

LAMPIRAN



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET DAN TEKNOLOGI
UNIVERSITAS NEGERI MALANG (UM)
FAKULTAS TEKNIK
Jl Semarang 5 Malang 65145
Telepon: 0341-565307
Laman: www.um.ac.id

SURAT KETERANGAN

Yang bertanda tangan di bawah ini :

Nama : Drs. Imam Sudjono, MT
NIP : 196003271986011002
Jabatan : Kepala Laboratorium Teknik Mesin FT UM

Menerangkan bahwa :

Nama : M. Farid Fauzi (NIM 2011901)
Asal : Mahasiswa Prodi Teknik Mesin
Institut Teknologi Nasional (ITN) Malang

Telah melaksanakan penelitian (Uji microvickers, Fotomacro dan Uji Sem) di Laboratorium Teknik Mesin Fakultas Teknik Universitas Negeri Malang untuk keperluan penyusunan skripsi. Demikian Surat Keterangan ini dibuat dengan sebenarnya.

Malang, 13 Januari 2022
Kepala Lab. Teknik Mesin

Drs. IMAM SUDJONO, MT
NIP 196003271986011002



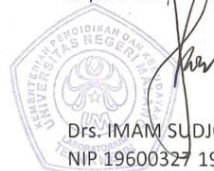
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HASIL UJI KEKERASAN MICROVICKERS
M. FARID FAUZI (NIM 2011901)
INSTITUT TEKNOLOGI NASIONAL MALANG

No	Kode Spesimen	Kekerasan (HV)				
		titik 1	titik 2	titik 3	titik 4	titik 5
1	4140	308.8	297.9	287.8	310.8	320.0
2	700	748.7	753.0	770.4	776.6	706.4
3	800	696.3	686.4	762.7	724.8	684.5
4	900	895.5	875.6	780.5	679.9	770.4

force : 500 gram
dwell : 10 detik

Malang, 17 Desember 2021
Kepala Lab. Teknik Mesin UM



Dr. IMAM SUDJONO, MT
NIP. 19600327 198601 1002



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Application Note

Company / Department

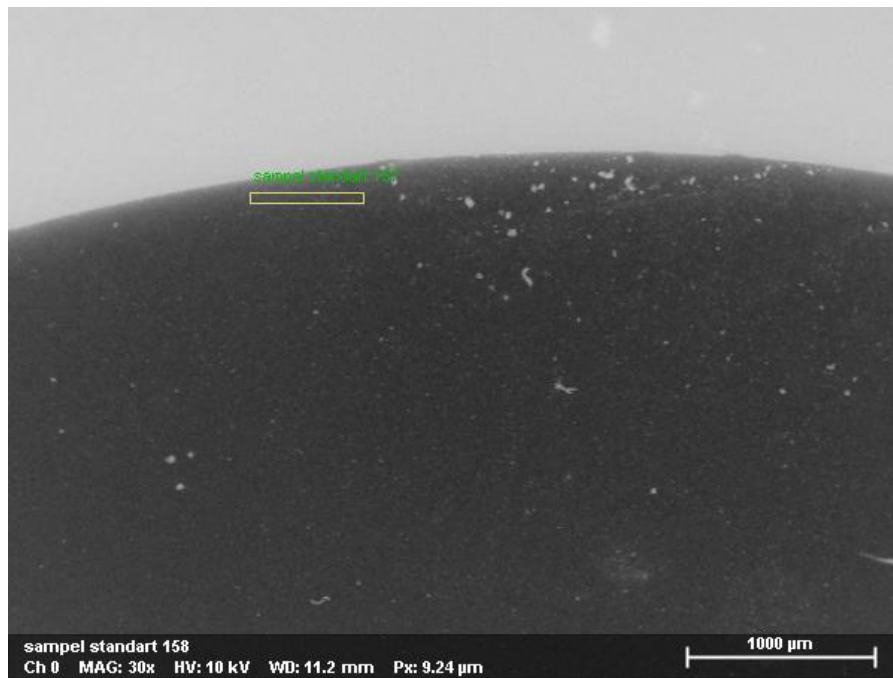


Author : Teknik mesin UM

Creator : 1/7/2022

Sample Name : AISI 4140

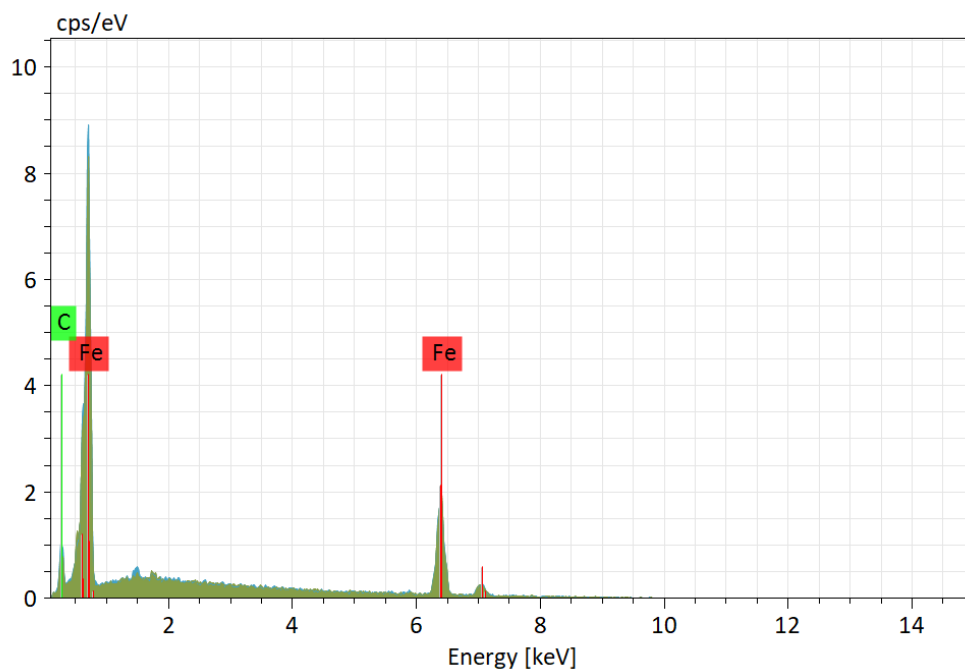
Area 1





Application Note

Company / Department



sampel standart 155

Element	At. No.	Netto	Mass [%]	Mass Norm. [%]	Atom [%]	abs. error [%] (1 sigma)	rel. error [%] (1 sigma)
Fe	26	5176	98.28	93.53	75.65	4.71	4.80
C	6	1059	6.80	6.47	24.35	1.54	22.66
		Sum	105.08	100.00	100.00		



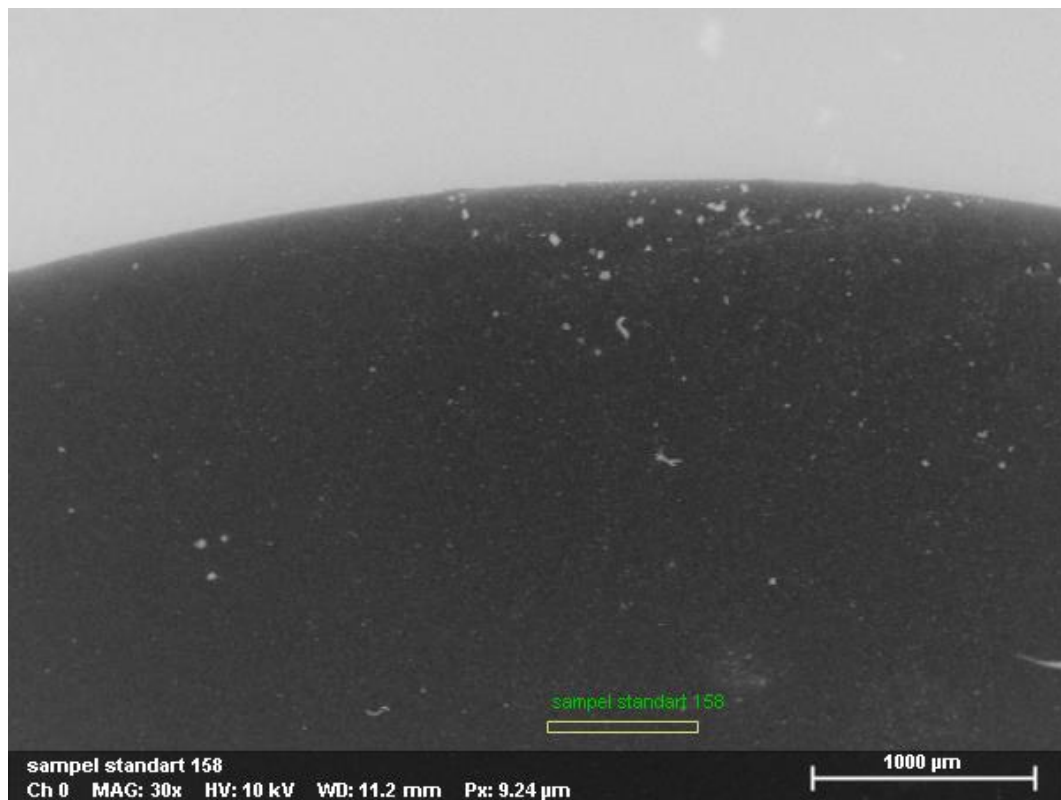
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Application Note

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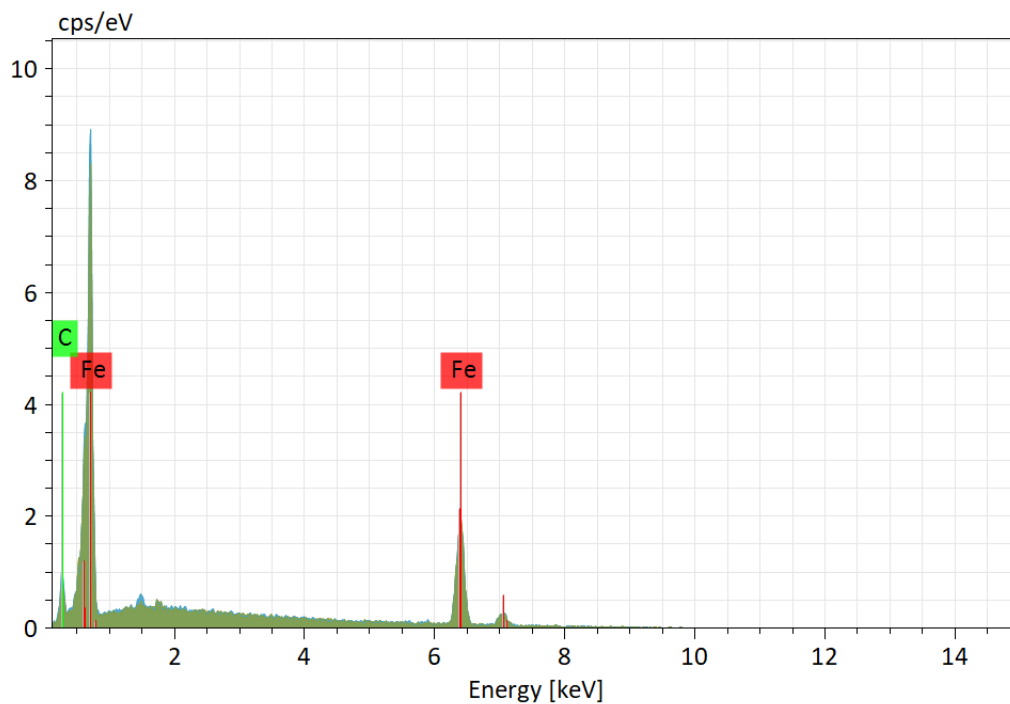
Area 2





Application Note

Company / Department



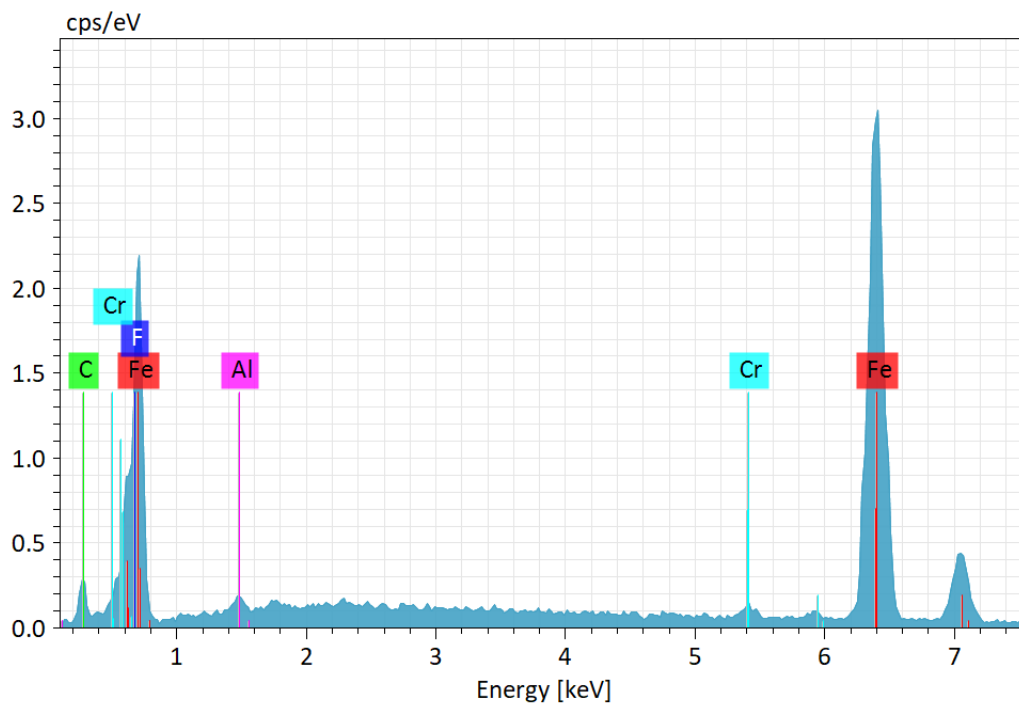
sampel standart 156

Element	At. No.	Netto	Mass [%]	Mass Norm. [%]	Atom [%]	abs. error [%] (1 sigma)	rel. error [%] (1 sigma)
Fe	26	5483	109.40	94.59	79.01	5.22	4.77
C	6	916	6.25	5.41	20.99	1.48	23.62
O	8	0	0.00	0.00	0.00	0.00	10.00
		Sum	115.65	100.00	100.00		



Application Note

Company / Department



sampel standart 215

Element	At. No.	Netto	Mass [%]	Mass Norm. [%]	Atom [%]	abs. error [%] (1 sigma)	rel. error [%] (1 sigma)
Fe	26	16528	94.14	89.02	66.63	2.91	3.09
C	6	624	8.95	8.47	29.47	2.35	26.29
F	9	377	1.07	1.01	2.22	0.35	32.94
Cr	24	307	0.92	0.87	0.70	0.09	9.61
Al	13	232	0.67	0.63	0.98	0.09	13.22
		Sum	105.75	100.00	100.00		



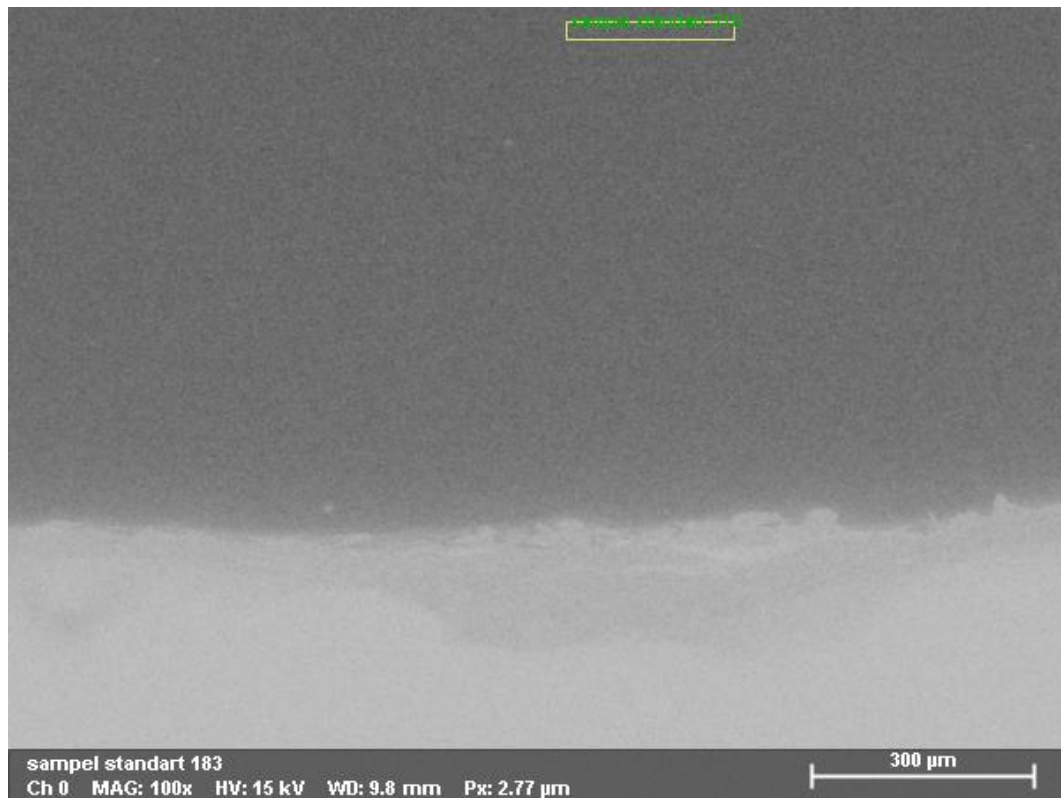
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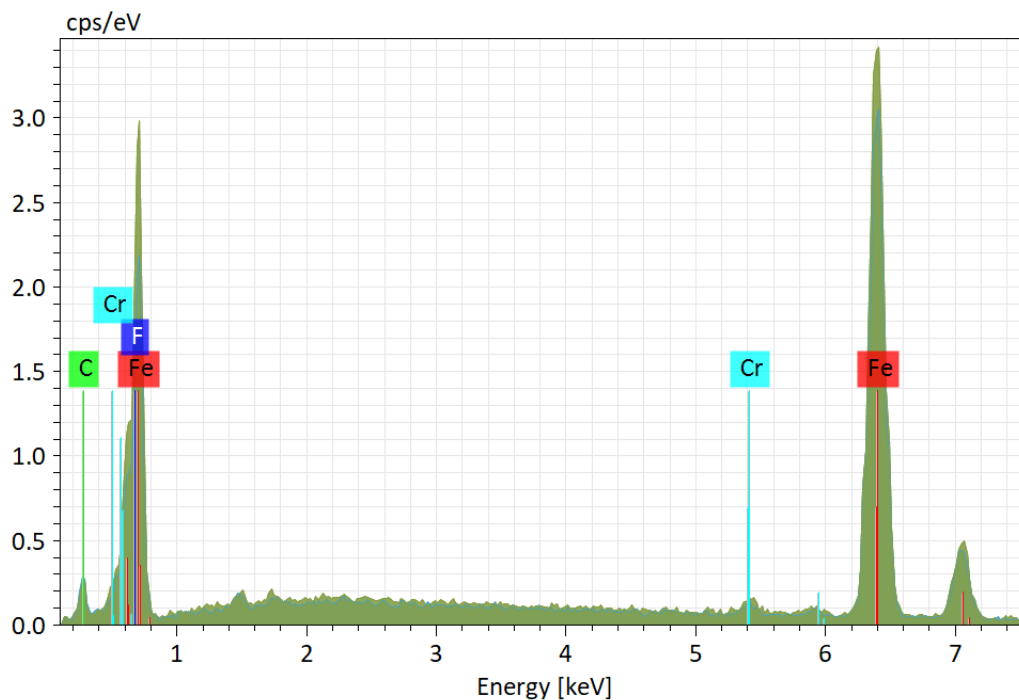
Area 2





Application Note

Company / Department



sampel standart 216

Element	At. No.	Netto	Mass [%]	Mass Norm. [%]	Atom [%]	abs. error [%] (1 sigma)	rel. error [%] (1 sigma)
Fe	26	16219	95.65	91.08	72.01	2.96	3.09
C	6	453	6.78	6.45	23.72	1.98	29.17
F	9	540	1.55	1.47	3.42	0.45	28.83
Cr	24	337	1.04	0.99	0.84	0.09	9.06
		Sum	105.02	100.00	100.00		



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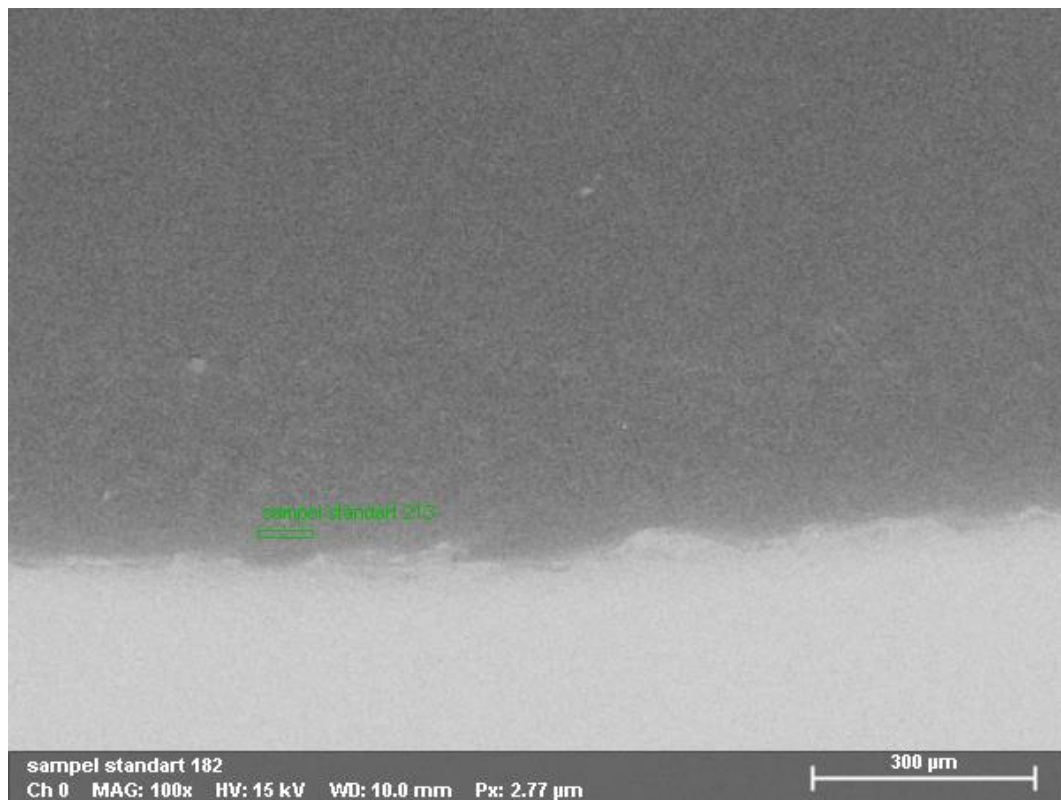
Application Note

Company / Department



Author : Teknik mesin UM
Creator : 1/7/2022
Sample Name : AISI 4140 Nitriding 800

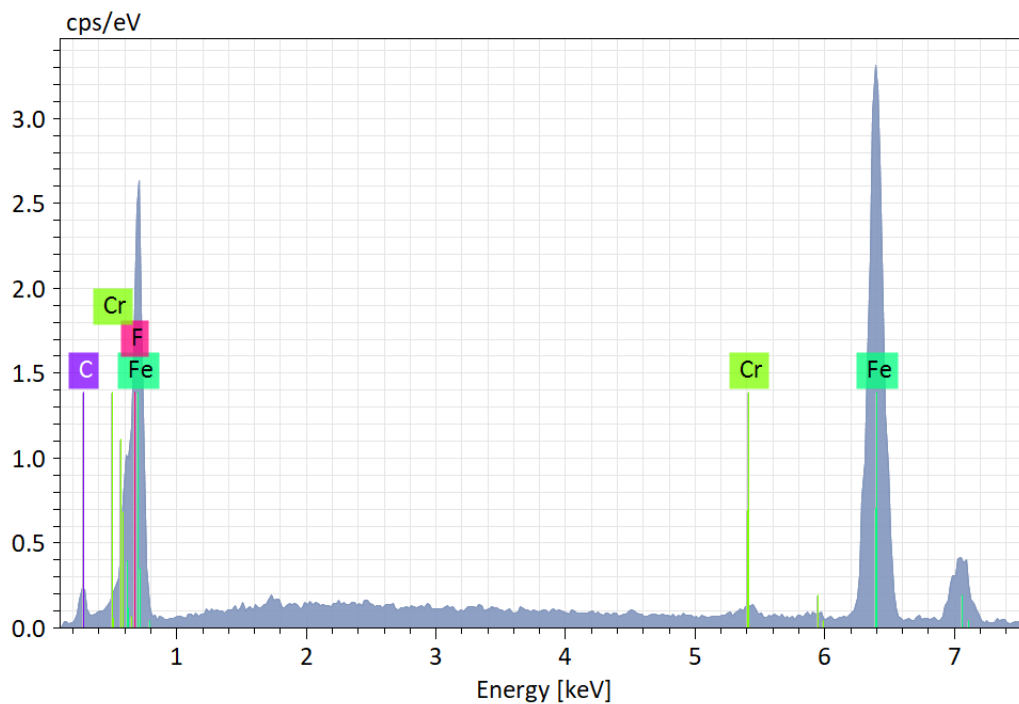
Area 1





Application Note

Company / Department



sampel standart 213

Element	At. No.	Netto	Mass [%]	Mass Norm. [%]	Atom [%]	abs. error [%] (1 sigma)	rel. error [%] (1 sigma)
Fe	26	16545	103.19	91.16	71.99	3.18	3.09
C	6	460	7.29	6.44	23.64	2.11	28.99
F	9	597	1.79	1.59	3.68	0.50	27.77
Cr	24	280	0.92	0.81	0.69	0.09	9.88
		Sum	113.19	100.00	100.00		



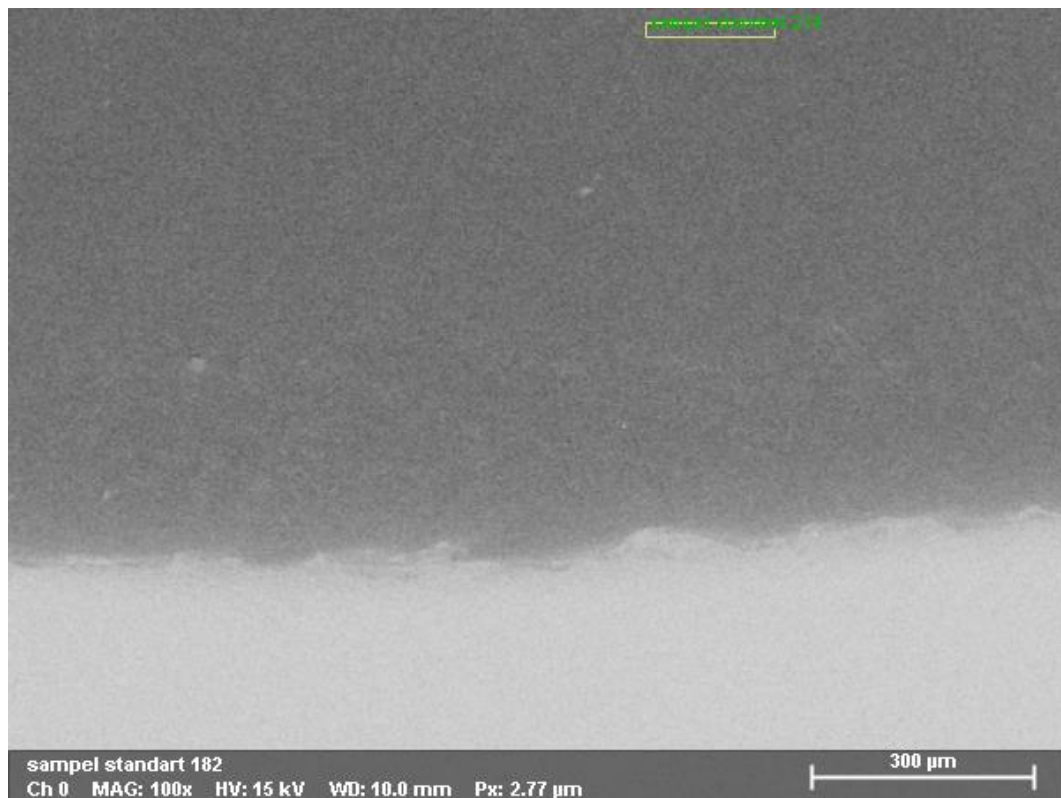
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Application Note

Company / Department



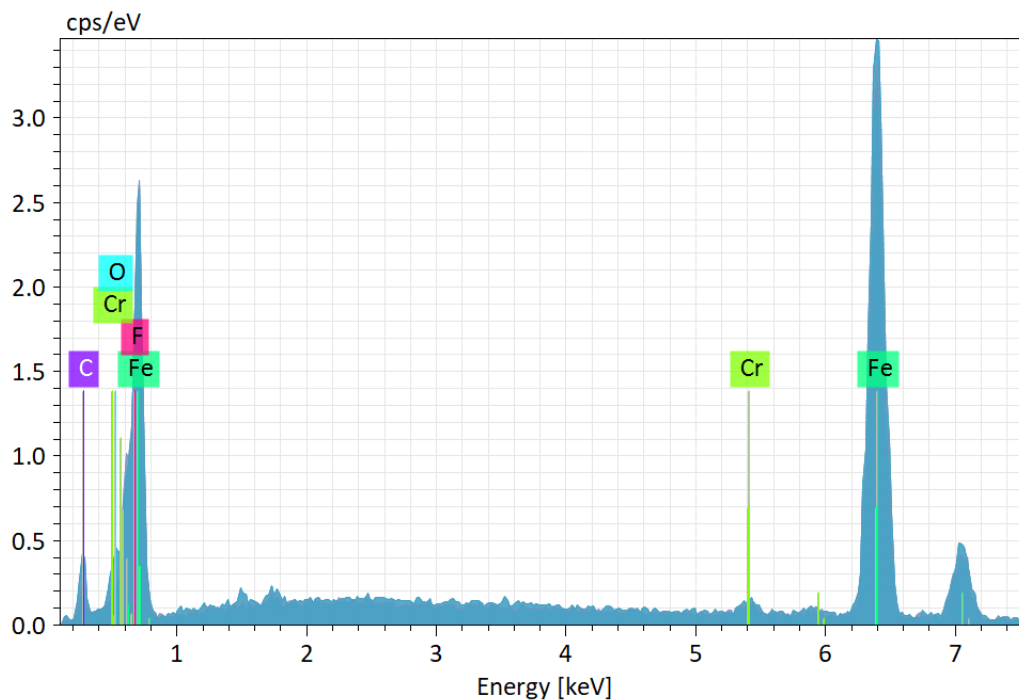
Area 2





Application Note

Company / Department



sampel standart 214

Element	At. No.	Netto	Mass [%]	Mass Norm. [%]	Atom [%]	abs. error [%] (1 sigma)	rel. error [%] (1 sigma)
Fe	26	16293	91.74	86.06	60.29	2.84	3.09
C	6	753	10.37	9.73	31.69	2.57	24.81
F	9	630	1.85	1.73	3.57	0.50	27.29
O	8	360	1.63	1.53	3.74	0.53	32.61
Cr	24	326	1.01	0.95	0.71	0.09	9.22
		Sum	106.60	100.00	100.00		



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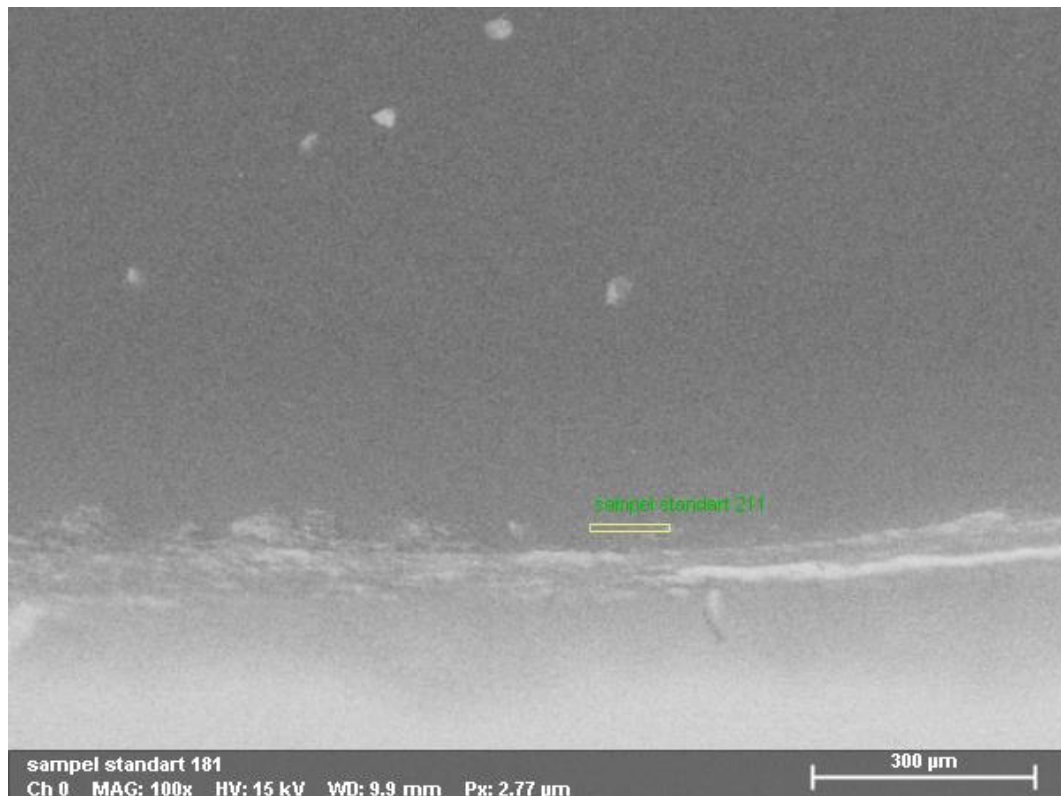
Application Note

Company / Department



Author : Teknik mesin UM
Creator : 1/7/2022
Sample Name : AISI 4140 Nitriding 900

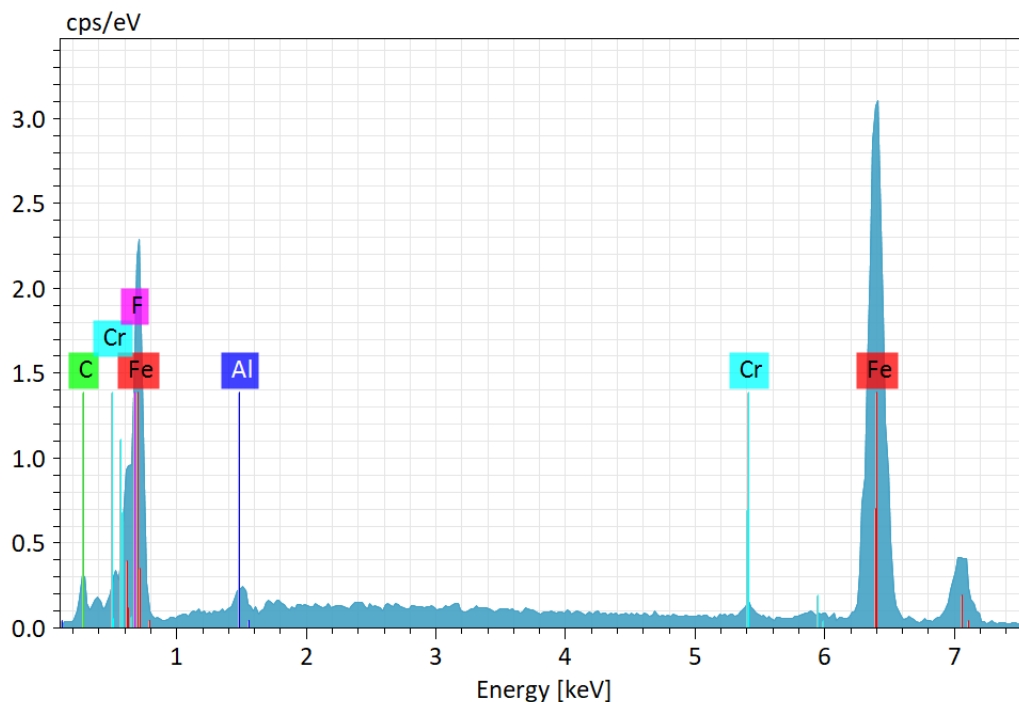
Area 1





Application Note

Company / Department



sampel standart 211

Element	At. No.	Netto	Mass [%]	Mass Norm. [%]	Atom [%]	abs. error [%] (1 sigma)	rel. error [%] (1 sigma)
Fe	26	16342	97.34	88.65	65.88	3.01	3.09
C	6	638	9.59	8.73	30.18	2.50	26.10
Al	13	410	1.05	0.95	1.47	0.11	10.34
Cr	24	296	0.93	0.84	0.67	0.09	9.70
F	9	305	0.90	0.82	1.80	0.32	35.67
		Sum	109.81	100.00	100.00		



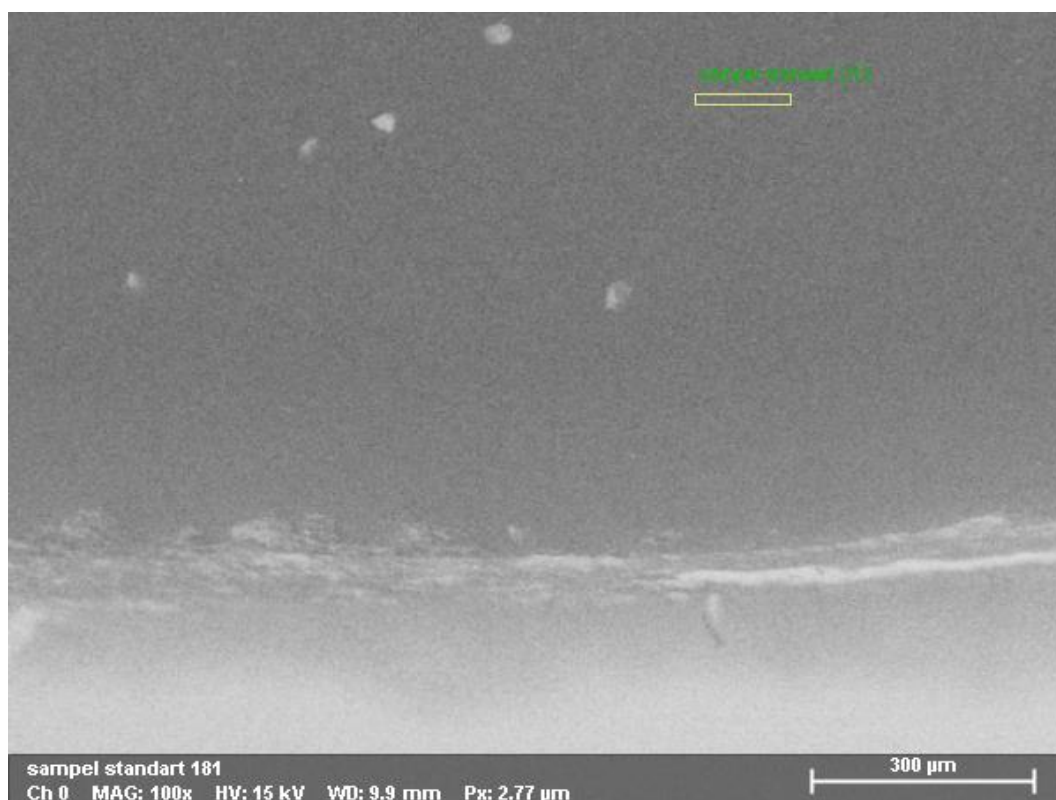
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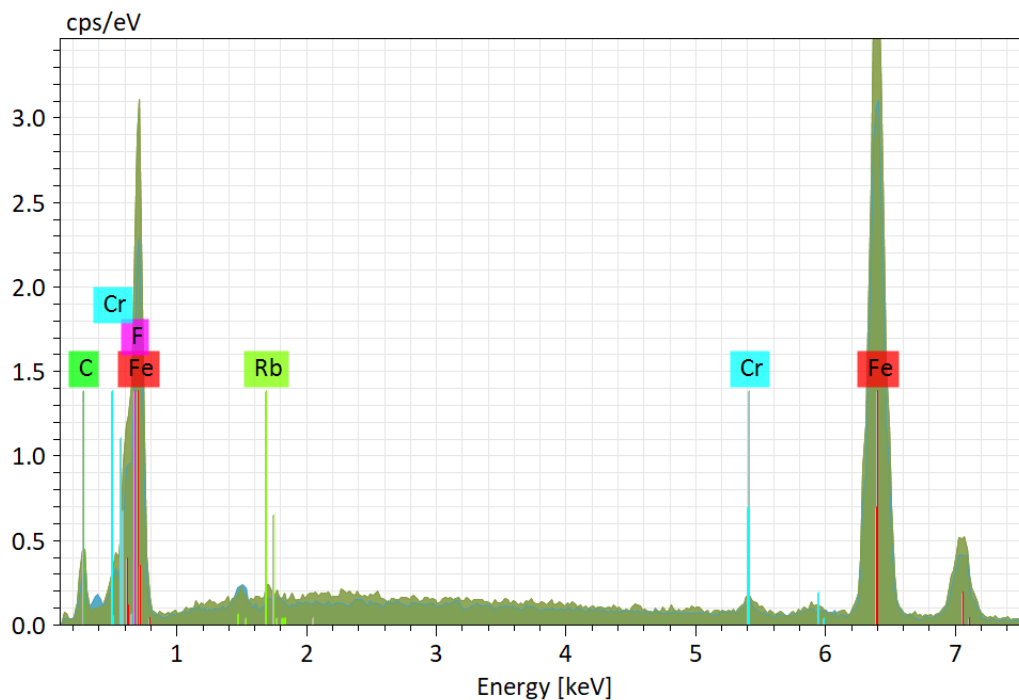
Area 2





Application Note

Company / Department



sampel standart 212

Element	At. No.	Netto	Mass [%]	Mass Norm. [%]	Atom [%]	abs. error [%] (1 sigma)	rel. error [%] (1 sigma)
Fe	26	15909	93.97	86.72	61.77	2.91	3.09
C	6	754	11.02	10.17	33.67	2.73	24.80
F	9	634	1.89	1.75	3.66	0.52	27.21
Cr	24	296	0.92	0.85	0.65	0.09	9.72
Rb	37	177	0.56	0.52	0.24	0.08	14.41
		Sum	108.37	100.00	100.00		