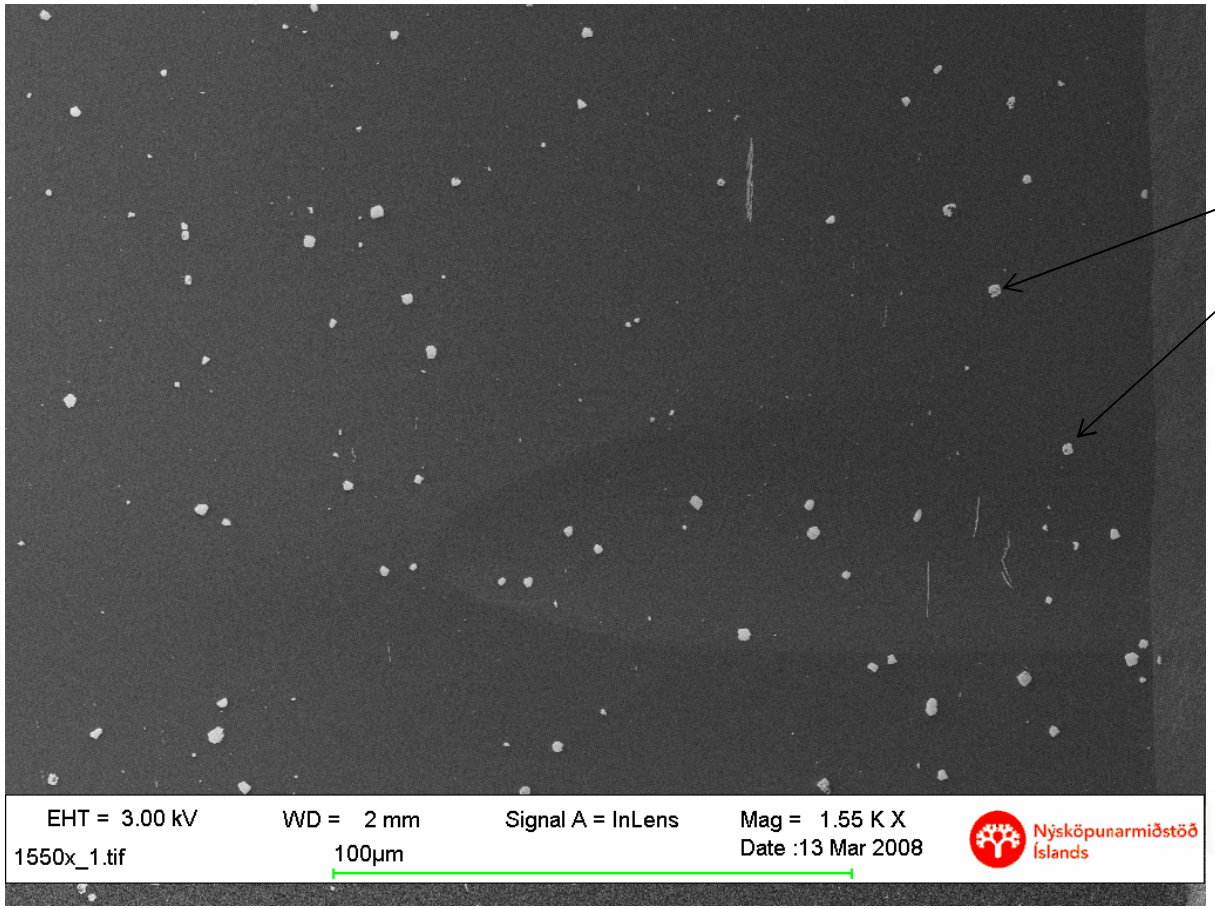
Innovation Centre
Iceland

Materials supplied

- Stainless steel (304)
- Polyethylene with antibacterial silver from AgIon
  - From Bio-Guard Plastics
- Coated steel – white
  - Antibacterial epoxy coating from IGP (www.igp.ch)
- Coated steel - grey
  - Epoxy coating from DuPont (Teodur)

Polyethylene with antibacterial silver



Zeolites with silver ions

Ag^+ ions released upon use

AgIon technology

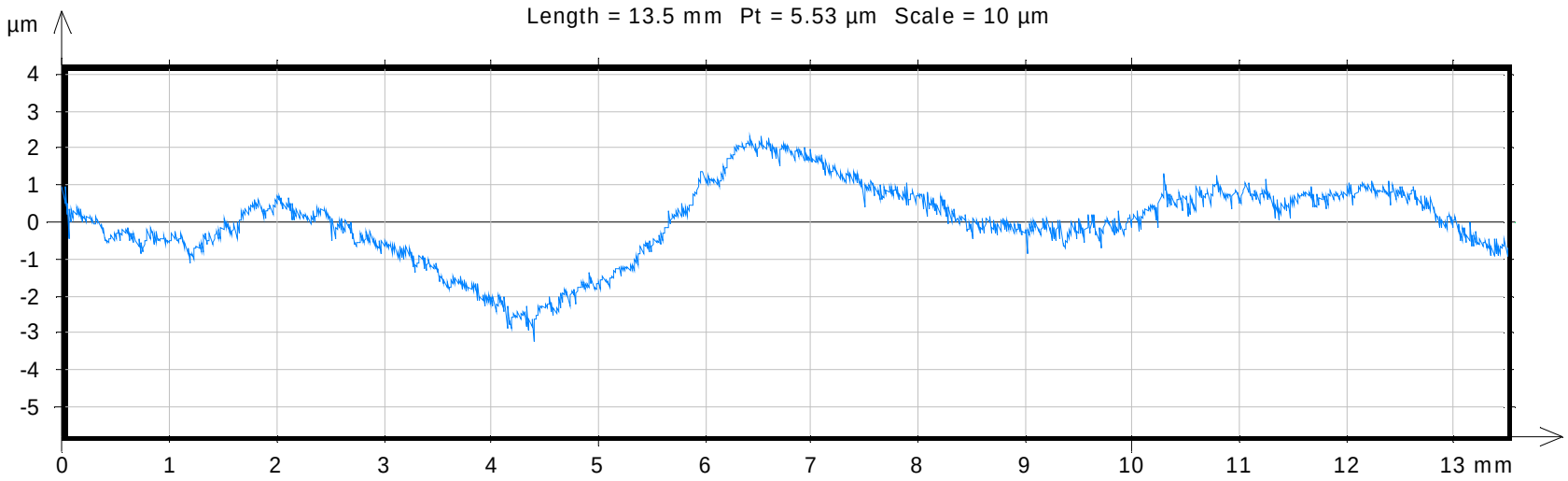
Contact angle mesurements

Fresh materilas

	Contact angle of liquid (°)		
	Water	Ethylene glycol	Diiodomethane
Stainless steel	117	89	66
Coated steel – white	102	83	39
Coated steel - grey	86	64	25
Polyethylene with silver	99	69	55

- Surface energy (contact angle) may change with time and use
- All materails hydrophobic

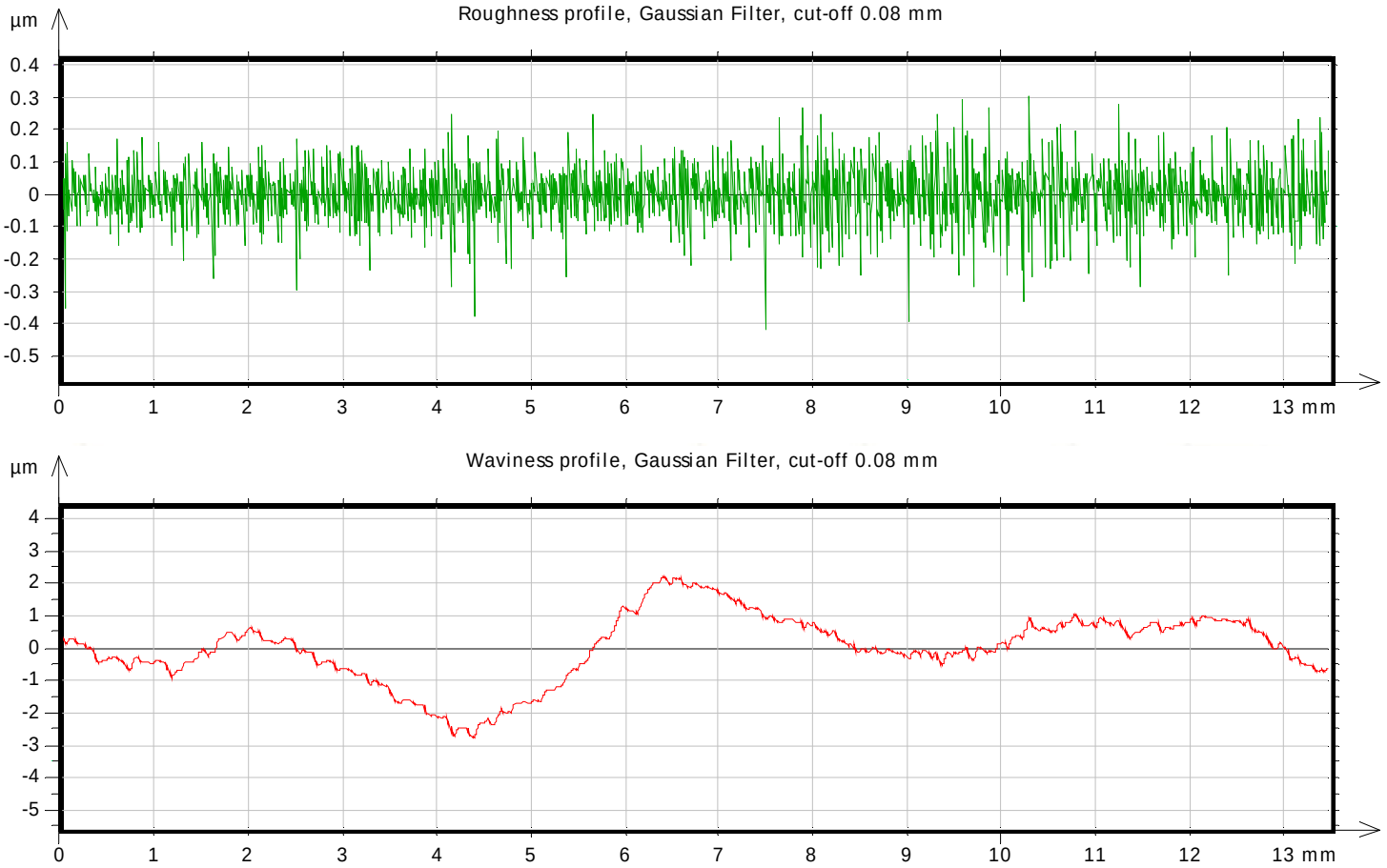
Roughness measured with optical profilometer



Raw profile for coated steel – white

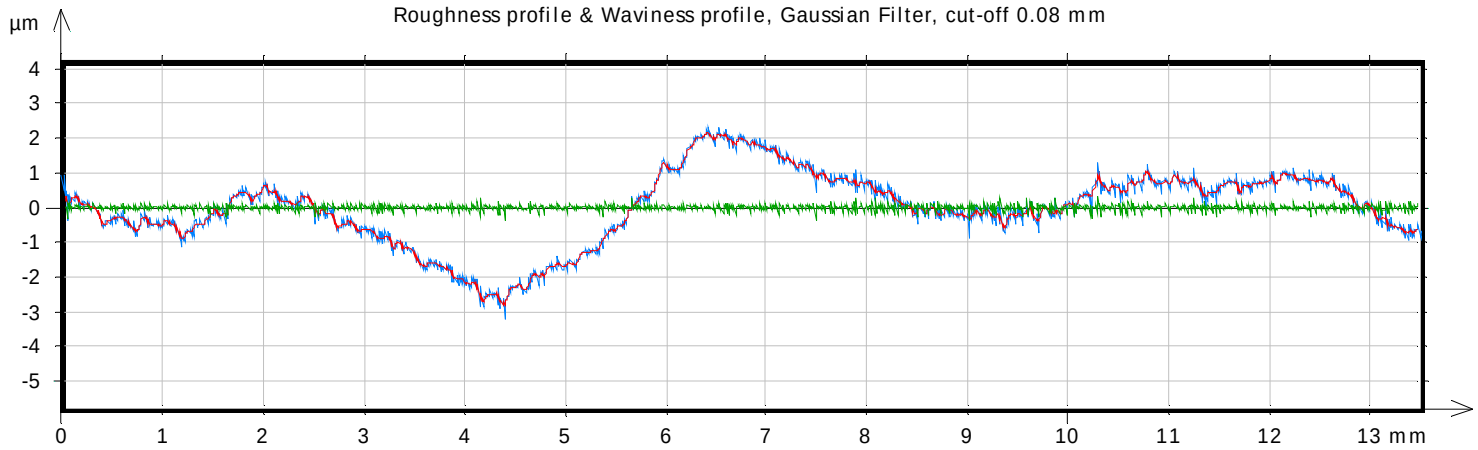
Profile separated into a roughness profile and a waviness profile by using a Gaussian filter

Separation of profile into roughness and waviness

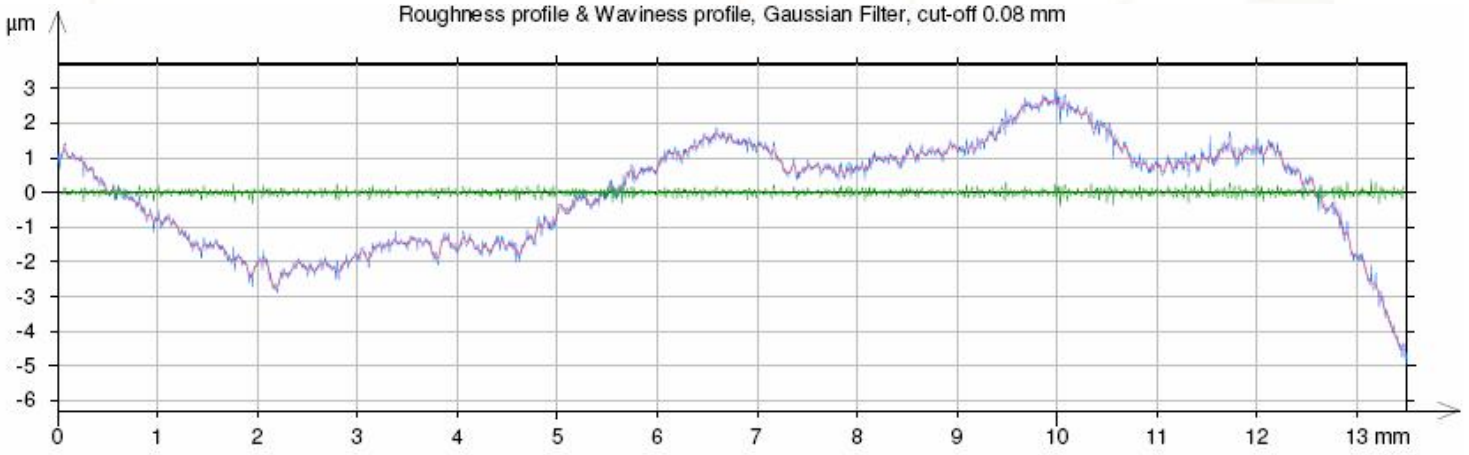


Note: differen scales

Raw profile, waviness and roughness plotted together

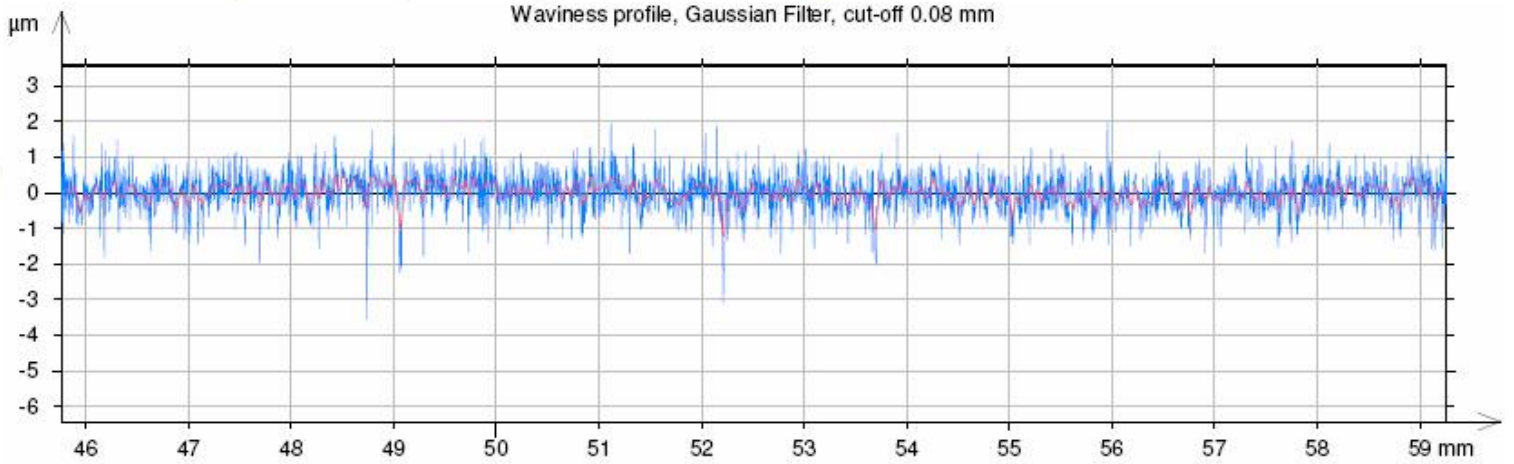


Coated stee
- white

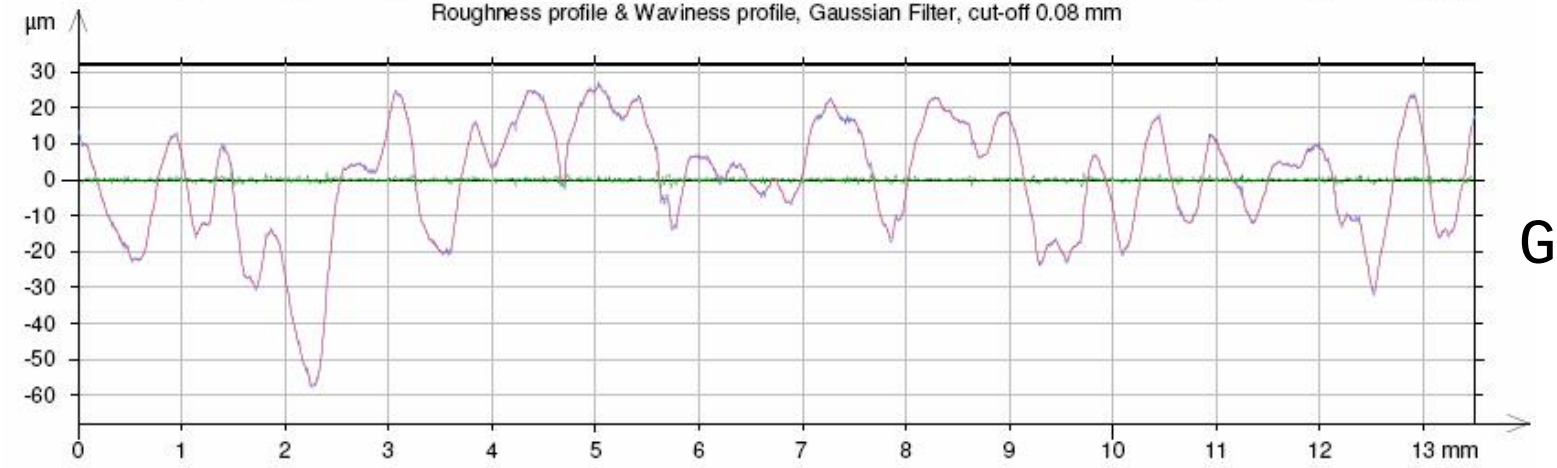


Coated stee
- grey

Raw profile, waviness and roughness plotted together



Steel



Grey plast

Surface roughness and waviness

		Steel	White coated steel	Grey coated steel	Grey plastic
Roughness average	Ra (µm)	0,28	0,062	0,050	0,282
RMS roughness	Rq (µm)	0,36	0,077	0,062	0,356
Average max. height	Rz (µm)	1,4	0,29	0,23	1,31
Mean spacing of profile irregularities	Rsm (mm)	0,022	0,033	0,033	0,035
Waviness average	Wa (µm)	0,18	1,12	1,04	12,3
RMS Waviness	Wq (µm)	0,20	1,13	1,05	12,6
Average max. height	Wz (µm)	0,34	0,23	0,23	6,44
Mean spacing of profile irregularities	Wsm (mm)	0,18	2,36	2,27	0,89

Surface roughness and waviness
Steel - Ozone treated

		Steel	Steel 1	Steel 2	Steel 3
Roughness average	Ra (µm)	0,28	0,24	0,24	0,23
RMS roughness	Rq (µm)	0,36	0,30	0,30	0,29
Average max. height	Rz (µm)	1,4	1,1	1,1	1,1
Mean spacing of profile irregularities	Rsm (mm)	0,022	0,034	0,035	0,035
Waviness average	Wa (µm)	0,18	0,28	0,27	0,27
RMS Waviness	Wq (µm)	0,20	0,32	0,31	0,31
Average max. height	Wz (µm)	0,39	0,69	0,57	0,56
Mean spacing of profile irregularities	Wsm (mm)	0,18	0,17	0,18	0,18

Surface roughness and waviness White steal - Ozone treated

		White coated steel	White coated steel -1	White coated steel -2	White coated steel -3
Roughness average	Ra (µm)	0,062	0,093	0111	0,093
RMS roughness	Rq (µm)	0,077	0,12	0,13	0,11
Average max. height	Rz (µm)	0,29	0,40	0,47	0,40
Mean spacing of profile irregularities	Rsm (mm)	0,033	0,041	0,042	0,041
Waviness average	Wa (µm)	1,13	1,3	1,4	1,3
RMS Waviness	Wq (µm)	1,13	1,3	1,4	1,4
Average max. height	Wz (µm)	0,23	0,36	0,42	0,34
Mean spacing of profile irregularities	Wsm (mm)	2,36	1,55	1,38	1,82

Surface roughness and waviness
Gray steal - Ozone treated

		Grey coated steel	Grey coated steel - 1	Grey coated steel - 2	Grey coated steel - 3
Roughness average	Ra (µm)	0,050	0,11	0,069	0,084
RMS roughness	Rq (µm)	0,062	0,13	0,085	
Average max. height	Rz (µm)	0,23	0,46	0,30	0,36
Mean spacing of profile irregularities	Rsm (µm)	0,033	0,043	0,042	0,042
Waviness average	Wa (µm)	1,04	1,53	1,02	1,08
RMS Waviness	Wq (µm)	1,05	1,55	1,03	1,09
Average max. height	Wz (µm)	0,23	0,44	0,29	0,34
Mean spacing of profile irregularities	Wsm (mm)	2,27	1,82	1,97	1,51