiences in practical use

- Soil samples: Using the agate grinding set, analytical fineness is achieved after 30–60 seconds.
- Rock samples: Geologists and mineralogists prefer to use Vibrating Cup Mills with grinding sets of agate or hardmetal tungsten carbide to prepare samples for spectroscopic analysis.
- Activated charcoal: Activated charcoal can generally be ground very well in ball mills. However, some types exhibit odd behaviour: A very fine powder is created which appears to behave like a highly viscous liquid. The balls are slowed down by this effect and some coarse particles escape the comminution. In this case, Vibrating Cup Mills are recommended.
- RoHS and WEEE were hot topics recently.
- Objective: A single electronic component of approx. 5 mm length with two long contacts of approx. 20 mm. Planetary ball mills, vibratory mills and cutting mills did not succeed or were too large. The Vibrating Cup Mill with 50 ml hardmetal tungsten carbide grinding set guarantees fast and loss-free comminution.
- Climate discussion is currently the number one topic. Grinding worn out solar cells so that they can be compressed into a tablet with an absolutely compressed and smooth surface is a difficult task. Planetary ball mills exhibit the phenomenon described above for activated charcoal. Only a Vibrating Cup Mill using a hardmetal tungsten carbide grinding set offers a solution here. After 5 minutes grinding, the sample was measured using the FRITSCH ANALYSETTE 22 Laser Particle Sizer which showed that the silicon was in fact in dust form with 50% < 3.7 µm and 90% < 13.6 µm.



In summary:

- Anyone who must quickly reduce hard, brittle and even fibrous materials to analytical fineness combined with ease of cleaning should look no further than the FRITSCH Vibrating Cup Mill.