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Amptek K and L Emission Line Lookup Chart

XR-100CR / XR-100T-CZT / ROVER

X-Ray and Gamma Ray Detectors

Group IA												Group VIII						Group VIIIA																	
H 1																		He 2																	
0.052 Li 3																		0.851 Ne 10																	
1.04 1.07 Na 11																		1.49 1.55 Al 13																	
3.31 3.59 K 19		3.69 4.01 Ca 20		4.09 4.46 Sc 21		4.51 4.93 Ti 22		4.95 5.43 V 23		5.41 5.43 Cr 24		5.90 6.49 Mn 25		6.40 7.06 Fe 26		6.93 7.65 Co 27		7.48 8.26 Ni 28		8.05 8.90 Cu 29		8.64 9.57 Zn 30		9.25 10.26 Ga 31		9.89 10.98 Ge 32		10.54 11.73 As 33		11.22 12.50 Se 34		11.92 13.29 Br 35		12.65 14.11 Kr 36	
13.39 14.96 Rb 37		14.16 15.83 Sr 38		14.96 16.74 Y 39		15.77 17.67 Zr 40		16.61 18.62 Nb 41		17.48 19.61 Mo 42		18.41 19.61 Tc 43		19.28 21.66 Ru 44		20.21 22.72 Rh 45		21.18 23.82 Pd 46		22.16 24.94 Ag 47		23.17 26.09 Cd 48		24.21 27.27 In 49		25.27 28.48 Sn 50		26.36 29.72 Sb 51		27.47 30.99 Te 52		28.61 32.29 I 53		29.80 33.64 Xe 54	
30.97 34.98 Cs 55		32.19 36.38 Ba 56		57 - 71		55.76 63.21 Hf 72		57.52 65.21 Ta 73		59.31 67.23 W 74		61.13 69.30 Re 75		62.99 71.40 Os 76		64.89 73.55 Ir 77		66.82 75.74 Pt 78		68.79 77.97 Au 79		70.82 80.26 Hg 80		72.86 82.56 Tl 81		74.96 84.92 Pb 82		77.10 87.34 Bi 83		79.30 89.81 Po 84		81.53 92.32 At 85		83.80 94.88 Rn 86	
86.12 97.48 Fr 87		88.46 100.14 Ra 88		90.89 102.85 Ac 89		93.33 105.59 Th 90		95.85 108.41 Pa 91		98.43 111.29 U 92		101.00 114.18 Np 93		103.65 117.15 Pu 94		106.35 120.16 Am 95		109.10 123.24 Cm 96		111.90 126.36 Bk 97		114.75 129.54 Cf 98		117.65 132.78 Es 99		120.60 136.08 Fm 100		Md 101		No 102		Lr 103		Actinides 89-103	
12.03 14.77		12.34 15.23		12.65 15.71		12.97 16.20		13.29 19.70		13.61 17.22		13.95 17.74		14.28 18.28		14.62 18.83		14.96 19.39		15.31 19.97		15.66 20.56		16.02 21.17		16.38 21.79									
Lanthanides 57-71		33.44 37.80 La 57		34.72 39.26 Ce 58		36.02 40.75 Pr 59		37.36 42.27 Nd 60		38.65 43.96 Pm 61		40.12 45.40 Sm 62		41.53 47.03 Eu 63		42.98 48.72 Gd 64		44.47 50.39 Tb 65		45.99 52.18 Dy 66		47.53 53.93 Ho 67		49.10 55.69 Er 68		50.73 57.58 Tm 69		52.36 59.35 Yb 70		54.06 61.28 Lu 71					
		4.65 5.04		4.84 5.26		5.03 5.49		5.23 5.72		5.43 5.96		5.64 6.21		5.85 6.46		6.06 6.71		6.28 6.98		6.50 7.25		6.72 7.53		6.95 7.81		7.18 8.10		7.41 8.40		7.65 8.71					

Actinium - Ac 89 (10.07)	Bromine - Br 35 (0.007139)	Dysprosium - Dy 66 (8.55)	Helium - He 2 (0.0001785)	Lutetium - Lu 71 (9.84)	Nobelium - No 102	Radium - Ra 88 (5.0)	Strontium - Sr 38 (2.56)	Uranium - U 92 (18.7)
Aluminum - Al 13 (2.70)	Cadmium - Cd 48 (8.65)	Einsteinium - Es 99	Holmium - Ho 67 (8.795)	Magnesium - Mg 12 (1.74)	Osmium - Os 76 (22.5)	Radon - Rn 86 (4.4)	Sulphur - S 16 (1.92)	Vanadium - V 23 (5.98)
Americium - Am 95 (11.87)	Calcium - Ca 20 (1.55)	Erbium - Er 68 (9.066)	Hydrogen - H 1 (0.0000899)	Manganese - Mn 25 (7.41)	Oxygen - O 8 (0.001429)	Rhenium - Re 75 (21.0)	Tantalum - Ta 73 (16.6)	Xenon - Xe 54 (0.00585)
Antimony - Sb 51 (6.62)	Californium - Cf 98	Europium - Eu 63 (5.234)	Indium - In 49 (7.28)	Mendelevium - Md 101	Palladium - Pd 46 (12.16)	Rhodium - Rh 45 (12.44)	Technetium - Tc 43 (11.5)	Ytterbium - Yb 70 (6.965)
Argon - Ar 18 (0.001783)	Carbon - C 6 (2.25-G; 3.51-D)	Fermium - Fm 100	Iodine - I 53 (4.94)	Mercury - Hg 80 (13.55)	Phosphorus - P 15 (1.83-Y 2.20-R)	Rubidium - Rb 37 (1.53)	Tellurium - Te 52 (6.25)	Yttrium - Y 39 (3.8)
Arsenic - As 33 (5.73)	Cerium - Ce 58 (6.90)	Fluorine - F 9 (0.00169)	Iridium - Ir 77 (22.42)	Molybdenum - Mo 42 (10.22)	Platinum - Pt 78 (21.45)	Ruthenium - Ru 44 (12.1)	Terbium - Tb 65 (8.229)	Zinc - Zn 30 (7.1)
Astatine - At 85	Cesium - Cs 55 (1.87)	Francium - Fr 87	Iron - Fe 26 (7.88)	Neodymium - Nd 60 (6.96)	Plutonium - Pu 94 (19.8)	Samarium - Sm 62 (7.75)	Thallium - Tl 81 (11.86)	Zirconium - Zr 40 (6.4)
Barium - Ba 56 (3.5)	Chlorine - Cl 17 (0.003220)	Gadolinium - Gd 64 (7.90)	Krypton - Kr 36 (0.00368)	Neon - Ne 10 (0.000900)	Polonium - Po 84 (9.27)	Scandium - Sc 21 (3.02)	Thorium - Th 90 (11.3)	
Berkelium - Bk 97	Chromium - Cr 24 (7.14)	Gallium - Ga 31 (5.93)	Lanthanum - La 57 (6.15)	Neptunium - Np 93 (20.4)	Potassium - K 19 (0.86)	Selenium - Se 34 (4.82)	Thulium - Tm 69 (9.321)	
Beryllium - Be 4 (1.85)	Cobalt - Co 27 (8.71)	Germanium - Ge 32 (5.46)	Lawrencium - Lr 103	Nickel - Ni 28 (8.88)	Praseodymium - Pr 59 (6.48)	Silicon - Si 14 (2.42)	Tin - Sn 50 (7.3)	
Bismuth - Bi 83 (9.78)	Copper - Cu 29 (8.96)	Gold - Au 79 (19.32)	Lead - Pb 82 (11.34)	Niobium - Nb 41 (8.57)	Promethium - Pm 61	Silver - Ag 47 (10.49)	Titanium - Ti 22 (4.5)	
Boron - B 5 (2.53)	Curium - Cm 96	Hafnium - Hf - 72 (13.3)	Lithium - Li 3 (0.534)	Nitrogen - N 7 (0.001251)	Protactinium - Pa 91 (15.4)	Sodium - Na 11 (0.97)	Tungsten - W 74 (19.3)	(density in g/cm ³ at NTP)