

### Client data

Standard Components Corp.  
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### Testing authority

RJL Micro & Analytic GmbH  
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Analysenservice, Marion Graf  
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E-Mail: zentrale@rjl-microanalytic.de

### Work order

Reference number 27000A/14  
Quotation Number 12345/14  
Order Number 67890/14  
Test objective process control  
Test motive routine test



### Test object

Identification Gear wheel  
Part number KG123567890  
Batch number A3-20141201  
Sampling shipping department, 11.02.2015 08:54  
Delivery transparent bag, closed  
Area extracted complete surface  
Number of Samples 1  
Surface area 500.0 cm<sup>2</sup>  
Volume 1000.0 cm<sup>3</sup>  
Test directive VDA-19:2004-09/ISO-16232:2007-06



### Particle extraction

Analysis date 11.02.2015  
Pre-treatment None  
Technique Spraying  
Extraction device RJL MicroEx  
Nozzle type round jet stream  
Nozzle Size Ø 1 mm  
Adaptor Size -  
Extraction fluid solvent cleaning agent Kluthe HAKU 1025-921  
Vol. stream 1.0 l/min  
Fluid amount 4.0 l  
Spray duration 4.0 h  
Spray angle 45.0 °  
Spray distance 150.0 mm  
Feed rate 2.0 mm/s  
- -

### Filtration

Filter preparation Sartorius vacuum filtration unit  
Membrane top PET mesh fabric, 47 mm, 5 µm  
Membrane 2 -  
Membrane 3 -  
Pre-conditioning according to VDA-19  
Drying Cabinet dryer  
Temperature 85.0 °C  
Duration 60 min  
Post-treatment Extraktionsfluid  
Fluid amount 0.500 l

### Particle analysis

Instrument type MicroQuick particle scanner, 4800 dpi  
Particle standard MicroStandard v2.1  
Last verification 16.01.2015  
Pixel size 5.3 µm  
Background level 54.9 %  
Filtre occupancy 1.4 %  
Threshold 70.0 % (0/98)  
Analysis area 15.852 cm<sup>2</sup>  
Auto classification Fibre and gloss analysis

### Gravimetry

Laboratory balance Sartorius VF3837  
Last calibration 01.09.2014  
Resolution +/- 0.01 mg  
Measured value 1.250 mg

### Evaluation

**NOK (details see page 2)**

### Signature

*Martina Mustermann*  
11.02.2015, Martina Mustermann

The results refer to the test sample solely. Interpretations are not covered by the accreditation.

### Results

Numbers scaled	to 1 sample
Inspected lot size	1 sample
Scaling factor	1.000

### Summary results

	Measured	Tolerable
Particle mass (mg)	1.250	<b>1.500</b>
Total fibre length (mm)	36.735	
Total fibre elongation (mm)	43.684	

Particle fractions	Number	Area (mm <sup>2</sup> )	Mass share estimated (mg)	Longest particle (µm)
Granules, matt	1570	17.264	1.093	2214 x 1348
Granules, metallic glossy	42	1.536	0.097	1428 x 274
Fibres, matt	89	0.935	0.059	1996 x 19
Fibres, glossy	0	0.000	0.000	-

### Length-number histogram

Frequency not cumulated

Number per length class (µm)	Total	[25; 50)	[50; 100)	[100; 150)	[150; 200)	[200; 400)	[400; 600)	[600; 1000)	[1000; 1500)	[1500; 2000)	[2000; 3000)	[3000; ...)
Granules matt*	1570	527	469	218	135	172	33	13	1	1	1	0
Granules metallic glossy*	42	19	10	1	1	3	3	3	2	0	0	0
Fibres matt	89	3	6	9	8	29	16	11	5	2	0	0
Fibres glossy	0	0	0	0	0	0	0	0	0	0	0	0
Particles in selected classes* tolerable particles	1612	546	479	219	136	175	36	16	3	1	1	0

Component cleanliness code\* (CCC) NN.

Sedimentation number\* 189046 / (1 h x 1000 cm<sup>2</sup>)

### Length-number histogram

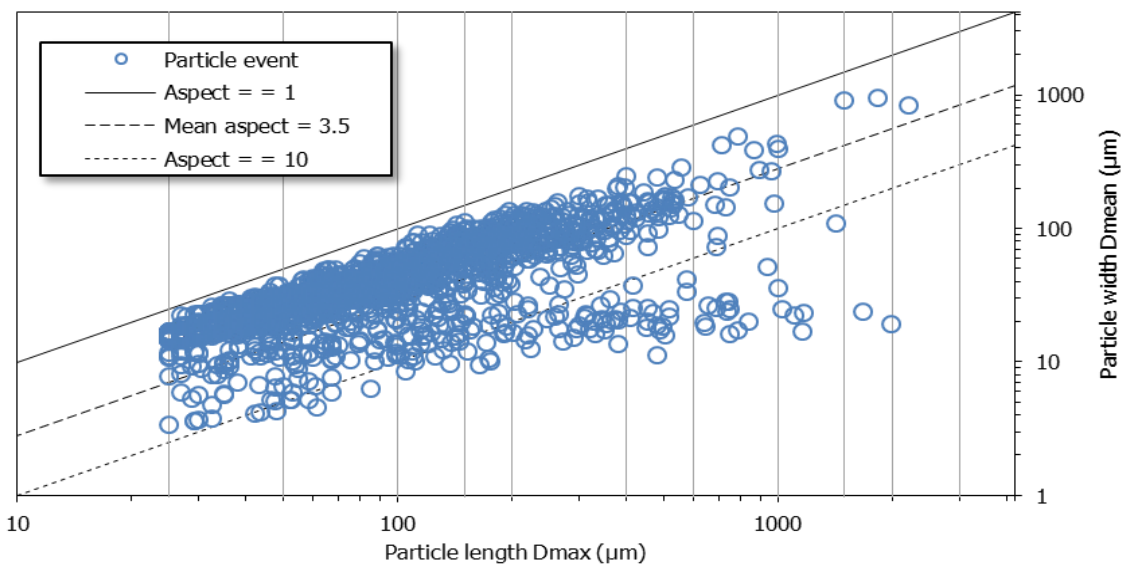
Frequency not cumulated

Number per length class (µm)	Total	[25; 50)	[50; 100)	[100; 150)	[150; 200)	[200; 400)	[400; 600)	[600; 1000)	[1000; 1500)	[1500; 2000)	[2000; 3000)	[3000; ...)
Granules matt	1570	527	469	218	135	172	33	13	1	1	1	0
Granules metallic glossy	42	19	10	1	1	3	3	3	2	0	0	0
Fibres matt*	89	3	6	9	8	29	16	11	5	2	0	0
Fibres glossy	0	0	0	0	0	0	0	0	0	0	0	0
Particles in selected classes* tolerable particles	89	3	6	9	8	29	16	11	5	2	0	0

Component cleanliness code\* (CCC) NN.

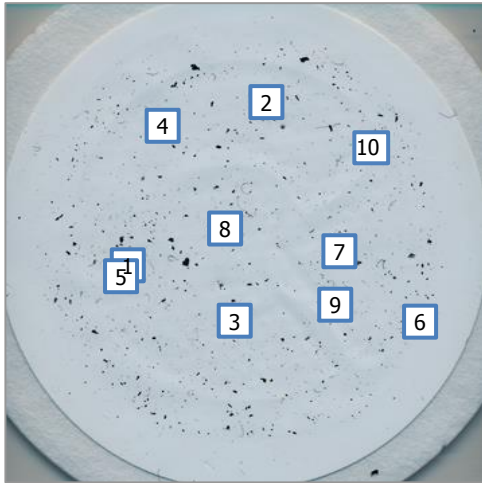
Sedimentation number\* 94404 / (1 h x 1000 cm<sup>2</sup>)

### Width-length diagramm



0) Filter membrane

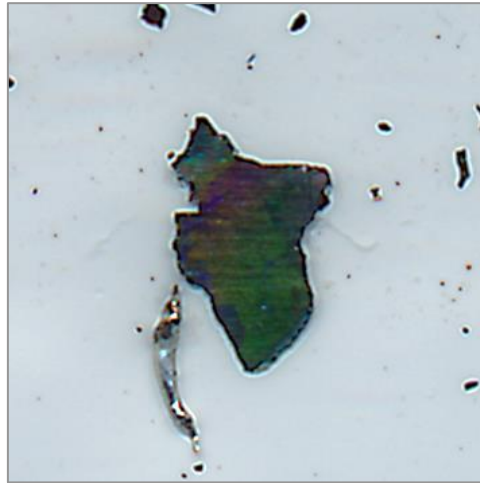
Sample name: Kupplungsgehäuse



4.5 cm

1) Granule, matt (biggest particle)

Length 2214 µm, Width 1348 µm



2500 µm

2) Fibre, matt

Length 1996 µm, Width 26 µm



2000 µm

3) Granule, matt

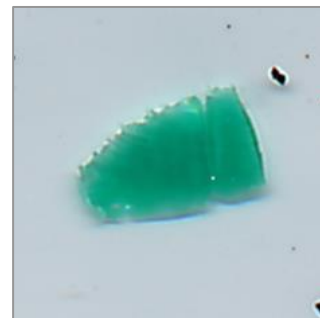
Length 1832 µm, Width 949 µm



1500 µm

4) Granule, matt

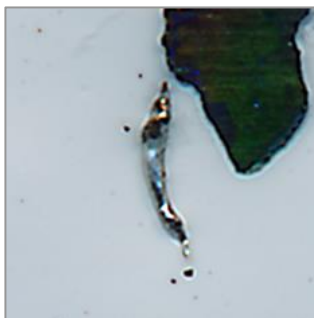
Length 1489 µm, Width 917 µm



1500 µm

5) Granule, metallic glossy

Length 1428 µm, Width 274 µm



1500 µm

6) Fibre, matt

Length 1174 µm, Width 26 µm



1000 µm

7) Granule, metallic glossy

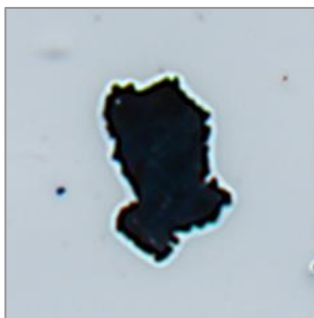
Length 1005 µm, Width 395 µm



1000 µm

8) Granule, matt

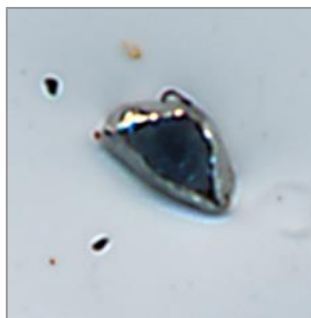
Length 997 µm, Width 637 µm



1000 µm

9) Granule, metallic glossy

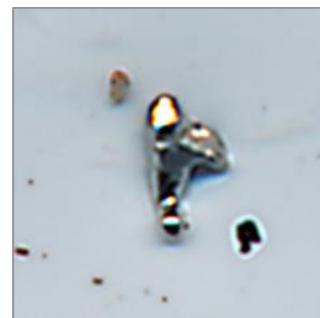
Length 785 µm, Width 490 µm



1000 µm

10) Granule, metallic glossy

Length 713 µm, Width 421 µm



1000 µm