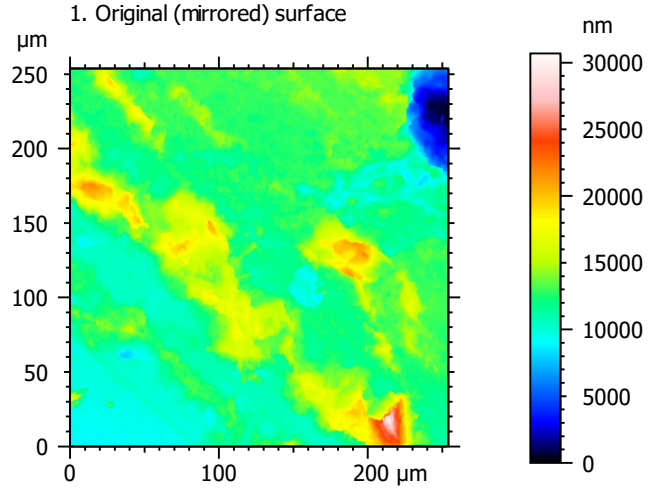
Quantitative use-wear analysis: 'artificial VS natural' experiment
Template to process all surfaces aquired with the LSM with the 50x/0.95 and the 20x/0.70 objectives.

This template is used for eight samples measured five times (before, 50 strokes, 250 strokes, 1000 strokes and 2000 strokes). The measurements taken on moulds instead of original surfaces have been mirrored before. All surfaces have been alligned and resampled previously. Each sample was measured three times at non-identical spots. In total, this template is used for 120 surfaces/measurements.

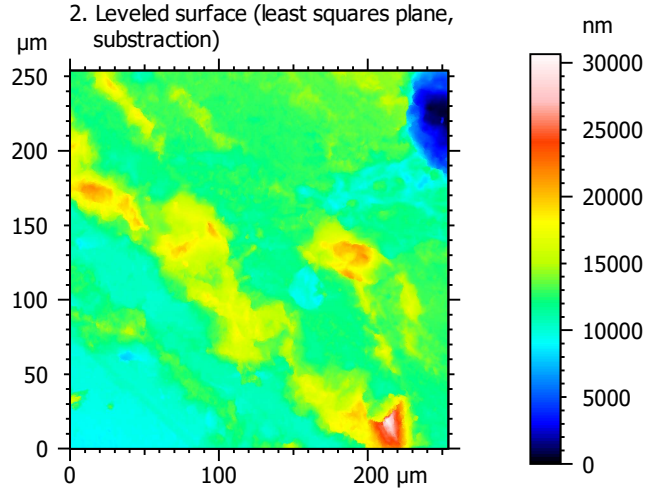
A. Processing

1. Original (mirrored) surface

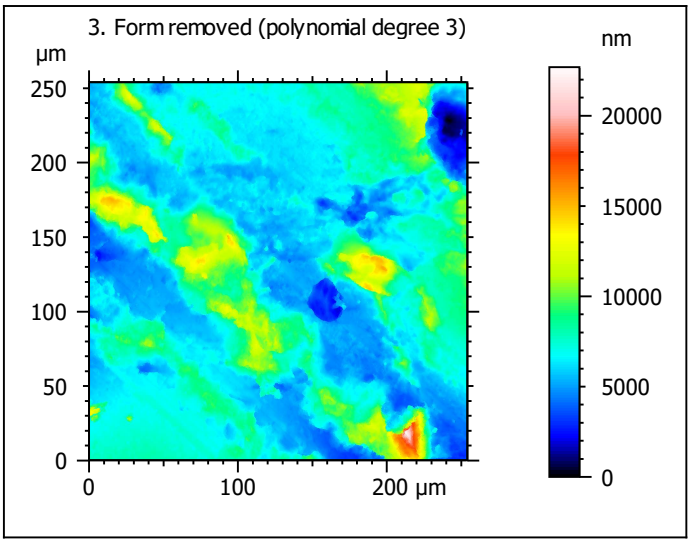


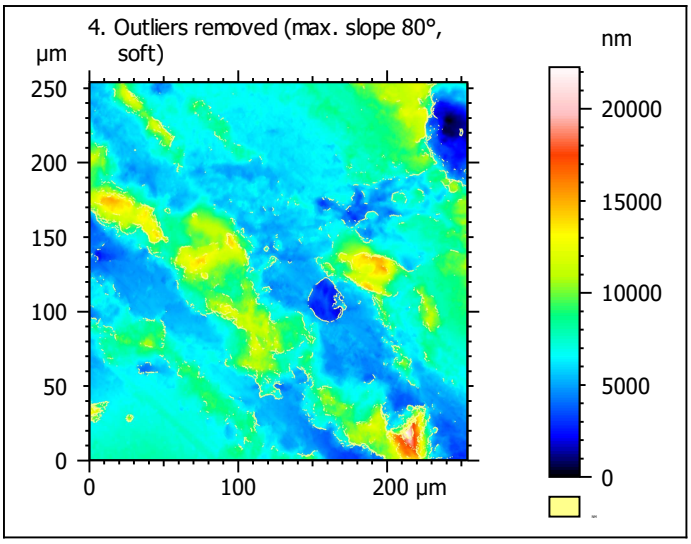
Identity card		
Name:	resampling --- FLT4-7_0_A	
Created on:	8/5/2021 10:37:26 AM	
Axis:	**X**	
Length:	254.0	µm
Size:	1198	points
Spacing:	0.2122	µm
Axis:	**Y**	
Length:	253.9	µm
Size:	1198	points
Spacing:	0.2121	µm
Axis:	**Z**	
Layer type:	Topography	
NM-points ratio:	0.000 % (0 Pts)	

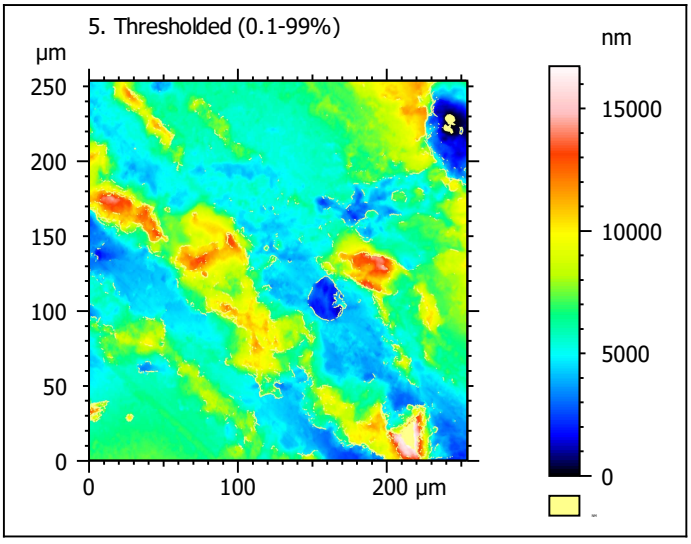
2. Leveled surface (least squares plane, substraction)

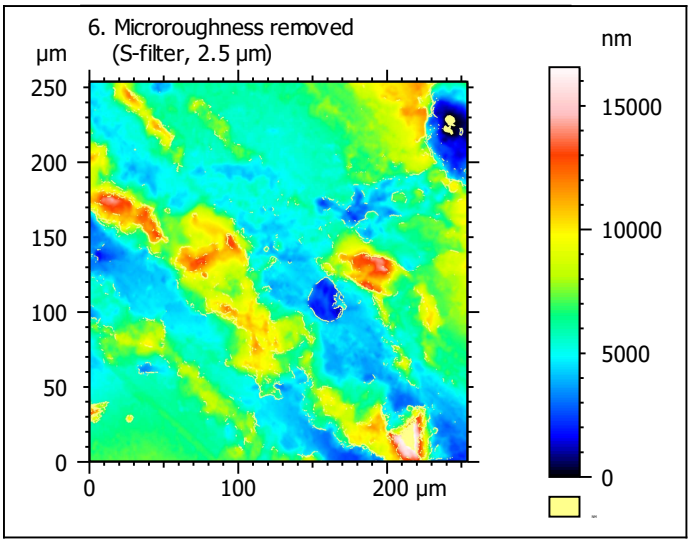


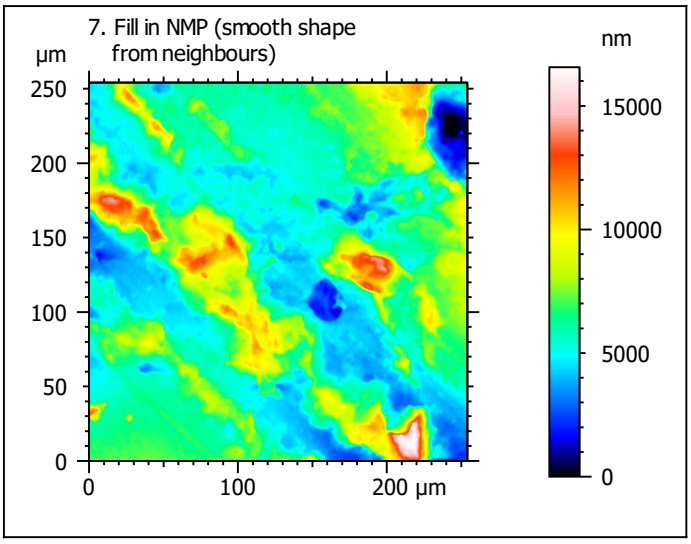
Identity card		
Name:	resampling --- FLT4-7_0_A > Leveled (LS-plane)	
Created on:	8/5/2021 10:37:26 AM	
Axis:	**X**	
Length:	254.0	µm
Size:	1198	points
Spacing:	0.2122	µm
Axis:	**Y**	
Length:	253.9	µm
Size:	1198	points
Spacing:	0.2121	µm
Axis:	**Z**	
Layer type:	Topography	
NM-points ratio:	0.000 % (0 Pts)	





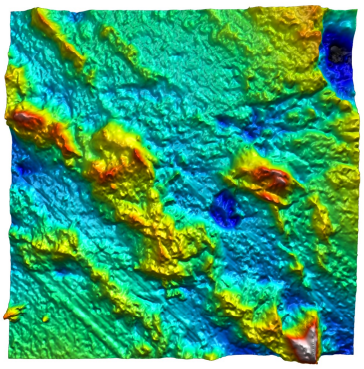


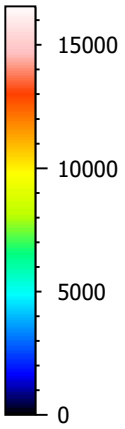




Identity card			
Name:	resampling --- FLT4-7_0...in non-measured points		
Created on:	8/5/2021 10:37:26 AM		
Axis:	**X**		
Length:	254.0	µm	
Size:	1198	points	
Spacing:	0.2122	µm	
Axis:	**Y**		
Length:	253.9	µm	
Size:	1198	points	
Spacing:	0.2121	µm	
Axis:	**Z**		
Layer type:	Topography		
NM-points ratio:	0.000 % (0 Pts)		

7. Fill in NMP (smooth shape from neighbours)

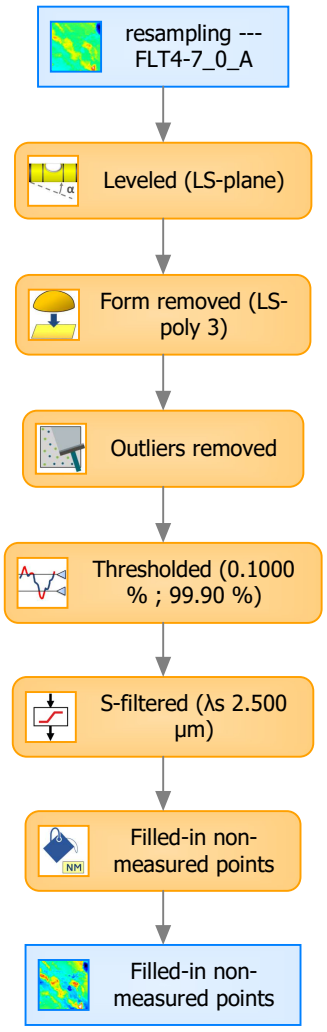




B. Analyses

8. ISO 25178-2 parameters on surface #7

ISO 25178 - Primary surface		
F: [Workflow] Form removed (LS-poly 3)		
S-filter (λs): [Workflow] S-filtered (λs 2.500 µm)		
Height parameters		
Sq	2145	nm
Ssk	0.8130	
Sku	4.587	
Sp	10196	nm
Sv	6366	nm
Sz	16562	nm
Sa	1623	nm
Functional parameters		
Smr	0.1959	%
Smc	2946	nm
Sxp	3232	nm
Spatial parameters		
Sal	17.48	µm
Str	0.5510	
Std	128.8	°
Hybrid parameters		
Sdq	0.4214	
Sdr	7.041	%
Functional parameters (Volume)		
Vm	0.1518	µm³/µm²
Vv	3.098	µm³/µm²
Vmp	0.1518	µm³/µm²
Vmc	1.701	µm³/µm²
Vvc	2.922	µm³/µm²
Vvv	0.1753	µm³/µm²



Analyses:

ISO 25178 8.

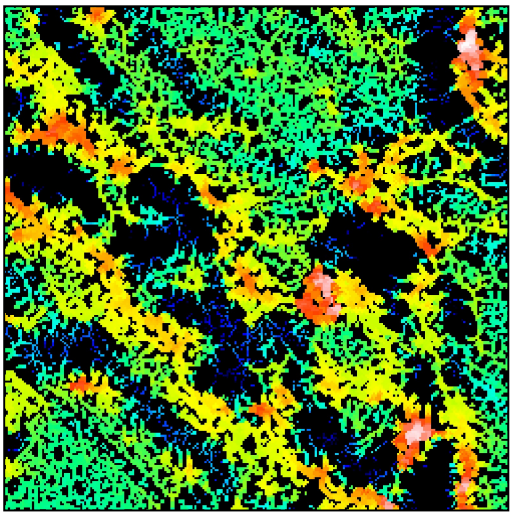
Furrow 9.

Texture direction 10.

Texture isotropy 11.

SSFA 12.

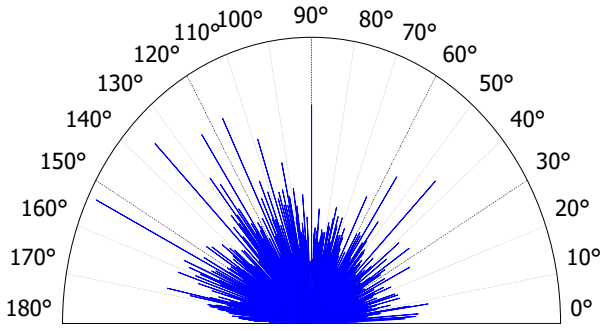
9. Furrow analysis on surface #7



All furrows are shown.

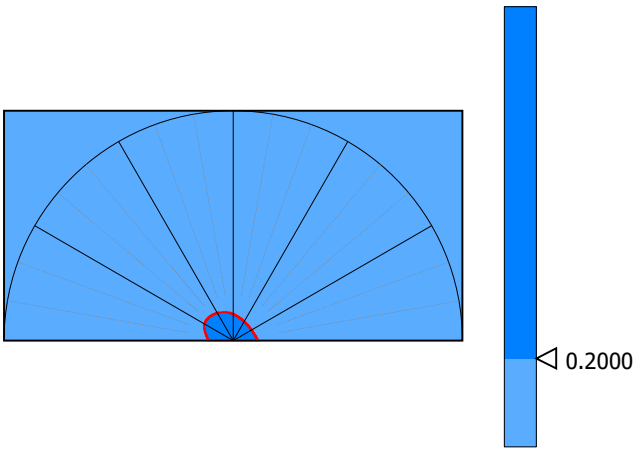
Parameters	Value	Unit
Maximum depth of furrows	7142	nm
Mean depth of furrows	3078	nm
Mean density of furrows	2099	cm/cm2

10. Texture direction on surface #7



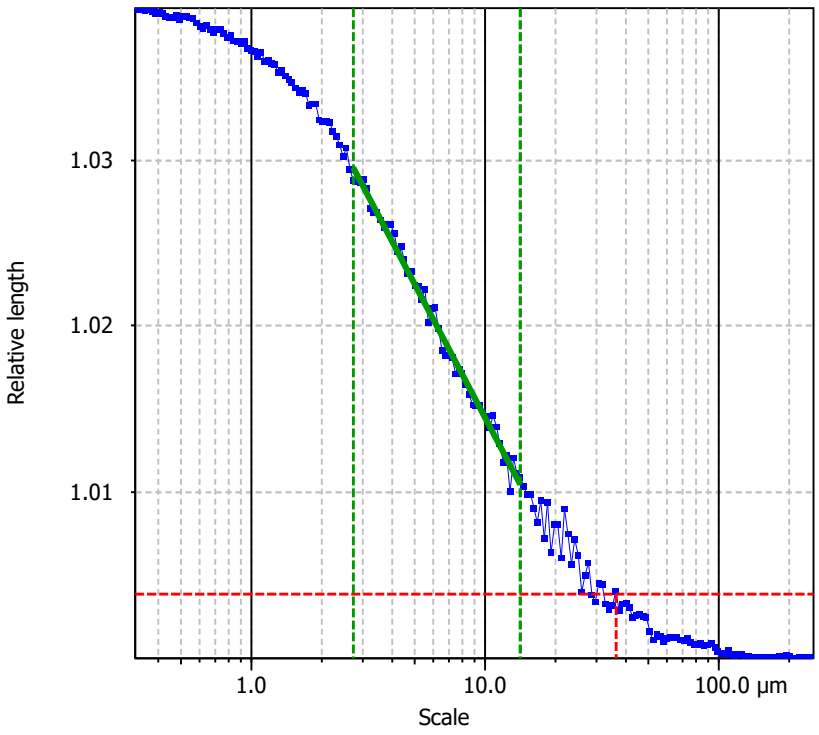
Parameters	Value	Unit
Isotropy	55.10	%
First direction	180.0	°
Second direction	153.5	°
Third direction	135.0	°

11. Texture isotropy on surface #7



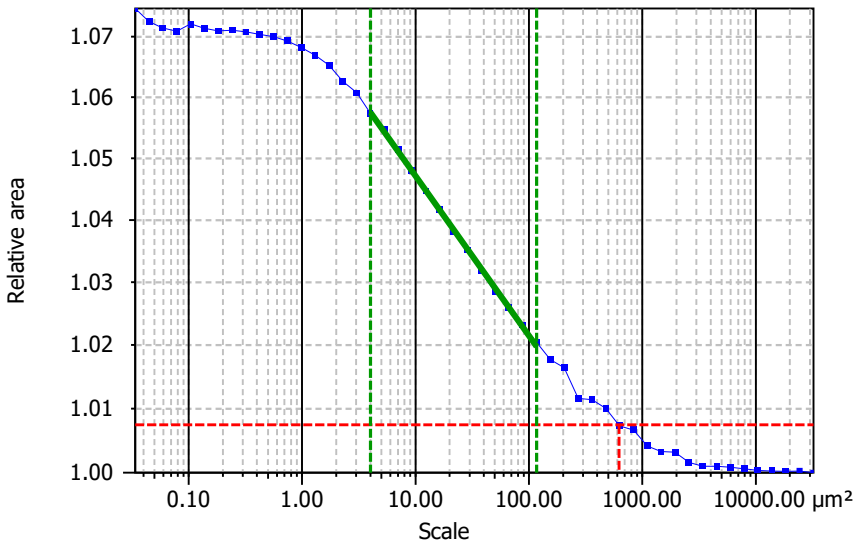
Parameters	Value	Unit
Texture isotropy	61.59	%

12. SSFA on surface #7



Information	
Method	Length-scale (rows)

Parameters	Value	Unit	Comment
epLsar	0.002862		*Length-scale anisotropy (Sfrax) (1.8 µm, 5°)*
NewEplsar	0.01768		*Length-scale anisotropy (1.8 µm, 5°)*



Information	
Method	Area-scale (four corners)

Parameters	Value	Unit	Comment
Asfc	10.77		*Fractal complexity*
Smfc	16.35	µm²	*Scale of max complexity*
HAsfc9	0.2845		*Heterogeneity of Asfc (3x3)*
HAsfc81	0.6833		*Heterogeneity of Asfc (9x9)*