原子序数	元素		密度(标准温度压力下)（g/cm^2）	K吸收限			主要K系特征X射线							荧光产额 ω_K	L吸收限能量（keV）			主要L系特征X射线能量（keV）					荧光产额 ω_K
				能量(keV)	质量吸收系数(cm^2/g)		$K_{\alpha1}$	$K_{\alpha2}$		$K_{\beta1}$		$K_{\beta2}$			L_I	L_{II}	L_{III}	$L_{\alpha1}$	$L_{\alpha2}$	$L_{\beta1}$	$L_{\beta2}$	$L_{\gamma1}$	
					μ_1	μ_2	能量(keV)	能量	比例	能量	比例	能量	比例											
1	氢	H	8.98×10^{-5}	0.0136																			
2	氦	He	1.78×10^{-4}	0.0246																			
3	锂	Li	0.53	0.055			0.052																
4	铍	Be	1.84	0.116			0.110																
5	硼	B	2.34	0.192			0.185																
6	碳	C	2.25	0.283	1000		0.282							0.001									
7	氮	N	1.25×10^{-3}	0.339	840		0.392							0.002									
8	氧	O	1.43×10^{-3}	0.531	720	11000	0.523							0.003									
9	氟	F	1.70×10^{-3}	0.687	600	8600	0.677							0.005									
10	氖	Ne	0.90×10^{-3}	0.874	500	6800	0.851							0.008	0.048	0.022	0.022						
11	钠	Na	0.97	1.08	420	5400	1.041			1.067				0.013	0.055	0.034	0.034						
12	镁	Mg	1.74	1.303	350	4500	1.254			1.297				0.019	0.063	0.050	0.049						
13	铝	Al	2.7	1.559	300	3700	1.487	1.486		1.553				0.026	0.087	0.073	0.072						
14	硅	Si	2.35	1.838	250	3000	1.740	1.739		1.832				0.036	0.118	0.099	0.098						
15	磷	P	2.2	2.142	215	2500	2.015	2.014		2.136				0.047	0.154	0.129	0.128						
16	硫	S	2	2.470	185	2100	2.308	2.306		2.464				0.061	0.193	0.264	0.163						
17	氯	Cl	3.21×10^{-3}	2.826	160	1800	2.622	2.621		2.815				0.078	0.238	0.203	0.202						
18	氩	Ar	1.78×10^{-3}	3.203	140	1500	2.957	2.955		3.192				0.097	0.287	0.247	0.245						
19	钾	K	0.86	3.607	120	1250	3.313	3.310		3.589	19			0.118	0.341	0.297	0.294						
20	钙	Ca	1.54	4.038	104	1050	3.691	3.688	52	4.012	19			0.142	0.399	0.352	0.349	0.341		0.344			0.001
21	钪	C	3	4.496	91	900	4.090	4.085	52	4.460	18			0.168	0.462	0.411	0.406	0.395		0.399			0.001
22	钛	Ti	4.5	4.964	80	760	4.510	4.504	51	4.931	17			0.197	0.530	0.460	0.454	0.452		0.458			0.001
23	钒	V	5.9	5.463	72	660	4.952	4.944	51	5.427	17			0.227	0.604	0.519	0.512	0.510		0.519			0.002
24	铬	Cr	6.9	5.988	64	580	5.414	5.405	51	5.946	16			0.258	0.679	0.583	0.574	0.571		0.581			0.002
25	锰	Mn	7.42	6.537	57	500	5.898	5.887	51	6.490	16			0.291	0.762	0.65	0.639	0.636		0.647			0.003

原子序数	元素		密度(标准温度压力下)（g/cm^2）	K吸收限			主要K系特征X射线							荧光产额 ω_K	L吸收限能量（keV）			主要L系特征X射线能量（keV）					荧光产额 ω_K
				能量(keV)	质量吸收系数(cm^2/g)		$K_{\alpha1}$	$K_{\alpha2}$		$K_{\beta1}$		$K_{\beta2}$			L_I	L_{II}	L_{III}	$L_{\alpha1}$	$L_{\alpha2}$	$L_{\beta1}$	$L_{\beta2}$	$L_{\gamma1}$	
					μ_1	μ_2	能量(keV)	能量	比例	能量	比例	能量	比例											
26	铁	Fe	7.9	7.111	51	450	6.403	6.390	50	7.057	16			0.324	0.849	0.721	0.708	0.704		0.717			0.003
27	钴	Co	8.9	7.709	45	390	6.930	6.915	50	7.649	16			0.358	0.929	0.749	0.779	0.775		0.790			0.004
28	镍	Ni	8.8	8.331	42	345	7.477	7.460	50	8.264	17	8.328		0.392	1.015	0.871	0.853	0.849		0.866			0.005
29	铜	Cu	8.9	8.980	37	310	8.047	8.027	50	8.904	17	8.976		0.425	1.100	0.953	0.933	0.928		0.948			0.006
30	锌	Zn	7.1	9.660	33.5	275	8.638	8.615	50	9.571	18	9.657		0.458	1.200	1.045	1.022	1.009		1.032			0.007
31	镓	Ga	5.9	10.368	30.5	245	9.251	9.234	50	10.263	19	10.365	0.4	0.489	1.30	1.134	1.117	1.096		1.122			0.009
32	锗	Ge	5.46	11.103	27.5	220	9.885	9.854	50	10.981	19	11.100	0.6	0.520	1.42	1.248	1.217	1.186		1.216			0.010
33	砷	As	5.7	11.863	25	200	10.543	10.507	50	11.725	20	11.861	0.9	0.549	1.529	1.359	1.323	1.282		1.317			0.012
34	硒	Se	4.5	12.652	23	180	11.221	11.181	50	12.495	20	12.651	1.3	0.577	1.652	1.473	1.434	1.379		1.419			0.014
35	溴	Br	3.1	13.475	21.4	162	11.923	11.877	50	13.290	21	13.465	1.7	0.604	1.794	1.599	1.552	1.480		1.526			0.016
36	氪	Kr	3.71×10^{-3}	14.323	19.6	150	12.648	12.597	50	14.112	21	14.313	2.1	0.629	1.931	1.727	1.675	1.587		1.638			0.019
37	铷	Rb	1.5	15.201	18.2	134	13.394	13.335	50	14.960	22	15.184	2.4	0.653	2.067	1.866	1.806	1.694	1.692	1.752			0.021
38	锶	Sr	2.55	16.106	16.9	121	14.164	14.097	50	15.834	22	16.083	2.8	0.675	2.221	2.008	1.941	1.806	1.805	1.872			0.024
39	钇	Y	4.5	17.037	15.5	111	14.957	14.882	50	16.736	22	17.011	3.1	0.695	2.369	2.154	2.079	1.922	1.92	1.996			0.027
40	锆	Zr	6.54	17.998	14.4	102	15.774	15.690	50	17.666	23	17.969	3.4	0.715	2.547	2.305	2.22	2.042	2.04	2.124	2.219	2.302	0.031
41	铌	Nb	8.57	18.987	13.4	94	16.614	16.520	50	18.621	23	18.951	3.7	0.732	2.706	2.467	2.374	2.166	2.163	2.257	2.367	2.462	0.035
42	钼	Mo	10.2	20.002	12.5	86	17.478	17.373	50	19.607	24	19.964	4	0.749	2.884	2.627	2.523	2.293	2.29	2.395	2.518	2.623	0.039
43	锝	Tc	11.2	21.054	11.7	79	18.410	18.328	50	20.585	24	21.012	4.2	0.765	3.054	2.795	2.677	2.424	2.42	2.528	2.674	2.792	0.043
44	钌	Ru	12.1	22.118	11.0	73	19.278	19.149	50	21.655	24	22.072	4.4	0.779	3.236	2.966	2.837	2.558	2.554	2.683	2.836	2.964	0.047
45	铑	Rh	12.4	23.224	10.2	67	20.214	20.072	50	22.721	25	23.169	4.6	0.792	3.419	3.145	3.002	2.696	2.692	2.834	3.001	3.114	0.052
46	钯	Pd	12.2	24.347	9.8	62	21.175	21.018	50	23.816	25	24.297	4.8	0.805	3.617	3.329	3.172	2.838	2.833	2.990	3.172	3.328	0.058
47	银	Ag	10.5	25.517	9.2	58	22.162	21.988	51	24.942	25	25.454	5	0.816	3.810	3.528	3.352	2.984	2.978	3.151	3.384	3.519	0.063
48	镉	Cd	8.6	26.712	8.6	53	23.172	22.982	51	26.093	26	26.641	5	0.827	4.019	3.727	3.538	3.133	3.127	3.316	3.528	3.716	0.069
49	铟	In	7.3	27.928	8.2	49	24.207	24.000	51	27.274	26	27.859	5	0.836	4.237	3.939	3.729	3.287	3.279	3.487	3.713	3.920	0.075
50	锡	Sn	7.3	29.190	7.7	46	25.270	25.042	51	28.483	26	29.106	5	0.845	4.464	4.157	3.928	3.444	3.435	3.662	3.904	4.131	0.081

原子序数	元素		密度(标准温度压力下)（g/cm^2）	K吸收限			主要K系特征X射线							荧光产额 ω_K	L吸收限能量（keV）			主要L系特征X射线能量（keV）					荧光产额 ω_K
				能量(keV)	质量吸收系数(cm^2/g)		$K_{\alpha1}$	$K_{\alpha2}$		$K_{\beta1}$		$K_{\beta2}$			L_I	L_{II}	L_{III}	$L_{\alpha1}$	$L_{\alpha2}$	$L_{\beta1}$	$L_{\beta2}$	$L_{\gamma1}$	
					μ_1	μ_2	能量(keV)	能量	比例	能量	比例	能量	比例											
51	锑	Sb	6.7	30.486	7.2	43	26.357	26.109	51	29.723	27	30.387	5	0.854	4.697	4.381	4.123	3.605	3.595	3.843	4.100	4.347	0.088
52	碲	Te	6.0	31.809	6.8	39.5	27.471	27.200	51	30.993	27	31.698	6	0.862	4.938	4.613	4.341	3.769	3.758	4.029	4.301	4.570	0.095
53	碘	I	4.9	33.164	6.5	37.0	28.610	28.315	51	32.292	27	33.016	6	0.869	5.190	4.856	4.559	3.937	3.926	4.220	4.507	4.800	0.102
54	氙	Xe	5.85×10^{-3}	34.519	6.2	34.5	29.802	29.485	52	33.644	28	34.446	6	0.876	5.452	5.104	4.782	4.111	4.098	4.422	4.720	5.036	0.110
55	铯	Cs	1.87	35.959	5.8	32.0	30.970	30.623	52	34.984	28	35.819	6	0.882	5.720	5.358	5.011	4.286	4.272	4.620	4.936	5.280	0.118
56	钡	Ba	3.5	37.410	5.5	30.0	32.191	31.815	52	36.376	28	37.255	6	0.888	5.995	5.623	5.247	4.467	4.451	4.828	5.156	5.531	0.126
57	镧	La	6.1	38.931	5.2	28.5	33.440	33.033	52	37.799	28	38.728	6	0.893	6.283	5.894	5.489	4.651	4.635	5.043	5.384	5.789	0.135
58	铈	Ce	6.8	40.449	5.0	26.5	34.717	34.276	52	39.255	29	40.231	6	0.898	6.561	6.165	5.729	4.840	4.823	5.262	5.613	6.052	0.143
59	镨	Pr	6.8	41.998	4.75	25.0	36.023	35.548	52	40.746	29	41.772	6	0.902	6.846	6.443	5.968	5.034	5.014	5.489	5.850	6.322	0.152
60	钕	Nd	6.9	43.571	4.5	23.5	37.359	36.845	52	42.269	30	43.298	6	0.907	7.144	6.727	6.215	5.230	5.208	5.722	6.090	6.602	0.161
61	钷	Pm	6.78	45.207	4.35	22.5	38.649	38.160	52	43.945	30	44.955	6	0.911	7.448	7.018	6.466	5.431	5.408	5.965	6.336	6.891	0.171
62	钐	Sm	7.5	46.846	4.15	21.0	40.124	39.523	53	45.400	30	46.553	7	0.915	7.754	7.281	6.721	5.636	5.609	6.206	6.587	7.180	0.180
63	铕	Eu	5.26	48.515	4.0	19.5	41.529	40.877	53	47.027	30	48.241	7	0.918	8.069	7.624	6.983	5.846	5.816	6.456	6.842	7.478	0.190
64	钆	Gd	7.95	50.229	3.8	18.5	42.983	42.280	53	48.718	30	49.961	7	0.921	8.393	7.940	7.252	6.059	6.027	6.714	7.102	7.788	0.200
65	铽	Tb	8.27	51.998	3.7	17.5	44.470	43.737	53	50.391	31	51.737	7	0.924	8.724	8.258	7.519	6.275	6.241	6.979	7.368	8.104	0.210
66	镝	Dy	8.54	53.789	3.55	16.5	45.985	45.193	53	52.178	31	53.491	7	0.927	9.083	8.261	7.850	6.495	6.457	7.249	7.638	8.418	0.220
67	钬	Ho	8.8	55.615	3.4	15.7	47.528	46.686	53	53.934	31	55.292	7	0.930	9.411	8.920	8.074	6.27	6.680	7.528	7.912	8.748	0.231
68	铒	Er	9.05	57.483	3.25	14.8	49.099	48.205	53	55.690	32	57.088	7	0.932	9.776	9.263	8.364	6.948	6.904	7.810	8.188	9.089	0.240
69	铥	Tm	9.33	59.335	3.15	14.0	50.730	49.762	54	57.576	32	58.969	7	0.934	10.14	9.628	8.652	7.181	7.135	8.103	8.472	9.424	0.251
70	镱	Yb	6.98	61.303	3.0	13.3	52.360	51.326	54	59.352	32	60.959	7	0.937	10.49	9.977	8.943	7.414	7.367	8.401	8.758	9.779	0.262
71	镥	Lu	9.84	63.304	2.9	12.7	54.063	52.959	54	61.282	32	62.946	8	0.939	10.87	10.35	9.241	7.654	7.604	8.708	9.048	10.142	0.272
72	铪	Hf	13.3	65.313	2.85	12.1	55.757	54.576	54	63.209	33	64.936	8	0.941	11.26	10.73	9.556	7.898	7.843	9.021	9.346	10.514	0.283
73	钽	Ta	16.6	67.400	2.75	11.8	57.524	56.270	54	65.210	33	66.999	8	0.942	11.68	11.13	9.876	8.145	8.087	9.341	9.649	10.892	0.293
74	钨	W	19.3	69.503	2.7	11.3	59.310	57.973	54	67.233	33	69.090	8	0.944	12.09	11.54	10.2	8.396	8.333	9.670	90959	11.283	0.304
75	铼	Re	21	71.662	2.6	10.5	61.131	59.707	54	69.298	34	71.220	8	0.945	12.52	11.96	10.53	8.651	8.584	10.008	10.273	11.684	0.314

原子序数	元素		密度(标准温度压力下)（g/cm^2）	K吸收限			主要K系特征X射线							荧光产额 ω_K	L吸收限能量（keV）			主要L系特征X射线能量（keV）					荧光产额 ω_K
				能量(keV)	质量吸收系数(cm^2/g)		$K_{\alpha1}$	$K_{\alpha2}$		$K_{\beta1}$		$K_{\beta2}$			L_I	L_{II}	L_{III}	$L_{\alpha1}$	$L_{\alpha2}$	$L_{\beta1}$	$L_{\beta2}$	$L_{\gamma1}$	
					μ_1	μ_2	能量(keV)	能量	比例	能量	比例	能量	比例											
76	锇	Os	22.5	73.860	2.5	10.2	62.991	61.477	54	71.404	34	73.393	9	0.947	12.97	12.38	10.87	8.910	8.840	10.354	10.596	12.094	0.325
77	铱	Ir	22.4	76.097	2.4	9.7	64.886	63.278	55	73.549	34	75.605	9	0.948	13.41	12.82	11.21	9.173	9.098	10.706	10.918	12.509	0.335
78	铂	Pt	21.4	78.379	2.35	9.3	66.820	65.111	55	75.236	34	77.866	9	0.949	13.87	13.27	11.56	9.441	9.360	11.069	11.249	12.939	0.345
79	金	Au	19.3	80.713	2.3	8.8	68.794	66.980	55	77.968	35	80.165	9	0.951	14.35	13.73	11.92	9.711	9.625	11.439	11.582	13.379	0.356
80	汞	Hg	13.6	83.106	2.2	8.4	70.821	68.894	55	80.258	35	82.526	10	0.952	14.84	14.21	12.29	9.987	9.896	11.823	11.923	13.828	0.366
81	铊	Tl	11.9	85.517	2.15	8.0	72.860	70.820	55	82.558	35	84.904	10	0.953	15.35	14.7	12.66	10.266	10.170	12.210	12.268	14.288	0.376
82	铅	Pb	11.3	88.001	2.1	7.7	74.957	72.794	55	84.922	35	87.343	10	0.954	15.87	15.21	13.04	10.549	10.448	12.611	12.620	14.762	0.386
83	铋	Bi	9.8	90.521	2.04	7.3	77.097	74.805	55	87.335	36	89.833	10	0.954	16.39	15.72	13.42	10.836	10.729	13.021	12.977	15.244	0.396
84		Po		93.112	2.0	7.0	79.296	76.868	56	89.809	36	92.386	11	0.955	16.94	16.24	13.82	11.128	11.014	13.441	13.338	15.740	0.405
85	砹	At		95.740	1.93	6.6	81.525	78.956	56	92.319	36	94.976	11	0.956	17.49	16.78	14.22	11.424	11.304	13.873	13.705	16.248	0.415
86	氡	Rn	9.73×10^{-3}	98.418	1.9	6.3	83.800	81.080	56	94.877	37	97.616	11	0.957	18.06	17.39	14.62	11.724	11.597	14.316	14.077	16.768	0.425
87	钫	Fr		101.147	1.83	6.0	86.119	83.243	56	97.483	37	100.305	12	0.957	18.64	17.9	15.03	12.029	11.894	14.770	14.459	17.301	0.434
88	镭	Ra		103.927	1.76	5.75	88.485	85.446	56	100.14	37	103.048	12	0.958	19.23	18.48	15.44	12.338	12.194	15.233	14.839	17.845	0.443
89	锕	Ac		106.759	1.72	5.5	90.894	87.681	56	102.85	37	105.838	13	0.958	19.84	19.08	15.87	12.650	12.499	15.712	15.227	18.405	0.452
90	钍	Th		109.630	1.67	5.2	93.334	89.942	56	105.59	38	108.671	13	0.959	20.46	19.69	16.3	12.966	12.808	16.200	15.620	18.977	0.461
91	镤	Pa	11.5	112.581	1.64	4.95	95.851	92.271	56	108.41	38	111.575	13	0.959	21.1	20.31	16.63	13.291	13.120	16.700	16.022	19.559	0.469
92	铀	U		115.591	1.62	4.7	98.428	94.648	56	111.29	38	114.549	14	0.960	21.75	30.94	17.16	13.613	13.438	17.218	16.425	20.163	0.478
93	镎	Np	19.0	118.619	1.57	4.55	101.005	97.023	57	114.18	39	117.533	14	0.960	22.42	21.6	17.61	13.945	13.758	17.740	16.837	20.774	0.486
94	钚	Pu	19.7	121.720	1.53	4.35	103.653	99.457	57	117.15	39	120.592	15	0.960	23.1	22.26	18.07	14.279	14.082	18.278	17.254	21.401	0.494
95	镅	Am		124.876	1.50	4.15	106.351	101.932	57	120.16	39	123.706	15	0.960	23.79	22.94	18.53	14.618	14.411	18.829	17.677	22.042	0.502
96	锔	Cm		128.088	1.47	4.0	109.098	104.448	57	123.24	39	126.875	15	0.961	24.5	23.64	18.99	14.961	14.473	19.393	18.106	22.699	0.510
97	锫	Bk		131.357			111.896	107.023	57	126.36	40	130.101	16	0.961	25.23	24.35	19.46	15.309	15.079	19.971	18.540	23.370	0.517
98	锎	Cf		134.683			114.745	109.603	57	129.54	40	133.383	16	0.961	25.97	25.08	19.94	15.661	15.420	20.562	18.980	24.056	0.524
99	锿	Es		138.067			117.646	112.244	57	132.78	40	136.724	17	0.961	26.73	25.82	20.42	16.018	15.764	21.166	19.426	24.758	0.531
100	镄	Fm		141.510			120.598	114.926	58	136.08	40	140.122	17	0.961	27.5	26.58	20.91	16.379	16.113	21.785	19.879	25.475	0.538