

X-Ray Data Booklet Table 1-3. Photon energies and relative intensities of K-, L-, and M-shell lines shown in Fig. 1-1, arranged by increasing energy. An intensity of 100 is assigned to the strongest line in each shell for each element.

Energy (eV)	Element	Line	Relative intensity	524.9	8 O	K $\alpha_{1,2}$	151	851.5	28 Ni	L $\alpha_{1,2}$	111
				556.3	25 Mn	Ll	15	868.8	28 Ni	L β_1	68
54.3	3 Li	K $\alpha_{1,2}$	150	572.8	24 Cr	L $\alpha_{1,2}$	111	883	58 Ce	M α_1	100
108.5	4 Be	K $\alpha_{1,2}$	150	582.8	24 Cr	L β_1	79	884	30 Zn	Ll	7
183.3	5 B	K $\alpha_{1,2}$	151	615.2	26 Fe	Ll	10	929.2	59 Pr	M α_1	100
277	6 C	K $\alpha_{1,2}$	147	637.4	25 Mn	L $\alpha_{1,2}$	111	929.7	29 Cu	L $\alpha_{1,2}$	111
348.3	21 Sc	Ll	21	648.8	25 Mn	L β_1	77	949.8	29 Cu	L β_1	65
392.4	7 N	K $\alpha_{1,2}$	150	676.8	9 F	K $\alpha_{1,2}$	148	957.2	31 Ga	Ll	7
395.3	22 Ti	Ll	46	677.8	27 Co	Ll	10	978	60 Nd	M α_1	100
395.4	21 Sc	L $\alpha_{1,2}$	111	705.0	26 Fe	L $\alpha_{1,2}$	111	1,011.7	30 Zn	L $\alpha_{1,2}$	111
399.6	21 Sc	L β_1	77	718.5	26 Fe	L β_1	66	1,034.7	30 Zn	L β_1	65
446.5	23 V	Ll	28	742.7	28 Ni	Ll	9	1,036.2	32 Ge	Ll	6
452.2	22 Ti	L $\alpha_{1,2}$	111	776.2	27 Co	L $\alpha_{1,2}$	111	1,041.0	11 Na	K $\alpha_{1,2}$	150
458.4	22 Ti	L β_1	79	791.4	27 Co	L β_1	76	1,081	62 Sm	M α_1	100
500.3	24 Cr	Ll	17	811.1	29 Cu	Ll	8	1,097.9	31 Ga	L $\alpha_{1,2}$	111
511.3	23 V	L $\alpha_{1,2}$	111	833	57 La	M α_1	100	1,120	33 As	Ll	6
519.2	23 V	L β_1	80	848.6	10 Ne	K $\alpha_{1,2}$	150	1,124.8	31 Ga	L β_1	66

Table 1-3. Energies and intensities of x-ray emission lines (continued).

Energy (eV)	Element	Line	Relative intensity	1,462	69 Tm	M α_1	100	1,740.0	14 Si	K α_1	100
				1,480.4	35 Br	L $\alpha_{1,2}$	111	1,752.2	37 Rb	L β_1	58
1,131	63 Eu	M α_1	100	1,482.4	37 Rb	Ll	5	1,775.4	74 W	M α_1	100
1,185	64 Gd	M α_1	100	1,486.3	13 Al	K α_2	50	1,792.0	40 Zr	Ll	5
1,188.0	32 Ge	L $\alpha_{1,2}$	111	1,486.7	13 Al	K α_1	100	1,804.7	38 Sr	L α_2	11
1,204.4	34 Se	Ll	6	1,521.4	70 Yb	M α_1	100	1,806.6	38 Sr	L α_1	100
1,218.5	32 Ge	L β_1	60	1,525.9	35 Br	L β_1	59	1,835.9	14 Si	K β_1	2
1,240	65 Tb	M α_1	100	1,557.4	13 Al	K β_1	1	1,842.5	75 Re	M α_1	100
1,253.6	12 Mg	K $\alpha_{1,2}$	150	1,581.3	71 Lu	M α_1	100	1,871.7	38 Sr	L β_1	58
1,282.0	33 As	L $\alpha_{1,2}$	111	1,582.2	38 Sr	Ll	5	1,902.2	41 Nb	Ll	5
1,293	66 Dy	M α_1	100	1,586.0	36 Kr	L $\alpha_{1,2}$	111	1,910.2	76 Os	M α_1	100
1,293.5	35 Br	Ll	5	1,636.6	36 Kr	L β_1	57	1,920.5	39 Y	L α_2	11
1,317.0	33 As	L β_1	60	1,644.6	72 Hf	M α_1	100	1,922.6	39 Y	L α_1	100
1,348	67 Ho	M α_1	100	1,685.4	39 Y	Ll	5	1,979.9	77 Ir	M α_1	100
1,379.1	34 Se	L $\alpha_{1,2}$	111	1,692.6	37 Rb	L α_2	11	1,995.8	39 Y	L β_1	57
1,386	36 Kr	Ll	5	1,694.1	37 Rb	L α_1	100	2,012.7	15 P	K α_2	50
1,406	68 Er	M α_1	100	1,709.6	73 Ta	M α_1	100	2,013.7	15 P	K α_1	100
1,419.2	34 Se	L β_1	59	1,739.4	14 Si	K α_2	50	2,015.7	42 Mo	Ll	5

2,039.9	40 Zr	L α_2	11	2,367.0	41 Nb	L $\beta_{2,15}$	3	2,696.7	45 Rh	L α_1	100
2,042.4	40 Zr	L α_1	100	2,376.5	45 Rh	Ll	4	2,767.4	48 Cd	Ll	4
2,050.5	78 Pt	M α_1	100	2,394.8	42 Mo	L β_1	53	2,792	43 Tc	L γ_1	3
2,122	43 Tc	Ll	5	2,420	43 Tc	L α_2	11	2,815.6	17 Cl	K β_1	6
2,122.9	79 Au	M α_1	100	2,422.6	83 Bi	M α_1	100	2,833.3	46 Pd	L α_2	11
2,124.4	40 Zr	L β_1	54	2,424	43 Tc	L α_1	100	2,834.4	45 Rh	L β_1	52
2,139.1	15 P	K β_1	3	2,461.8	41 Nb	L γ_1	2	2,836.0	44 Ru	L $\beta_{2,15}$	10
2,163.0	41 Nb	L α_2	11	2,464.0	16 S	K β_1	5	2,838.6	46 Pd	L α_1	100
2,165.9	41 Nb	L α_1	100	2,503.4	46 Pd	Ll	4	2,904.4	49 In	Ll	4
2,195.3	80 Hg	M α_1	100	2,518.3	42 Mo	L $\beta_{2,15}$	5	2,955.6	18 Ar	K α_2	50
2,219.4	40 Zr	L $\beta_{2,15}$	1	2,538	43 Tc	L β_1	54	2,957.7	18 Ar	K α_1	100
2,252.8	44 Ru	Ll	4	2,554.3	44 Ru	L α_2	11	2,964.5	44 Ru	L γ_1	4
2,257.4	41 Nb	L β_1	52	2,558.6	44 Ru	L α_1	100	2,978.2	47 Ag	L α_2	11
2,270.6	81 Tl	M α_1	100	2,620.8	17 Cl	K α_2	50	2,984.3	47 Ag	L α_1	100
2,289.8	42 Mo	L α_2	11	2,622.4	17 Cl	K α_1	100	2,990.2	46 Pd	L β_1	53
2,293.2	42 Mo	L α_1	100	2,623.5	42 Mo	L γ_1	3	2,996.1	90 Th	M α_1	100
2,302.7	40 Zr	L γ_1	2	2,633.7	47 Ag	Ll	4	3,001.3	45 Rh	L $\beta_{2,15}$	10
2,306.6	16 S	K α_2	50	2,674	43 Tc	L $\beta_{2,15}$	7	3,045.0	50 Sn	Ll	4
2,307.8	16 S	K α_1	100	2,683.2	44 Ru	L β_1	54	3,126.9	48 Cd	L α_2	11
2,345.5	82 Pb	M α_1	100	2,692.0	45 Rh	L α_2	11	3,133.7	48 Cd	L α_1	100

Table 1-3. Energies and intensities of x-ray emission lines (continued).

Energy (eV)	Element	Line	Relative intensity	3,487.2	49 In	L β_1	58	3,937.6	53 I	L α_1	100
3,143.8	45 Rh	L γ_1	5	3,519.6	47 Ag	L γ_1	6	3,954.1	56 Ba	Ll	4
3,150.9	47 Ag	L β_1	56	3,528.1	48 Cd	L $\beta_{2,15}$	15	4,012.7	20 Ca	K $\beta_{1,3}$	13
3,170.8	92 U	M α_1	100	3,589.6	19 K	K $\beta_{1,3}$	11	4,029.6	52 Te	L β_1	61
3,171.8	46 Pd	L $\beta_{2,15}$	12	3,595.3	51 Sb	L α_2	11	4,086.1	21 Sc	K α_2	50
3,188.6	51 Sb	Ll	4	3,604.7	51 Sb	L α_1	100	4,090.6	21 Sc	K α_1	100
3,190.5	18 Ar	K $\beta_{1,3}$	10	3,636	54 Xe	Ll	4	4,093	54 Xe	L α_2	11
3,279.3	49 In	L α_2	11	3,662.8	50 Sn	L β_1	60	4,100.8	51 Sb	L $\beta_{2,15}$	17
3,286.9	49 In	L α_1	100	3,688.1	20 Ca	K α_2	50	4,109.9	54 Xe	L α_1	100
3,311.1	19 K	K α_2	50	3,691.7	20 Ca	K α_1	100	4,124	57 La	Ll	4
3,313.8	19 K	K α_1	100	3,713.8	49 In	L $\beta_{2,15}$	15	4,131.1	50 Sn	L γ_1	7
3,316.6	48 Cd	L β_1	58	3,716.9	48 Cd	L γ_1	6	4,220.7	53 I	L β_1	61
3,328.7	46 Pd	L γ_1	6	3,758.8	52 Te	L α_2	11	4,272.2	55 Cs	L α_2	11
3,335.6	52 Te	Ll	4	3,769.3	52 Te	L α_1	100	4,286.5	55 Cs	L α_1	100
3,347.8	47 Ag	L $\beta_{2,15}$	13	3,795.0	55 Cs	Ll	4	4,287.5	58 Ce	Ll	4
3,435.4	50 Sn	L α_2	11	3,843.6	51 Sb	L β_1	61	4,301.7	52 Te	L $\beta_{2,15}$	18
3,444.0	50 Sn	L α_1	100	3,904.9	50 Sn	L $\beta_{2,15}$	16	4,347.8	51 Sb	L γ_1	8
3,485.0	53 I	Ll	4	3,920.8	49 In	L γ_1	6	4,414	54 Xe	L β_1	60
				3,926.0	53 I	L α_2	11	4,450.9	56 Ba	L α_2	11

4,453.2	59 Pr	Ll	4	4,952.2	23 V	K α_1	100	5,531.1	56 Ba	L γ_1	9
4,460.5	21 Sc	K $\beta_{1,3}$	15	4,994.5	62 Sm	Ll	4	5,546.7	65 Tb	Ll	4
4,466.3	56 Ba	L α_1	100	5,013.5	59 Pr	L α_2	11	5,609.0	62 Sm	L α_2	11
4,504.9	22 Ti	K α_2	50	5,033.7	59 Pr	L α_1	100	5,613.4	58 Ce	L $\beta_{2,15}$	21
4,507.5	53 I	L $\beta_{2,15}$	19	5,034	54 Xe	L γ_1	8	5,636.1	62 Sm	L α_1	100
4,510.8	22 Ti	K α_1	100	5,042.1	57 La	L β_1	60	5,721.6	60 Nd	L β_1	60
4,570.9	52 Te	L γ_1	8	5,156.5	56 Ba	L $\beta_{2,15}$	20	5,743.1	66 Dy	Ll	4
4,619.8	55 Cs	L β_1	61	5,177.2	63 Eu	Ll	4	5,788.5	57 La	L γ_1	9
4,633.0	60 Nd	Ll	4	5,207.7	60 Nd	L α_2	11	5,816.6	63 Eu	L α_2	11
4,634.2	57 La	L α_2	11	5,230.4	60 Nd	L α_1	100	5,845.7	63 Eu	L α_1	100
4,651.0	57 La	L α_1	100	5,262.2	58 Ce	L β_1	61	5,850	59 Pr	L $\beta_{2,15}$	21
4,714	54 Xe	L $\beta_{2,15}$	20	5,280.4	55 Cs	L γ_1	8	5,887.6	25 Mn	K α_2	50
4,800.9	53 I	L γ_1	8	5,362.1	64 Gd	Ll	4	5,898.8	25 Mn	K α_1	100
4,809	61 Pm	Ll	4	5,383.5	57 La	L $\beta_{2,15}$	21	5,943.4	67 Ho	Ll	4
4,823.0	58 Ce	L α_2	11	5,405.5	24 Cr	K α_2	50	5,946.7	24 Cr	K $\beta_{1,3}$	15
4,827.5	56 Ba	L β_1	60	5,408	61 Pm	L α_2	11	5,961	61 Pm	L β_1	61
4,840.2	58 Ce	L α_1	100	5,414.7	24 Cr	K α_1	100	6,025.0	64 Gd	L α_2	11
4,931.8	22 Ti	K $\beta_{1,3}$	15	5,427.3	23 V	K $\beta_{1,3}$	15	6,052	58 Ce	L γ_1	9
4,935.9	55 Cs	L $\beta_{2,15}$	20	5,432	61 Pm	L α_1	100	6,057.2	64 Gd	L α_1	100
4,944.6	23 V	K α_2	50	5,488.9	59 Pr	L β_1	61	6,089.4	60 Nd	L $\beta_{2,15}$	21

Table 1-3. Energies and intensities of x-ray emission lines (continued).

Energy (eV)	Element	Line	Relative intensity	6,713.2	64 Gd	L β_1	62	7,367.3	70 Yb	L α_2	11
6,152	68 Er	Ll	4	6,719.8	67 Ho	L α_1	100	7,387.8	74 W	Ll	5
6,205.1	62 Sm	L β_1	61	6,752.8	71 Lu	Ll	4	7,415.6	70 Yb	L α_1	100
6,238.0	65 Tb	L α_2	11	6,843.2	63 Eu	L $\beta_{2,15}$	21	7,460.9	28 Ni	K α_2	51
6,272.8	65 Tb	L α_1	100	6,892	61 Pm	L γ_1	10	7,478.2	28 Ni	K α_1	100
6,322.1	59 Pr	L γ_1	9	6,905.0	68 Er	L α_2	11	7,480.3	63 Eu	L γ_1	10
6,339	61 Pm	L β_2	21	6,915.3	27 Co	K α_2	51	7,525.3	67 Ho	L β_1	64
6,341.9	69 Tm	Ll	4	6,930.3	27 Co	K α_1	100	7,603.6	75 Re	Ll	5
6,390.8	26 Fe	K α_2	50	6,948.7	68 Er	L α_1	100	7,604.9	71 Lu	L α_2	11
6,403.8	26 Fe	K α_1	100	6,959.6	72 Hf	Ll	5	7,635.7	66 Dy	L β_2	20
6,456.4	63 Eu	L β_1	62	6,978	65 Tb	L β_1	61	7,649.4	27 Co	K $\beta_{1,3}$	17
6,457.7	66 Dy	L α_2	11	7,058.0	26 Fe	K $\beta_{1,3}$	17	7,655.5	71 Lu	L α_1	100
6,490.4	25 Mn	K $\beta_{1,3}$	17	7,102.8	64 Gd	L $\beta_{2,15}$	21	7,785.8	64 Gd	L γ_1	11
6,495.2	66 Dy	L α_1	100	7,133.1	69 Tm	L α_2	11	7,810.9	68 Er	L β_1	64
6,545.5	70 Yb	Ll	4	7,173.1	73 Ta	Ll	5	7,822.2	76 Os	Ll	5
6,587.0	62 Sm	L $\beta_{2,15}$	21	7,178.0	62 Sm	L γ_1	10	7,844.6	72 Hf	L α_2	11
6,602.1	60 Nd	L γ_1	10	7,179.9	69 Tm	L α_1	100	7,899.0	72 Hf	L α_1	100
6,679.5	67 Ho	L α_2	11	7,247.7	66 Dy	L β_1	62	7,911	67 Ho	L $\beta_{2,15}$	20
				7,366.7	65 Tb	L $\beta_{2,15}$	21	8,027.8	29 Cu	K α_2	51

8,045.8	77 Ir	Ll	5	8,721.0	80 Hg	Ll	5	9,442.3	78 Pt	L α_1	100
8,047.8	29 Cu	K α_1	100	8,747	67 Ho	L γ_1	11	9,572.0	30 Zn	K $\beta_{1,3}$	17
8,087.9	73 Ta	L α_2	11	8,758.8	70 Yb	L $\beta_{2,15}$	20	9,628.0	79 Au	L α_2	11
8,101	69 Tm	L β_1	64	8,841.0	76 Os	L α_2	11	9,651.8	73 Ta	L β_2	20
8,102	65 Tb	L γ_1	11	8,905.3	29 Cu	K $\beta_{1,3}$	17	9,672.4	74 W	L β_1	67
8,146.1	73 Ta	L α_1	100	8,911.7	76 Os	L α_1	100	9,713.3	79 Au	L α_1	100
8,189.0	68 Er	L $\beta_{2,15}$	20	8,953.2	81 Tl	Ll	6	9,780.1	70 Yb	L γ_1	12
8,264.7	28 Ni	K $\beta_{1,3}$	17	9,022.7	72 Hf	L β_1	67	9,855.3	32 Ge	K α_2	51
8,268	78 Pt	Ll	5	9,048.9	71 Lu	L β_2	19	9,886.4	32 Ge	K α_1	100
8,335.2	74 W	L α_2	11	9,089	68 Er	L γ_1	11	9,897.6	80 Hg	L α_2	11
8,397.6	74 W	L α_1	100	9,099.5	77 Ir	L α_2	11	9,961.5	74 W	L β_2	21
8,401.8	70 Yb	L β_1	65	9,175.1	77 Ir	L α_1	100	9,988.8	80 Hg	L α_1	100
8,418.8	66 Dy	L γ_1	11	9,184.5	82 Pb	Ll	6	10,010.0	75 Re	L β_1	66
8,468	69 Tm	L $\beta_{2,15}$	20	9,224.8	31 Ga	K α_2	51	10,143.4	71 Lu	L γ_1	12
8,493.9	79 Au	Ll	5	9,251.7	31 Ga	K α_1	100	10,172.8	81 Tl	L α_2	11
8,586.2	75 Re	L α_2	11	9,343.1	73 Ta	L β_1	67	10,260.3	31 Ga	K β_3	5
8,615.8	30 Zn	K α_2	51	9,347.3	72 Hf	L β_2	20	10,264.2	31 Ga	K β_1	66
8,638.9	30 Zn	K α_1	100	9,361.8	78 Pt	L α_2	11	10,268.5	81 Tl	L α_1	100
8,652.5	75 Re	L α_1	100	9,420.4	83 Bi	Ll	6	10,275.2	75 Re	L β_2	22
8,709.0	71 Lu	L β_1	66	9,426	69 Tm	L γ_1	12	10,355.3	76 Os	L β_1	67

Table 1-3. Energies and intensities of x-ray emission lines (continued).

Energy (eV)	Element	Line	Relative intensity	11,250.5	78 Pt	L β_2	23	12,598	36 Kr	K α_2	52
10,449.5	82 Pb	L α_2	11	11,285.9	74 W	L γ_1	13	12,613.7	82 Pb	L β_1	66
10,508.0	33 As	K α_2	51	11,442.3	79 Au	L β_1	67	12,622.6	82 Pb	L β_2	25
10,515.8	72 Hf	L γ_1	12	11,584.7	79 Au	L β_2	23	12,649	36 Kr	K α_1	100
10,543.7	33 As	K α_1	100	11,618.3	92 U	Ll	7	12,652	34 Se	K β_2	1
10,551.5	82 Pb	L α_1	100	11,685.4	75 Re	L γ_1	13	12,809.6	90 Th	L α_2	11
10,598.5	76 Os	L β_2	22	11,720.3	33 As	K β_3	6	12,942.0	78 Pt	L γ_1	13
10,708.3	77 Ir	L β_1	66	11,726.2	33 As	K β_1	13	12,968.7	90 Th	L α_1	100
10,730.9	83 Bi	L α_2	11	11,822.6	80 Hg	L β_1	67	12,979.9	83 Bi	L β_2	25
10,838.8	83 Bi	L α_1	100	11,864	33 As	K β_2	1	13,023.5	83 Bi	L β_1	67
10,895.2	73 Ta	L γ_1	12	11,877.6	35 Br	K α_2	52	13,284.5	35 Br	K β_3	7
10,920.3	77 Ir	L β_2	22	11,924.1	80 Hg	L β_2	24	13,291.4	35 Br	K β_1	14
10,978.0	32 Ge	K β_3	6	11,924.2	35 Br	K α_1	100	13,335.8	37 Rb	K α_2	52
10,982.1	32 Ge	K β_1	60	12,095.3	76 Os	L γ_1	13	13,381.7	79 Au	L γ_1	13
11,070.7	78 Pt	L β_1	67	12,213.3	81 Tl	L β_1	67	13,395.3	37 Rb	K α_1	100
11,118.6	90 Th	Ll	6	12,271.5	81 Tl	L β_2	25	13,438.8	92 U	L α_2	11
11,181.4	34 Se	K α_2	52	12,489.6	34 Se	K β_3	6	13,469.5	35 Br	K β_2	1
11,222.4	34 Se	K α_1	100	12,495.9	34 Se	K β_1	13	13,614.7	92 U	L α_1	100
				12,512.6	77 Ir	L γ_1	13	13,830.1	80 Hg	L γ_1	14

14,097.9	38 Sr	K α_2	52	16,202.2	90 Th	L β_1	69	19,150.4	44 Ru	K α_2	53
14,104	36 Kr	K β_3	7	16,428.3	92 U	L β_2	26	19,279.2	44 Ru	K α_1	100
14,112	36 Kr	K β_1	14	16,521.0	41 Nb	K α_2	52	19,590.3	42 Mo	K β_3	8
14,165.0	38 Sr	K α_1	100	16,615.1	41 Nb	K α_1	100	19,608.3	42 Mo	K β_1	15
14,291.5	81 Tl	L γ_1	14	16,725.8	39 Y	K β_3	8	19,965.2	42 Mo	K β_2	3
14,315	36 Kr	K β_2	2	16,737.8	39 Y	K β_1	15	20,073.7	45 Rh	K α_2	53
14,764.4	82 Pb	L γ_1	14	17,015.4	39 Y	K β_2	3	20,167.1	92 U	L γ_1	15
14,882.9	39 Y	K α_2	52	17,220.0	92 U	L β_1	61	20,216.1	45 Rh	K α_1	100
14,951.7	37 Rb	K β_3	7	17,374.3	42 Mo	K α_2	52	20,599	43 Tc	K β_3	8
14,958.4	39 Y	K α_1	100	17,479.3	42 Mo	K α_1	100	20,619	43 Tc	K β_1	16
14,961.3	37 Rb	K β_1	14	17,654	40 Zr	K β_3	8	21,005	43 Tc	K β_2	4
15,185	37 Rb	K β_2	2	17,667.8	40 Zr	K β_1	15	21,020.1	46 Pd	K α_2	53
15,247.7	83 Bi	L γ_1	14	17,970	40 Zr	K β_2	3	21,177.1	46 Pd	K α_1	100
15,623.7	90 Th	L β_2	26	18,250.8	43 Tc	K α_2	53	21,634.6	44 Ru	K β_3	8
15,690.9	40 Zr	K α_2	52	18,367.1	43 Tc	K α_1	100	21,656.8	44 Ru	K β_1	16
15,775.1	40 Zr	K α_1	100	18,606.3	41 Nb	K β_3	8	21,990.3	47 Ag	K α_2	53
15,824.9	38 Sr	K β_3	7	18,622.5	41 Nb	K β_1	15	22,074	44 Ru	K β_2	4
15,835.7	38 Sr	K β_1	14	18,953	41 Nb	K β_2	3	22,162.9	47 Ag	K α_1	100
16,084.6	38 Sr	K β_2	3	18,982.5	90 Th	L γ_1	16	22,698.9	45 Rh	K β_3	8

Table 1-3. Energies and intensities of x-ray emission lines (continued).

Energy (eV)	Element	Line	Relative intensity	26,359.1	51 Sb	K α_1	100	30,972.8	55 Cs	K α_1	100
22,723.6	45 Rh	K β_1	16	26,643.8	48 Cd	K β_2	4	30,995.7	52 Te	K β_1	18
22,984.1	48 Cd	K α_2	53	27,201.7	52 Te	K α_2	54	31,700.4	52 Te	K β_2	5
23,172.8	45 Rh	K β_2	4	27,237.7	49 In	K β_3	9	31,817.1	56 Ba	K α_2	54
23,173.6	48 Cd	K α_1	100	27,275.9	49 In	K β_1	17	32,193.6	56 Ba	K α_1	100
23,791.1	46 Pd	K β_3	8	27,472.3	52 Te	K α_1	100	32,239.4	53 I	K β_3	9
23,818.7	46 Pd	K β_1	16	27,860.8	49 In	K β_2	5	32,294.7	53 I	K β_1	18
24,002.0	49 In	K α_2	53	28,317.2	53 I	K α_2	54	33,034.1	57 La	K α_2	54
24,209.7	49 In	K α_1	100	28,444.0	50 Sn	K β_3	9	33,042	53 I	K β_2	5
24,299.1	46 Pd	K β_2	4	28,486.0	50 Sn	K β_1	17	33,441.8	57 La	K α_1	100
24,911.5	47 Ag	K β_3	9	28,612.0	53 I	K α_1	100	33,562	54 Xe	K β_3	9
24,942.4	47 Ag	K β_1	16	29,109.3	50 Sn	K β_2	5	33,624	54 Xe	K β_1	18
25,044.0	50 Sn	K α_2	53	29,458	54 Xe	K α_2	54	34,278.9	58 Ce	K α_2	55
25,271.3	50 Sn	K α_1	100	29,679.2	51 Sb	K β_3	9	34,415	54 Xe	K β_2	5
25,456.4	47 Ag	K β_2	4	29,725.6	51 Sb	K β_1	18	34,719.7	58 Ce	K α_1	100
26,061.2	48 Cd	K β_3	9	29,779	54 Xe	K α_1	100	34,919.4	55 Cs	K β_3	9
26,095.5	48 Cd	K β_1	17	30,389.5	51 Sb	K β_2	5	34,986.9	55 Cs	K β_1	18
26,110.8	51 Sb	K α_2	54	30,625.1	55 Cs	K α_2	54	35,550.2	59 Pr	K α_2	55
				30,944.3	52 Te	K β_3	9	35,822	55 Cs	K β_2	6

36,026.3	59 Pr	K α_1	100	41,542.2	63 Eu	K α_1	100	47,037.9	63 Eu	K β_1	19
36,304.0	56 Ba	K β_3	10	41,773	59 Pr	K β_2	6	47,546.7	67 Ho	K α_1	100
36,378.2	56 Ba	K β_1	18	42,166.5	60 Nd	K β_3	10	48,221.1	68 Er	K α_2	56
36,847.4	60 Nd	K α_2	55	42,271.3	60 Nd	K β_1	19	48,256	63 Eu	K β_2	6
37,257	56 Ba	K β_2	6	42,308.9	64 Gd	K α_2	56	48,555	64 Gd	K β_3	10
37,361.0	60 Nd	K α_1	100	42,996.2	64 Gd	K α_1	100	48,697	64 Gd	K β_1	20
37,720.2	57 La	K β_3	10	43,335	60 Nd	K β_2	6	49,127.7	68 Er	K α_1	100
37,801.0	57 La	K β_1	19	43,713	61 Pm	K β_3	10	49,772.6	69 Tm	K α_2	57
38,171.2	61 Pm	K α_2	55	43,744.1	65 Tb	K α_2	56	49,959	64 Gd	K β_2	7
38,724.7	61 Pm	K α_1	100	43,826	61 Pm	K β_1	19	50,229	65 Tb	K β_3	10
38,729.9	57 La	K β_2	6	44,481.6	65 Tb	K α_1	100	50,382	65 Tb	K β_1	20
39,170.1	58 Ce	K β_3	10	44,942	61 Pm	K β_2	6	50,741.6	69 Tm	K α_1	100
39,257.3	58 Ce	K β_1	19	45,207.8	66 Dy	K α_2	56	51,354.0	70 Yb	K α_2	57
39,522.4	62 Sm	K α_2	55	45,289	62 Sm	K β_3	10	51,698	65 Tb	K β_2	7
40,118.1	62 Sm	K α_1	100	45,413	62 Sm	K β_1	19	51,957	66 Dy	K β_3	10
40,233	58 Ce	K β_2	6	45,998.4	66 Dy	K α_1	100	52,119	66 Dy	K β_1	20
40,652.9	59 Pr	K β_3	10	46,578	62 Sm	K β_2	6	52,388.9	70 Yb	K α_1	100
40,748.2	59 Pr	K β_1	19	46,699.7	67 Ho	K α_2	56	52,965.0	71 Lu	K α_2	57
40,901.9	63 Eu	K α_2	56	46,903.6	63 Eu	K β_3	10	53,476	66 Dy	K β_2	7

Table 1-3. *Energies and intensities of x-ray emission lines (continued).*

Energy (eV)	Element	Line	Relative intensity	59,370	70 Yb	K β_1	21	66,989.5	79 Au	K α_2	59
				59,717.9	75 Re	K α_2	58	66,990	73 Ta	K β_2	7
53,711	67 Ho	K β_3	11	60,980	70 Yb	K β_2	7	67,244.3	74 W	K β_1	22
53,877	67 Ho	K β_1	20	61,050	71 Lu	K β_3	11	68,803.7	79 Au	K α_1	100
54,069.8	71 Lu	K α_1	100	61,140.3	75 Re	K α_1	100	68,895	80 Hg	K α_2	59
54,611.4	72 Hf	K α_2	57	61,283	71 Lu	K β_1	21	68,994	75 Re	K β_3	12
55,293	67 Ho	K β_2	7	61,486.7	76 Os	K α_2	58	69,067	74 W	K β_2	8
55,494	68 Er	K β_3	11	62,970	71 Lu	K β_2	7	69,310	75 Re	K β_1	22
55,681	68 Er	K β_1	21	62,980	72 Hf	K β_3	11	70,819	80 Hg	K α_1	100
55,790.2	72 Hf	K α_1	100	63,000.5	76 Os	K α_1	100	70,831.9	81 Tl	K α_2	60
56,277	73 Ta	K α_2	57	63,234	72 Hf	K β_1	22	71,077	76 Os	K β_3	12
57,210	68 Er	K β_2	7	63,286.7	77 Ir	K α_2	58	71,232	75 Re	K β_2	8
57,304	69 Tm	K β_3	11	64,895.6	77 Ir	K α_1	100	71,413	76 Os	K β_1	23
57,517	69 Tm	K β_1	21	64,948.8	73 Ta	K β_3	11	72,804.2	82 Pb	K α_2	60
57,532	73 Ta	K α_1	100	64,980	72 Hf	K β_2	7	72,871.5	81 Tl	K α_1	100
57,981.7	74 W	K α_2	58	65,112	78 Pt	K α_2	58	73,202.7	77 Ir	K β_3	12
59,090	69 Tm	K β_2	7	65,223	73 Ta	K β_1	22	73,363	76 Os	K β_2	8
59,140	70 Yb	K β_3	11	66,832	78 Pt	K α_1	100	73,560.8	77 Ir	K β_1	23
59,318.2	74 W	K α_1	100	66,951.4	74 W	K β_3	11	74,814.8	83 Bi	K α_2	60

74,969.4	82 Pb	K α_1	100
75,368	78 Pt	K β_3	12
75,575	77 Ir	K β_2	8
75,748	78 Pt	K β_1	23
77,107.9	83 Bi	K α_1	100
77,580	79 Au	K β_3	12
77,850	78 Pt	K β_2	8
77,984	79 Au	K β_1	23
79,822	80 Hg	K β_3	12
80,150	79 Au	K β_2	8
80,253	80 Hg	K β_1	23

82,118	81 Tl	K β_3	12
82,515	80 Hg	K β_2	8
82,576	81 Tl	K β_1	23
84,450	82 Pb	K β_3	12
84,910	81 Tl	K β_2	8
84,936	82 Pb	K β_1	23
86,834	83 Bi	K β_3	12
87,320	82 Pb	K β_2	8
87,343	83 Bi	K β_1	23
89,830	83 Bi	K β_2	9

89,953	90 Th	K α_2	62
93,350	90 Th	K α_1	100
94,665	92 U	K α_2	62
98,439	92 U	K α_1	100
104,831	90 Th	K β_3	12
105,609	90 Th	K β_1	24
108,640	90 Th	K β_2	9
110,406	92 U	K β_3	13
111,300	92 U	K β_1	24
114,530	92 U	K β_2	9