

# ALUMINIUM OXIDE

Protocol number: M006165

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Industry: Construction materials

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Feed Size: < 0,5-1mm

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Desired Fineness:  $d_{90} < 5\mu\text{m}$

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Quantity: 100ml

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Recommendation: To reach the desired endfineness, a grinding in suspension is obligate. For this, we recommend using the Planetary Mono Mill PULVERISETTE 6 classic line.

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## Result 1



## PLANETARY MONO MILL PULVERISETTE 6 CLASSIC LINE

main disk speed: 550 rpm

250 ml grinding bowl made of zirconium oxide ( $\text{ZrO}_2$ )

+ 15x 20 mm  $\varnothing$   $\text{ZrO}_2$  grinding balls

Feed quantity: ~ 122 g

Feed Size: < 1 mm

Grinding time: 5 min

Final fineness:  $d_{90} < 60,5\mu\text{m}$

Comments: Sample starts sticking lightly, a change of balls and a further grinding in suspension is required (see result 2).

For a grinding of higher amounts, also 500ml bowls can be used (e.g. with Planetary Mill PULVERISETTE 5 classic line and 4 bowl fasteners).

# Fritsch Particle Sizer 'analysette 22'

## NanoTec

Mess Nr. 357	Datum 06.05.2011	Zeit 11:10	Benutzer Gerber	ID 1100	Serien Nr. 001
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Bowl 1 Al<sub>2</sub>O<sub>3</sub> 80ml ZrO<sub>2</sub> 0,1mm balls 5hours  
 0,1% Na<sub>4</sub>P<sub>2</sub>O<sub>7</sub> 1min ultrasonic

Messbereich	0.01 [µm] - 53.08 [µm]	Pumpe	60 [%]
Auflösung	108 Kanäle (20 mm )	Ultraschall	An
Absorption	6.00 [%]		
Mess Dauer	400 [Scans]		

Regularization / Modell broad

Mie Theorie	Corundum
	Brechungsindex <span style="float: right;">n = 1.760</span>
	Absorptionskoeffizient <span style="float: right;">a = 0.000</span>
	Water (20°C)
	Brechungsindex <span style="float: right;">n = 1.3328</span>

d[4,3] = .07µm	Arithm. Mittel = 0.065 µm	Spezifische Oberfläche = 2173789.75 cm <sup>2</sup> /cm <sup>3</sup>
Interpolationswerte... C:\Fritsch\A22_32\fritsch\001-2µm.FPS		
4.0 % <=	0.011 µm	27.9 % <= 0.020 µm
57.0 % <=	0.040 µm	65.4 % <= 0.050 µm
80.3 % <=	0.080 µm	85.8 % <= 0.100 µm
93.1 % <=	0.150 µm	95.3 % <= 0.180 µm
98.5 % <=	0.300 µm	99.0 % <= 0.400 µm
99.2 % <=	0.600 µm	99.3 % <= 0.800 µm
99.5 % <=	1.200 µm	99.6 % <= 1.500 µm

Interpolationswerte... C:\Fritsch\A22_32\fritsch\5_99.fpv		
5.0 % <=	0.011 µm	10.0 % <= 0.013 µm
20.0 % <=	0.017 µm	25.0 % <= 0.019 µm
35.0 % <=	0.024 µm	40.0 % <= 0.026 µm
50.0 % <=	0.034 µm	55.0 % <= 0.038 µm
65.0 % <=	0.050 µm	70.0 % <= 0.057 µm
80.0 % <=	0.079 µm	85.0 % <= 0.097 µm
95.0 % <=	0.175 µm	98.0 % <= 0.262 µm

