

Report No.: 14499
Date: 19.04.2013
Contact: GB

Task:

Application field:	Geology / Metallurgy
Material:	Amorphous silica
Feed size:	10 - 200 µm
Feed quantity:	about 10 g for each sieving
Material specification(s):	dry
Customer requirements(s):	Comparison of wet and air jet sieving 20 / 40 / 60 / 100 / 200 µm
Subsequent analysis:	Particle size analysis

Solution

Selected Instrument(s):	Vibratory Sieve Shaker AS 200 control Air Jet Sieving Machine AS 200 jet
Configuration(s) Item nos.:	<p>1 x AS 200 control, 100-240 V, 50/60 Hz, incl.test report acc. EN 10204 2.2</p> <p>1 x Universal wet sieving clamping device "comfort"</p> <p>1 x Collecting pan with outlet stainless steel, ø 200x50 mm</p> <p>4 x Venting ring for wet sieving stainless steel, ø 200x25 mm</p> <p>1 x Test Sieve, ISO 3310/1, 200x50mm, 20µm, stainless steel, with compliance certificate acc. EN 10204 2.1</p> <p>1 x Test Sieve, ISO 3310/1, 200x50mm, 40µm, stainless steel, with compliance certificate acc. EN 10204 2.1</p> <p>1 x Test Sieve, ISO 3310/1, 200x50mm, 63µm, stainless steel, with compliance certificate acc. EN 10204 2.1</p> <p>1 x Test Sieve, ISO 3310/1, 200x50mm, 100µm, stainless steel, with compliance certificate acc. EN 10204 2.1</p> <p>1 x Test Sieve, ISO 3310/1, 200x50mm, 200µm, stainless steel, with compliance certificate acc. EN 10204 2.1</p> <p>-----</p> <p>1 x AS 200 jet, 100-240 V, 50/60 Hz</p> <p>1 x Industrial vacuum cleaner GM 80, 230 V, 50/60 Hz</p> <p>1 x Test Sieve, ISO 3310/1, 8"x1", 20µm, stainless steel, with compliance certificate acc. EN 10204 2.1</p> <p>1 x Test Sieve, ISO 3310/1, 8"x1", 40µm, stainless steel, with compliance certificate acc. EN 10204 2.1</p>

The application report is based solely on the processing of the available sample material in the indicated amount. No legal claims shall be derived from this test report.

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- 1 x Test Sieve, ISO 3310/1, 8"x1", 63µm, stainless steel, with compliance certificate acc. EN 10204 2.1
- 1 x Test Sieve, ISO 3310/1, 8"x1", 100µm, stainless steel, with compliance certificate acc. EN 10204 2.1
- 1 x Test Sieve, ISO 3310/1, 8"x1", 200µm, stainless steel, with compliance certificate acc. EN 10204 2.1
- 1 x EasySieve, for Windows 2000/XP/Vista/7, English/German, Single-user-licence, incl. adapter RS232-USB

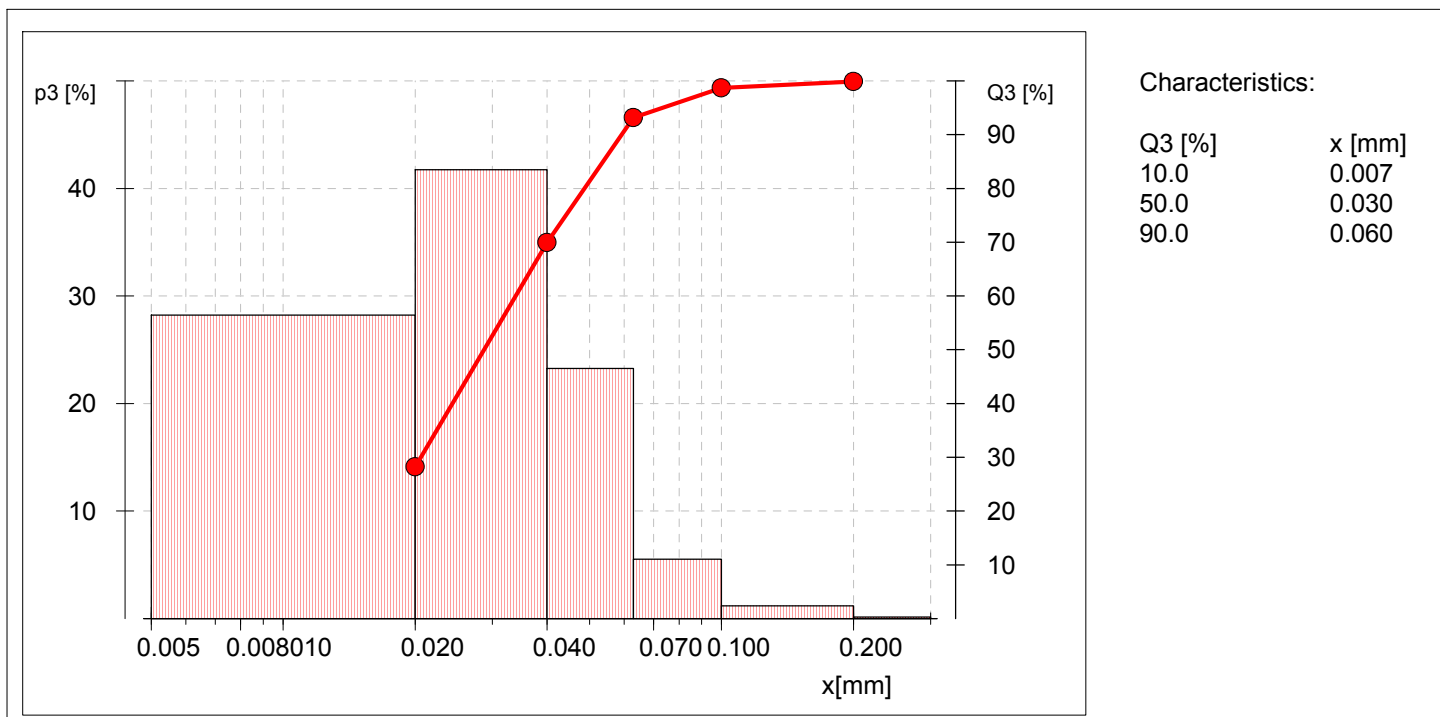
Please note: Other electrical versions of the instrument(s) are available with different item numbers.

Parameter(s):	AS 200 control: Amplitude 1.1 mm, Interval 10 sec AS 200 jet: revolution speed 55 U/min, negative pressure about 30 to 50 mbar
Time:	AS 200 control: ca. 3 min AS 200 jet: 1 min for each sieve
Achieved result(s):	See measuring protocols EasySieve
Remark(s):	<p>Prior to sieving the sample is divided into 6 representative sub-samples. For this purpose the Sample Divider PT 100 with dividing head with 6 outlets is suitable. For air jet sieving one sub-sample is used for each sieve. For wet sieving the remaining sample is suspended in water and fed to the top sieve. The sieving is executed under water flow (about 500 ml/min) as long as the drained water is clouded. The remaining fractions are filtered, dried and weighed back. The fraction < 20 µm is not measured but calculated as loss of the initially fed sample amount.</p> <p>The differing results of the wet sieving compared to air jet sieving (fraction 20 - 40 µm) are systematic. A possible reason for this could be a significant (within the allowed tolerances acc. to ISO 3310) difference of the aperture sizes of the sieves used for wet and air jet sieving respectively.</p>
Recommendation:	The Vibratory Sieve Shaker AS 200 control and the Air Jet Sieving Machine AS 200 jet are suitable to analyse the sample material under the above mentioned conditions.

RETSCH Sieve Analysis

Company:			
User:	MA		
Result file:	...ySieve\SIEVEDAT\14499 Amorphe Kieselsäure\14499_amorphous silica_18_air.rdf		
Task file:	14499 Amorphe KieselsäureSize classes file:	14499 Amorphe Kieselsäure.gkl	
Date:	18. 4.2013 14:34	Sieving duration [mm:ss]:	01:00
Sieve machine:	AS 200 jet	Number of revolutions [1/min]:	55.0
Material:	#18		
Sample quantity [g]:	6.88	Sum loaded sieve weights [g]:	6.88
Sieve loss [%]:	0.00		
Sampling:	Kundenprobe	Sample preparation:	Probenteilung mit PT100 1/6
Sieve method:	air jet sieving AS 200 jet	Sieve diameter:	200 x 25 mm
Sieves according to standard:	DIN ISO 3310-1	Sieving aids:	No sieving aids
Comment:			

Size class [mm]	p3 [%]	Q3 [%]	Δm [g]	$\Sigma \Delta m$ [g]
< 0.020	28.2	28.2	1.94	1.94
0.020 - 0.040	41.7	69.9	2.87	4.81
0.040 - 0.063	23.3	93.2	1.60	6.41
0.063 - 0.100	5.5	98.7	0.38	6.79
0.100 - 0.200	1.2	99.9	0.08	6.87
> 0.200	0.1	100.0	0.01	6.88

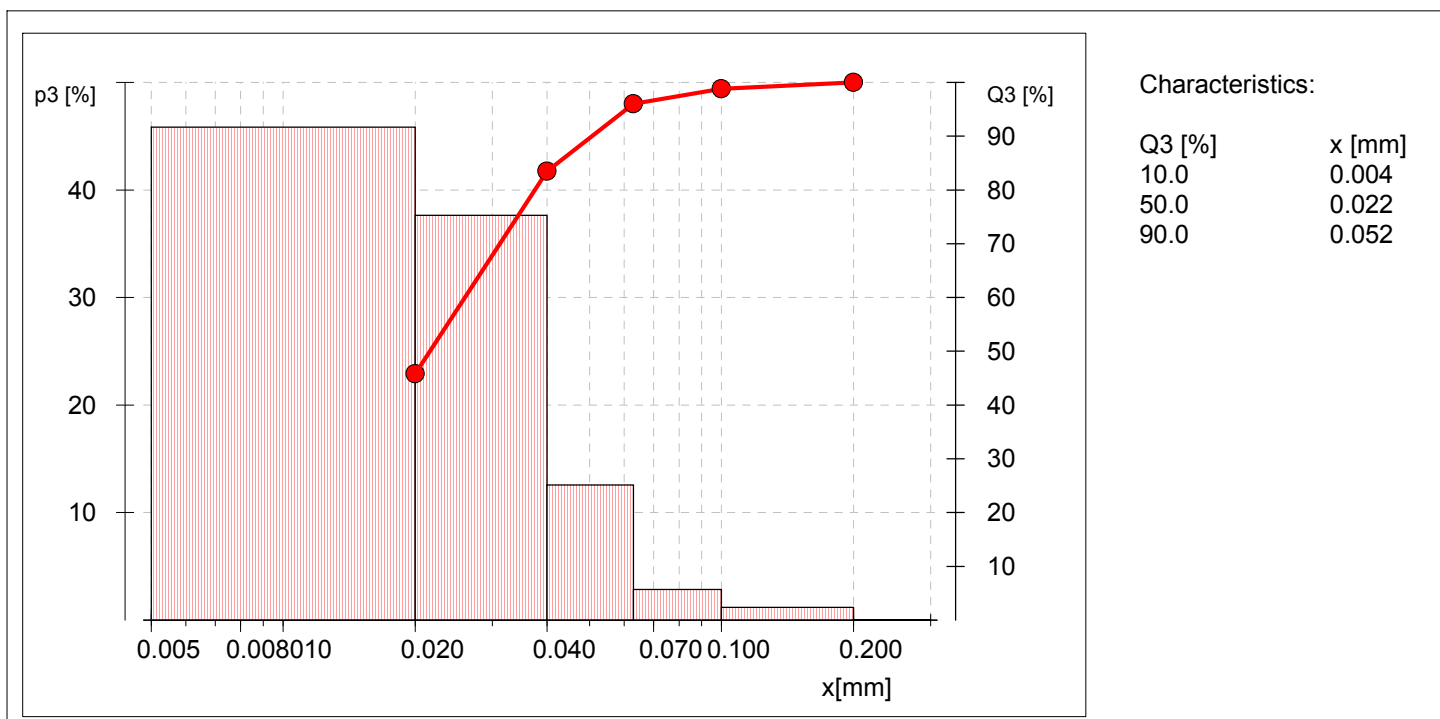


User: _____

RETSCH Sieve Analysis

Company:			
User:	MA		
Result file:	...ySieve\SIEVEDAT\14499 Amorphe Kieselsäure\14499_amorphous silica_16_wet.rdf		
Task file:	14499 Amorphe Kieselsäure	Size classes file:	14499 Amorphe Kieselsäure.gkl
Date:	19. 4.2013 10:02	Sieving duration [mm:ss]:	01:00
Sieve machine:	AS 200 control	Amplitude [mm]:	1.1
Interval working		Interval time [s]:	10.0
Manual input			
Material:	#16		
Sample quantity [g]:	9.49	Sum loaded sieve weights [g]:	9.49
Sieve loss [%]:	0.00		
Sampling:	Kundenprobe	Sample preparation:	Probenteilung mit PT100 1/6
Sieve method:	Nasssiebung vertikal	Sieve diameter:	200 x 50 mm
Sieves according to standard:	DIN ISO 3310-1	Sieving aids:	No sieving aids
Comment:			

Size class [mm]	p3 [%]	Q3 [%]	Δm [g]	$\Sigma \Delta m$ [g]
< 0.020	45.8	45.8	4.35	4.35
0.020 - 0.040	37.6	83.5	3.57	7.92
0.040 - 0.063	12.5	96.0	1.19	9.11
0.063 - 0.100	2.8	98.8	0.27	9.38
0.100 - 0.200	1.2	100.0	0.11	9.49
> 0.200	0.0	100.0	0.00	9.49

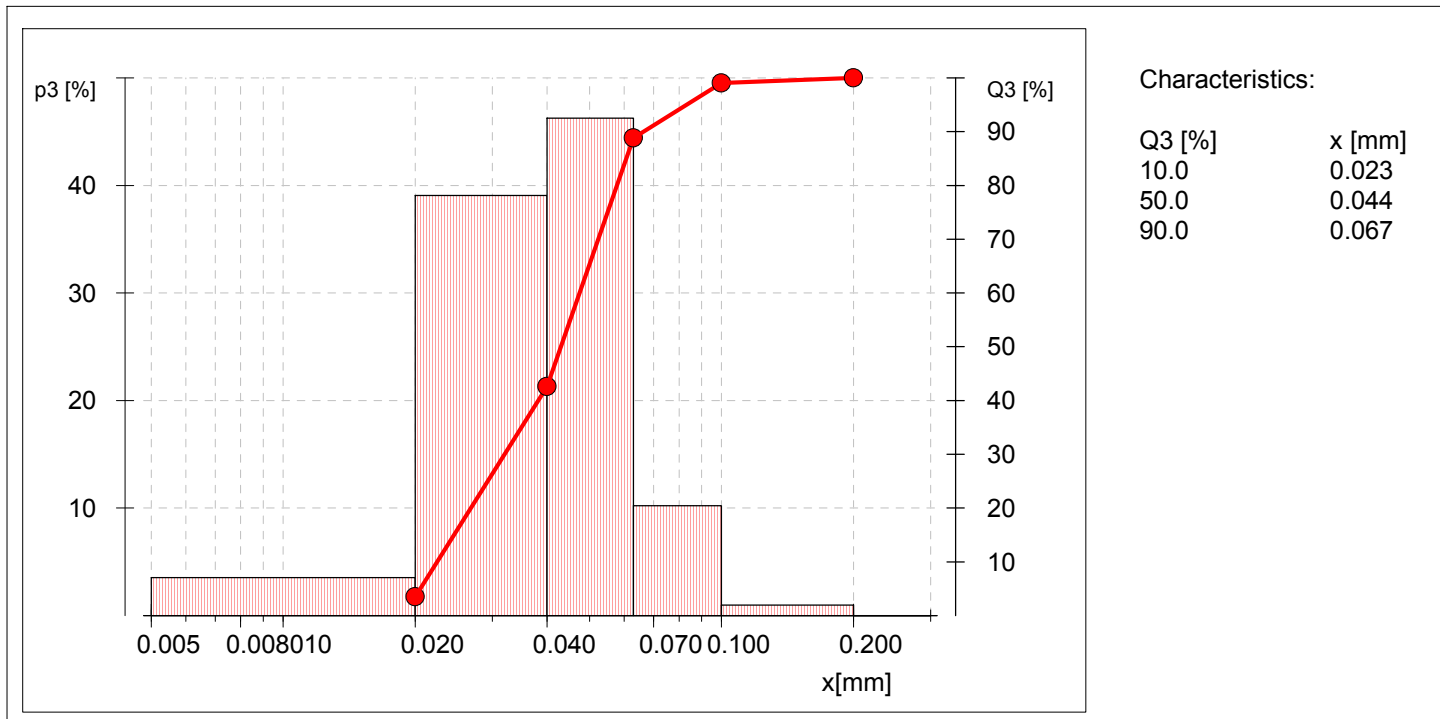


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RETSCH Sieve Analysis

Company:			
User:	MA		
Result file:	...ySieve\SIEVEDAT\14499 Amorphe Kieselsäure\14499_amorphous silica_17_air.rdf		
Task file:	14499 Amorphe KieselsäureSize classes file:	14499 Amorphe Kieselsäure.gkl	
Date:	18. 4.2013 14:21	Sieving duration [mm:ss]:	01:00
Sieve machine:	AS 200 jet	Number of revolutions [1/min]:	55.0
Material:	#17		
Sample quantity [g]:	8.22	Sum loaded sieve weights [g]:	8.22
Sieve loss [%]:	0.00		
Sampling:	Kundenprobe	Sample preparation:	Probenteilung mit PT100 1/6
Sieve method:	air jet sieving AS 200 jet	Sieve diameter:	200 x 25 mm
Sieves according to standard:	DIN ISO 3310-1	Sieving aids:	No sieving aids
Comment:			

Size class [mm]	p3 [%]	Q3 [%]	Δm [g]	$\Sigma \Delta m$ [g]
< 0.020	3.5	3.5	0.29	0.29
0.020 - 0.040	39.1	42.6	3.21	3.50
0.040 - 0.063	46.2	88.8	3.80	7.30
0.063 - 0.100	10.2	99.0	0.84	8.14
0.100 - 0.200	1.0	100.0	0.08	8.22
> 0.200	0.0	100.0	0.00	8.22

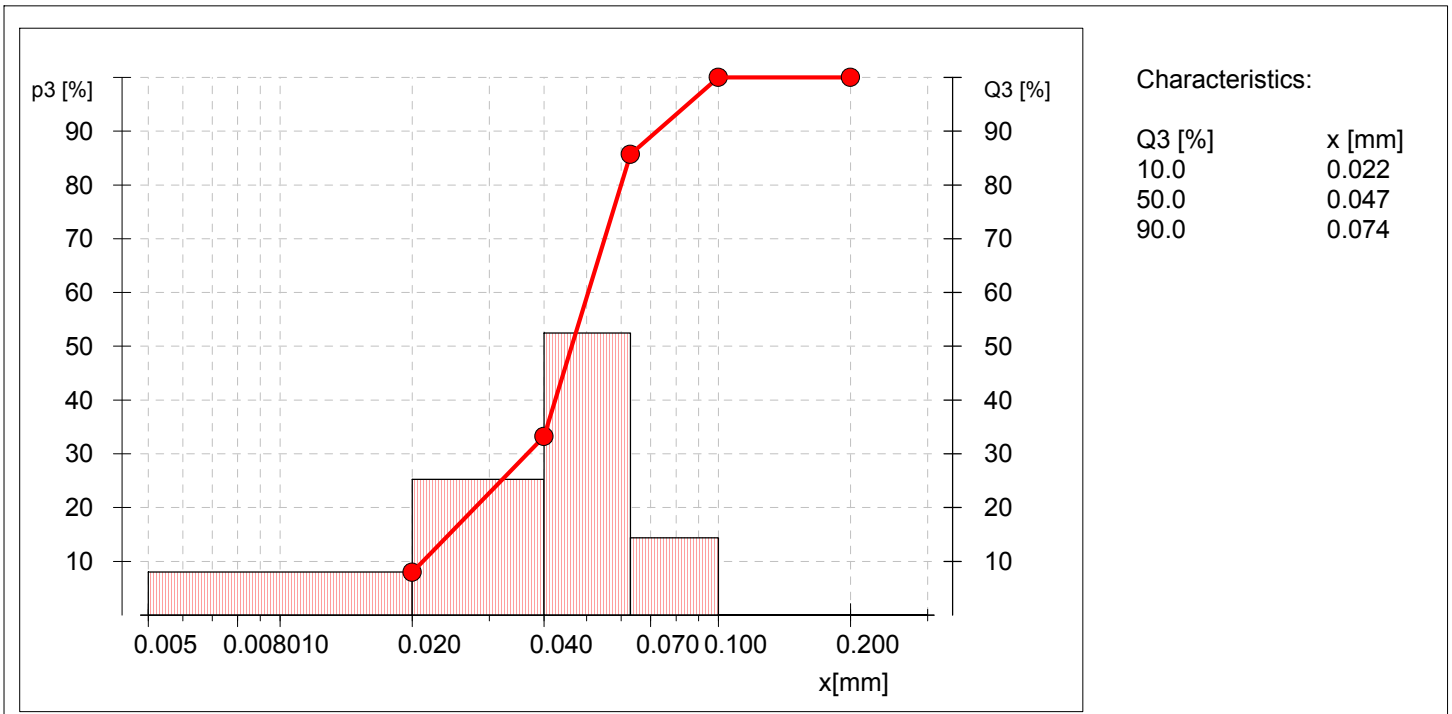


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RETSCHE Sieve Analysis

Company:			
User:	MA		
Result file:	...ySieve\SIEVEDAT\14499 Amorphe Kieselsäure\14499_amorphous silica_17_wet.rdf		
Task file:	14499 Amorphe Kieselsäure	Size classes file:	14499 Amorphe Kieselsäure.gkl
Date:	19. 4.2013 10:01	Sieving duration [mm:ss]:	01:00
Sieve machine:	AS 200 control	Amplitude [mm]:	1.1
Interval working		Interval time [s]:	10.0
Manual input			
Material:	#17		
Sample quantity [g]:	8.16	Sum loaded sieve weights [g]:	8.16
Sieve loss [%]:	-0.00		
Sampling:	Kundenprobe	Sample preparation:	Probenteilung mit PT100 1/6
Sieve method:	Nasssiebung vertikal	Sieve diameter:	200 x 50 mm
Sieves according to standard:	DIN ISO 3310-1	Sieving aids:	No sieving aids
Comment:			

Size class [mm]	p3 [%]	Q3 [%]	Δm [g]	$\Sigma \Delta m$ [g]
< 0.020	8.0	8.0	0.65	0.65
0.020 - 0.040	25.2	33.2	2.06	2.71
0.040 - 0.063	52.5	85.7	4.28	6.99
0.063 - 0.100	14.3	100.0	1.17	8.16
0.100 - 0.200	0.0	100.0	0.00	8.16
> 0.200	0.0	100.0	0.00	8.16

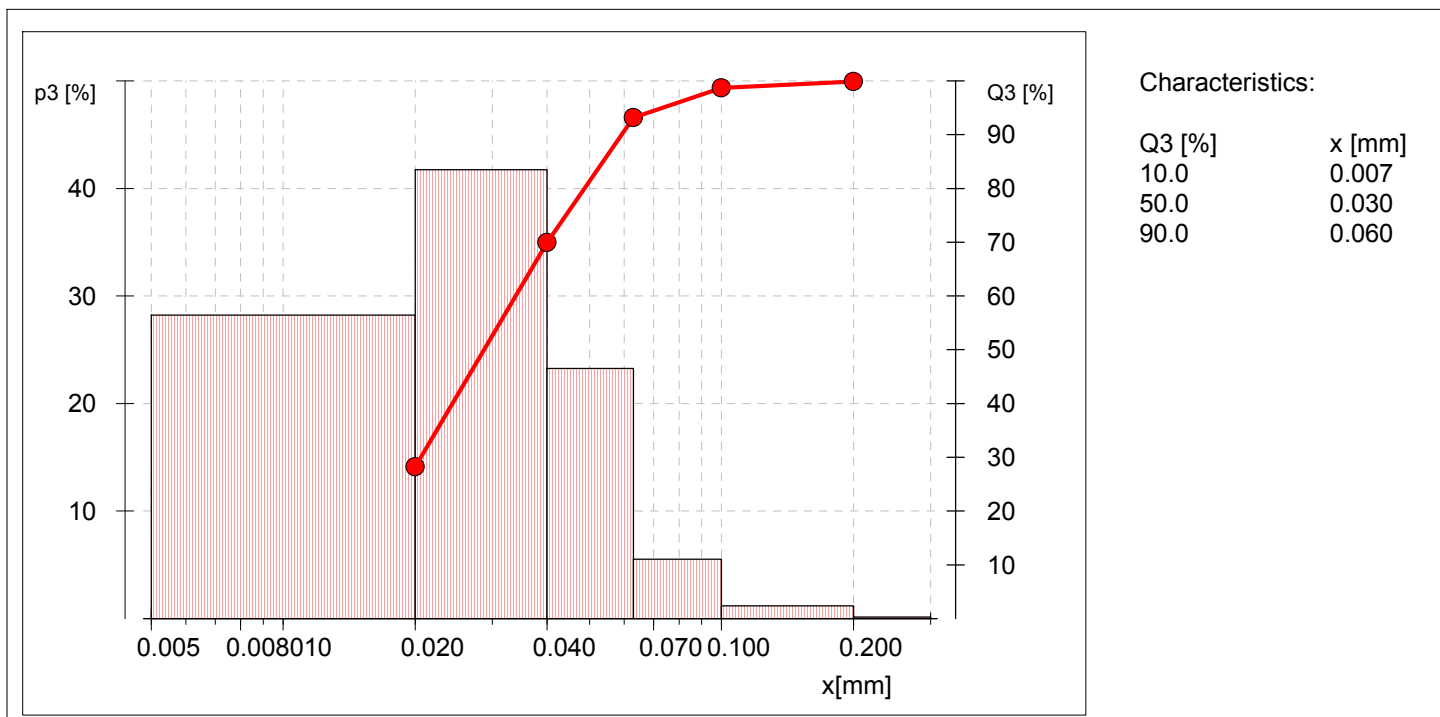


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RETSCH Sieve Analysis

Company:			
User:	MA		
Result file:	...ySieve\SIEVEDAT\14499 Amorphe Kieselsäure\14499_amorphous silica_18_air.rdf		
Task file:	14499 Amorphe Kieselsäure	Size classes file:	14499 Amorphe Kieselsäure.gkl
Date:	18. 4.2013 14:34	Sieving duration [mm:ss]:	01:00
Sieve machine:	AS 200 jet	Number of revolutions [1/min]:	55.0
Material:	#18		
Sample quantity [g]:	6.88	Sum loaded sieve weights [g]:	6.88
Sieve loss [%]:	0.00		
Sampling:	Kundenprobe	Sample preparation:	Probenteilung mit PT100 1/6
Sieve method:	air jet sieving AS 200 jet	Sieve diameter:	200 x 25 mm
Sieves according to standard:	DIN ISO 3310-1	Sieving aids:	No sieving aids
Comment:			

Size class [mm]	p3 [%]	Q3 [%]	Δm [g]	$\Sigma \Delta m$ [g]
< 0.020	28.2	28.2	1.94	1.94
0.020 - 0.040	41.7	69.9	2.87	4.81
0.040 - 0.063	23.3	93.2	1.60	6.41
0.063 - 0.100	5.5	98.7	0.38	6.79
0.100 - 0.200	1.2	99.9	0.08	6.87
> 0.200	0.1	100.0	0.01	6.88

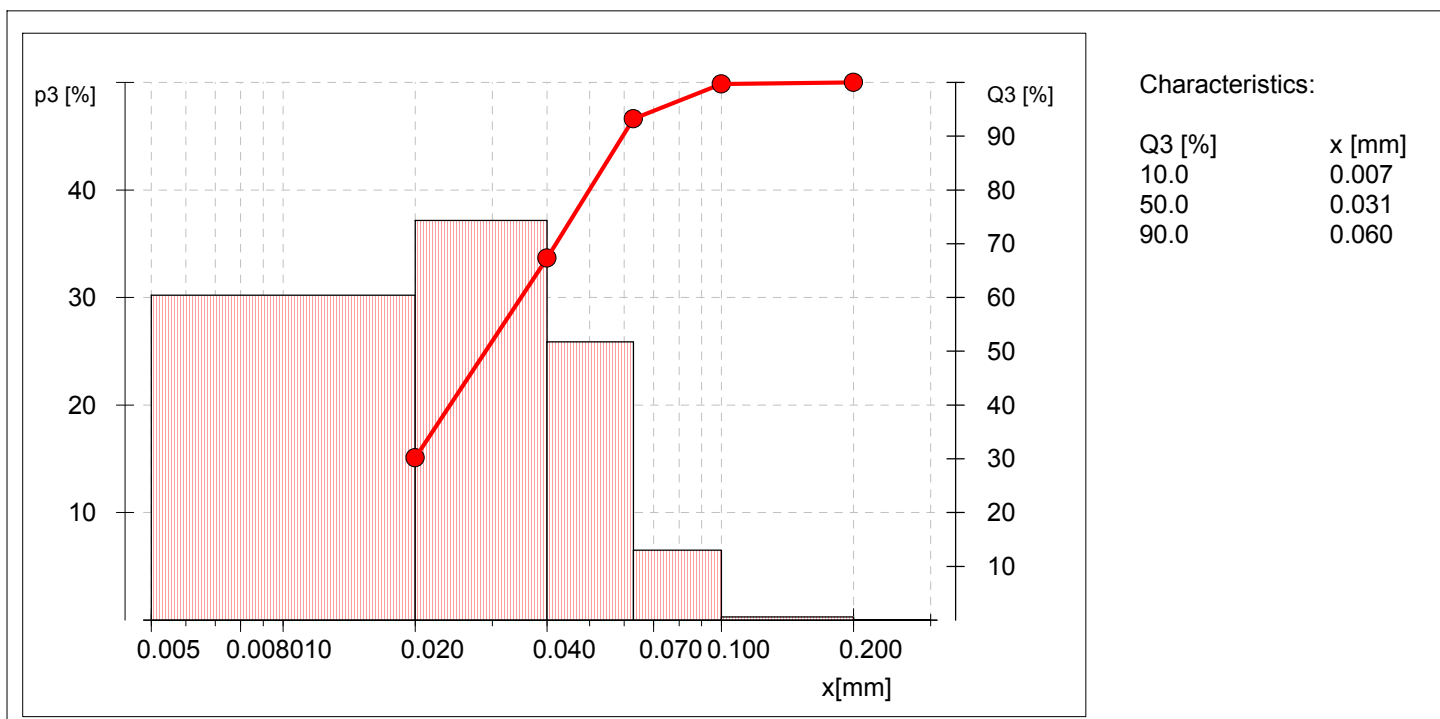


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RETSCH Sieve Analysis

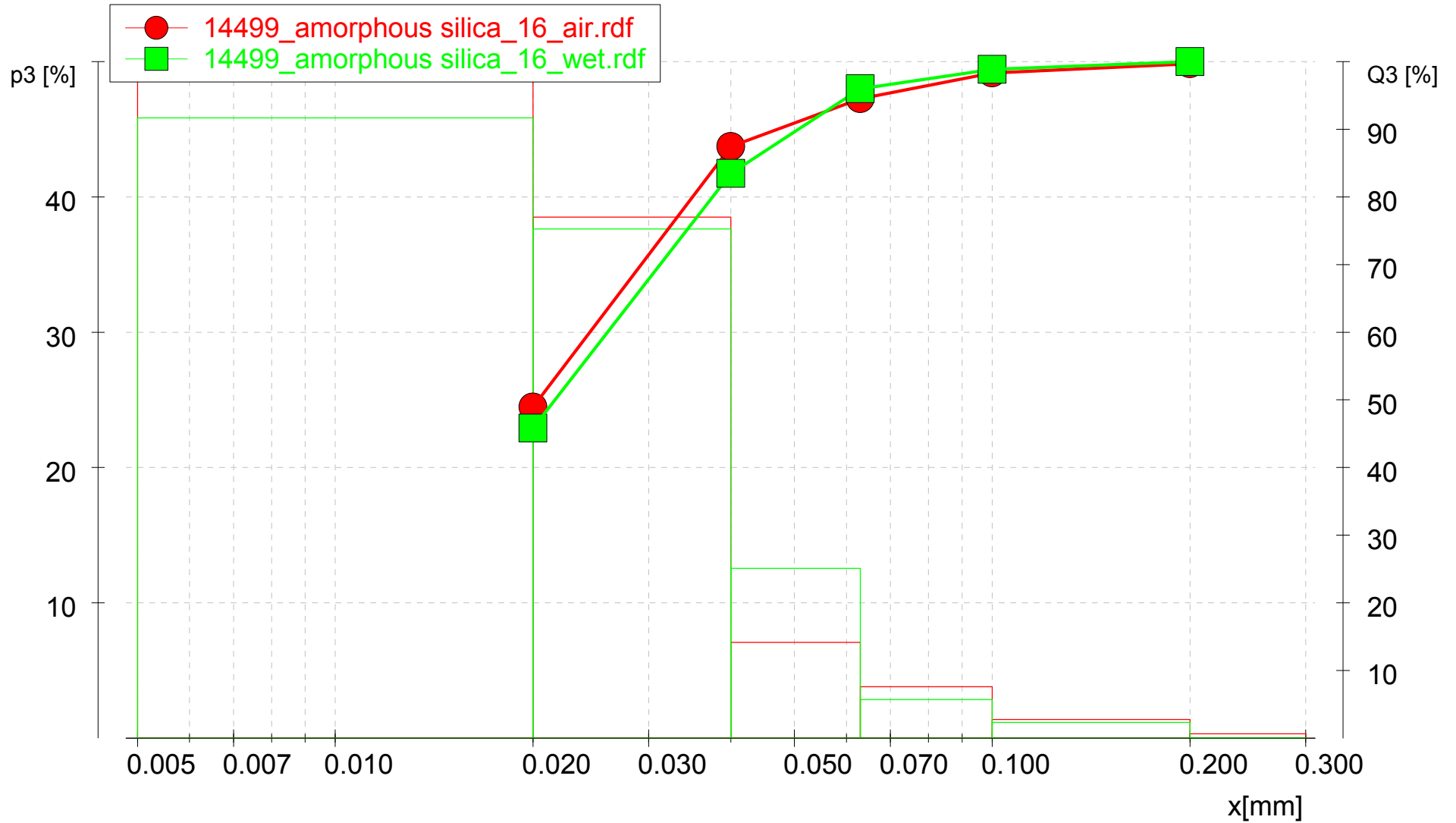
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User:	MA		
Result file:	...ySieve\SIEVEDAT\14499 Amorphe Kieselsäure\14499_amorphous silica_18_wet.rdf		
Task file:	14499 Amorphe Kieselsäure	Size classes file:	14499 Amorphe Kieselsäure.gkl
Date:	19. 4.2013 9:58	Sieving duration [mm:ss]:	01:00
Sieve machine:	AS 200 control	Amplitude [mm]:	1.1
Interval working		Interval time [s]:	10.0
Manual input			
Material:	#18		
Sample quantity [g]:	6.92	Sum loaded sieve weights [g]:	6.92
Sieve loss [%]:	0.00		
Sampling:	Kundenprobe	Sample preparation:	Probenteilung mit PT100 1/6
Sieve method:	Nasssiebung vertikal	Sieve diameter:	200 x 50 mm
Sieves according to standard:	DIN ISO 3310-1	Sieving aids:	No sieving aids
Comment:			

Size class [mm]	p3 [%]	Q3 [%]	Δm [g]	ΣΔm [g]
< 0.020	30.2	30.2	2.09	2.09
0.020 - 0.040	37.1	67.3	2.57	4.66
0.040 - 0.063	25.9	93.2	1.79	6.45
0.063 - 0.100	6.5	99.7	0.45	6.90
0.100 - 0.200	0.3	100.0	0.02	6.92
> 0.200	0.0	100.0	0.00	6.92

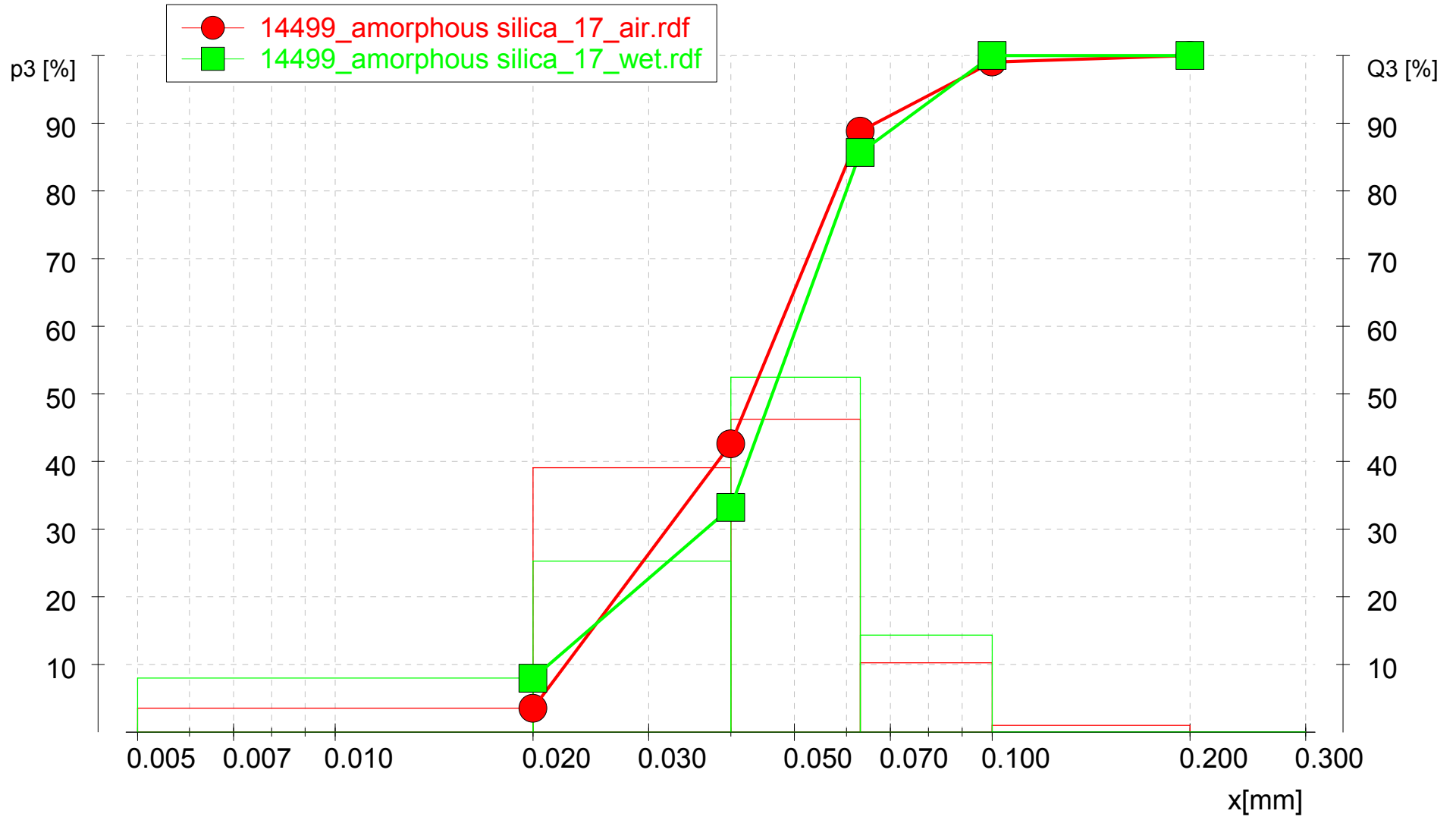


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Graph:
...14499_amorphous silica_16_air.rdf (14499 Amorphe Kieselsäure.afg)



Graph:
...14499_amorphous silica_17_air.rdf (14499 Amorphe Kieselsäure.afg)



Graph:
...14499_amorphous silica_18_air.rdf (14499 Amorphe Kieselsäure.afg)

