Performance that will change how you look at ICP-OES

The Optima™ 8x00 Series of ICP-OES Spectrometers

1 H																	2 He
3 Li 670.784 I	4 Be 313.107 II											5 B 249.772 I	6 C 193.030 I	7 N	8 O	9 F	10 Ne
11 Na 589.592 I	12 Mg 280.271 II											13 Al 396.153 I	14 Si 251.611 I	15 P 213.617 I	16 S 180.669 I	17 Cl 725.670 I	18 Ar
19 K 766.490 I	20 Ca 393.366 II	21 Sc 361.383 II	22 Ti 334.940 II	23 V 290.880 II	24 Cr 267.716 II	25 Mn 257.610 II	26 Fe 238.204 II	27 Co 228.616 II	28 Ni 231.604 II	29 Cu 327.393 I	30 Zn 206.200 II	31 Ga 417.206 I	32 Ge 265.118 I	33 As 188.979 I	34 Se 196.026 I	35 Br 863.866 I	36 Kr
37 Rb 780.023 I	38 Sr 407.771 II	39 Y 371.029 II	40 Zr 343.823 II	41 Nb 309.418 II	42 Mo 202.031 II	43 Tc	44 Ru 240.272 II	45 Rh 343.489 I	46 Pd 340.458 I	47 Ag 328.068 I	48 Cd 228.802 I	49 In 230.606 II	50 Sn 189.927 II	51 Sb 206.836 I	52 Te 214.281 I	53 I 178.215 I	54 Xe
55 Cs 455.531 I	56 Ba 455.403 II	57 La 408.672 II	72 Hf 264.141 II	73 Ta 226.230 II	74 W 207.912 II	75 Re 197.248 II	76 Os 228.226 II	77 Ir 224.268 II	78 Pt 214.423 I	79 Au 267.595 I	80 Hg 194.168 II	81 Tl 190.801 II	82 Pb 220.353 II	83 Bi 223.061 I	84 Po	85 At	86 Rn
87 Fr	88 Ra	89 Ac															

51 Sb — Atomic Number, Element
206.836 — Wavelength
I — Ionization States

Detection Limit Ranges
- < 0.1 ppb
- 0.1-1 ppb
- 1-10 ppb
- > 10 ppb

Wavelength (nm)

Ionization States
I = Neutral Atom
II = +1 ion

58 Ce 413.764 II	59 Pr 414.311 II	60 Nd 406.109 II	61 Pm	62 Sm 442.434 II	63 Eu 381.967 II	64 Gd 342.247 II	65 Tb 350.917 II	66 Dy 353.170 I	67 Ho 345.600 II	68 Er 337.271 II	69 Tm 313.126 II	70 Yb 328.937 II	71 Lu 261.542 II
90 Th 283.730 II	91 Pa	92 U 385.958 II	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr

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PerkinElmer®
For the Better

Selected Wavelengths (Relative Intensities Normalized to Preferred Wavelength)

Analyte Lengths (nm)	Wave Sensitivity	Relative State	Ionization
Ag	328.068	1.00	I
	338.289	0.48	I
	243.778	0.02	II
Al	396.153	1.00	I
	308.215	0.36	I
	394.401	0.50	I
As	188.979	1.00	I
	193.696	2.76	I
	197.197	2.05	I
Au	267.595	1.00	I
	242.795	0.77	I
	208.209	0.22	II
B	249.667	1.00	I
	249.772	0.20	I
	208.889	0.42	I
Ba	233.527	1.00	II
	455.403	9.33	II
	493.408	2.87	II
Be	313.107	1.00	II
	313.042	1.53	II
	234.861	0.74	I
Bi	223.061	1.00	I
	190.171	0.07	II
	306.766	1.08	I
Br	863.866	1.00	I
	700.570		I
C	193.030	1.00	I
	247.856	0.45	I
Ca	317.933	1.00	II
	393.366	84	II
	227.546	0.003	I
Cd	228.802	1.00	I
	214.440	1.13	II
	226.502	0.93	II
Ce	413.764	1.00	II
	418.660	1.75	II
	413.380	1.35	II
Cl	725.670	1.00	I
	782.139	0.01	I
Co	228.616	1.00	II
	238.892	1.11	II
	230.786	0.98	II
Cr	267.716	1.00	II
	205.560	0.49	II
	283.563	1.31	II
Cs	455.531	1.00	I
	459.320	0.21	I
Cu	327.393	1.00	I
	324.752	1.98	I
	224.700	0.78	II
Dy	353.170	1.00	II
	394.468	0.46	II
	396.839	0.33	II

Analyte Lengths (nm)	Wave Sensitivity	Relative State	Ionization
Er	337.271	1.00	II
	349.910	0.87	II
	339.200	0.30	II
Eu	381.967	1.00	II
	412.970	0.41	II
	393.048	0.40	II
Fe	238.204	1.00	II
	239.562	0.81	II
	259.939	1.55	II
Ga	417.206	1.00	I
	294.364	0.86	I
	209.134	0.04	I
Gd	342.247	1.00	II
	336.223	0.78	II
	335.047	0.78	II
Ge	209.426	1.00	I
	265.118	1.74	I
	206.866	0.87	I
Hf	277.336	1.00	II
	232.247	0.59	II
	264.141	0.87	II
Hg	253.652	1.00	II
	404.656	0.12	I
	435.835	0.06	I
Ho	345.600	1.00	II
	339.898	0.50	II
	347.426	0.33	II
I	178.215	1.00	I
	206.188	1.56	I
	182.976	0.62	I
In	230.606	1.00	II
	325.609	1.06	I
	303.936	0.65	I
Ir	205.222	1.00	I
	224.268	3.13	II
	208.882	0.58	I
K	766.490	1.00	I
	404.721	0.001	I
	769.896	0.60	I
La	408.672	1.00	II
	379.478	0.71	II
	407.735	0.52	II
Li	670.784	1.00	I
	610.362	0.09	I
	460.286	0.004	I
Lu	261.542	1.00	II
	291.139	0.25	II
	219.554	0.07	II
Mg	285.213	1.00	I
	279.077	0.04	II
	280.271	4.67	II
Mn	257.610	1.00	II
	259.372	0.83	II
	260.568	0.59	II
Mo	202.031	1.00	II
	203.845	0.65	II
	204.597	0.65	II

Analyte Lengths (nm)	Wave Sensitivity	Relative State	Ionization
Na	589.592	1.00	I
	330.237	0.03	I
	588.995	1.95	I
Nb	309.418	1.00	II
	313.079	0.82	II
	269.706	0.57	II
Nd	406.109	1.00	II
	401.225	1.43	II
	430.358	1.13	II
Ni	231.604	1.00	II
	221.648	2.04	II
	232.003	1.30	I
Os	228.226	1.00	II
	225.585	1.45	II
	189.900	0.33	II
P	213.617	1.00	I
	214.914	0.46	I
	178.221	0.68	I
Pb	220.353	1.00	II
	217.000	0.38	I
	261.418	0.38	I
Pd	340.458	1.00	I
	363.470	0.85	I
	324.270	0.46	I
Pr	390.844	1.00	II
	414.311	0.89	II
	422.293	1.24	II
Pt	265.945	1.00	I
	214.423	1.57	II
	299.797	0.64	I
Rb	780.023	1.00	I
	420.185	0.001	I
Re	197.248	1.00	II
	227.525	1.74	II
	204.908	0.09	I
Rh	343.489	1.00	I
	233.477	0.88	II
	346.204	0.79	I
Ru	240.272	1.00	II
	349.894	0.65	I
	279.535	0.27	II
S	181.975	1.00	I
	180.669	2.38	I
	182.563	1.72	I
Sb	206.836	1.00	I
	217.582	0.83	I
	231.146	0.68	I
Sc	361.383	1.00	II
	357.253	0.78	II
	424.683	0.52	II
Se	196.026	1.00	I
	203.985	0.74	I
Si	251.611	1.00	I
	212.412	0.22	I
	288.158	0.73	I

Analyte Lengths (nm)	Wave Sensitivity	Relative State	Ionization
Sm	359.260	1.00	II
	442.434	0.69	II
	388.529	0.86	II
Sn	189.927	1.00	I
	235.485	1.34	I
	283.998	2.22	I
Sr	407.771	1.00	II
	421.552	0.70	II
	460.773	0.01	I
Ta	226.230	1.00	II
	240.063	1.45	II
	233.198	0.70	II
Tb	350.917	1.00	II
	384.873	0.37	II
Te	214.281	1.00	I
	238.578	0.29	I
	226.555	0.04	I
Th	283.730	1.00	II
	401.913	1.05	II
	339.204	0.65	II
Ti	334.940	1.00	II
	336.121	0.59	II
	337.279	0.49	II
Tl	190.801	1.00	II
	276.787	0.59	I
	351.924	0.49	I
Tm	313.126	1.00	II
	346.220	1.17	II
U	385.958	1.00	II
	367.007	0.92	II
	409.014	0.72	II
V	290.880	1.00	II
	310.230	1.21	II
	309.310	1.57	II
W	207.912	1.00	II
	224.876	0.72	II
	239.708	1.15	II
Y	371.029	1.00	II
	324.227	0.47	II
	360.073	0.76	II
Yb	328.937	1.00	II
	369.419	1.05	II
	289.138	0.21	II
Zn	206.200	1.00	II
	213.857	4.44	I
	202.548	1.41	II
Zr	343.823	1.00	II
	339.197	1.21	II
	257.139	0.44	II