

Amorphous silicic acid

Protocol number: M0099019-2
Industry: Chemistry
Feed Size: < 250 μm
Desired Fineness: 83.3% < 10 μm

Result 1

Planetary Mill PULVERISETTE 5 classic line with 4 grinding bowl fasteners

360 rpm

bowl: 250 ml zirconium oxide
balls: 15 x 20 mm \varnothing zirconium oxide

Feed quantity: 100 g
Feed Size: < 250 μm
Additive: + water 30ml
Grinding time: 60 min
Final fineness: 83.3% < 10 μm ,



Contact to our Applications Laboratory: Leos Benes · Phone: 0049 67 84 70 122 · benes@fritsch.de

Amorphous silicic acid

Protocol number: M0099019-1

Industry: Chemistry

Feed Size: < 250 μm

Desired Fineness: $d_{90} < 10\mu\text{m}$

Quantity: 1000 g

Recommendation: We recommend using a planetary ball mill like our Planetary Mill PULVERISETTE 5 classic line for a grinding of higher amounts.

Result 1

Planetary Mill PULVERISETTE 5 classic line with 4 grinding bowl fasteners

main disk speed: 360 rpm

250 ml grinding bowl made of zirconium oxide (ZrO_2)
+ 50 x 10 mm \varnothing zirconium oxide grindingballs



Feed quantity: 100 g

Feed Size: < 250 μm

Additive: + 40ml water

Grinding time: 120 min

Final fineness: 97.4% < 10 μm

Comments: For 100 g of sample (as provided), bowls of 250 ml volume use to be fulfilling for grinding. Higher amounts can be ground with maximum 500 ml grinding bowls (with up to 4 bowls fasteners at PULVERISETTE 5).

To avoid over pressure, we ground the sample in steps of 5 minutes, followed by a programmed pausing time of 10 minutes. After several cycles, the outside temperature of the bowl should be checked (remain below 80°C); grinding time or programmed pausing time might be readjusted afterwards.

By using 10 mm \varnothing grinding balls, balls don't need to be changed during grinding to fulfill the desired fineness of $d_{90} < 10\mu\text{m}$. After a total grinding time of 2 hours. The desired fineness has been achieved.

It is plausible that the total grinding time can be reduced, when grinding balls will be changed after a pre grinding with 10 mm \varnothing balls (e.g. for 15 minutes) to 2 mm \varnothing . Because of the higher amount of grinding balls, grinding will be improved. We recommend using balls which use to be 20x bigger as the present particle size.

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