Ceramic catalyst

Protocol number:	M0099241-1
Industry:	Ceramics / glass industry, Environment
Feed Size:	app. 5 cm
Desired Fineness:	< 50 µm
Quantity:	app. 800 g
Recommendation:	We recommend a pre grinding of sample with our Jaw Crusher PULVERISETTE 1 Model I. Afterwards, a Planetary Mill PULVERISETTE 5 classic line can be used for a grinding of higher amounts.

Result 1

Jaw Crusher PULVERISETTE 1 classic line Model I
gap position: 1,0 (smallest gap)

crushing jaws made of tempered steel

Material attributes:	**pre grinding step**
Feed quantity:	1250 g
Feed Size:	ca. 5 cm
Grinding time:	5 min
Final fineness:	< 1 cm
Comments:	For pre grinding of sample, Jaw Crusher PULVERISETTE 1 Model I can be fed with pieces up to 6 mm. Model II can be fed with pieces up to 95 mm. After 5 minutes of grinding, the majority of sample has been comminuted to < 1 cm. Only a few needle shaped pieces have a length up 2,5 cm. No residues have been found in the grinding chamber afterwards, even higher amounts of sample can be ground per batch.

Result 2

Planetary Mill PULVERISETTE 5 classic line with 4 grinding bowl fasteners
main disk speed: 400 rpm

500 ml grinding bowl made of zirconium oxide
+ 10x 30 mm Ø zirconium oxide grinding balls

Feed quantity:	160 g
Feed Size:	1 cm
Grinding time:	3 min
Final fineness:	94% < 50 µm
Comments:	About 160g of sample can be fed into one bowl. By using a Planetary Mill PULVERISETTE 5 classic line with 4 bowl fasteners, up to 640 g of sample can be ground simultaneous. After 3 minutes of dry grinding, sample started sticking to bowl and balls. This uses to happen after the majority of particles reached a fineness of < 20-30 µm. Interacting forces between fine ground particles will become bigger as their own g-force. Therefore, particles will stick to each other and become compressed by the used grinding balls. These clusters of particles also contain bigger particles which will not be ground any further. It is possible separating the desired fine ground fraction by sieving or sifting and proceed grinding the coarse fraction until the sample starts to stick again. Also a grinding in suspension is possible to achieve 100% < 50 µm.

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