

**IONIC RADII IN Å FOR DIFFERENT CHARGES AND COORDINATION NUMBERS\***

Z	Element	Valence	Coordination numbers											
			II	III	IV	V	VI	VII	VIII	IX	X	XII		
1	H	+1						Extremely small						
3	Li	+1			0.68			0.82						
4	Be	+2		0.25	0.35									
5	B	+3		0.10	0.20									
6	C	-4						2.60						
		+4						0.16						
7	N	+3						0.16						
		+5						0.13						
8	O	-2	1.27	1.28	1.30			1.32		1.34				
9	F	-1	1.21	1.22	1.23			1.25						
11	Na	+1			1.07	1.08	1.10	1.21	1.24	1.40				
12	Mg	+2			0.66	0.75	0.80		0.97					
13	Al	+3			0.47	0.56	0.61							
14	Si	+4			0.34			0.48						
15	P	+5			0.25									
16	S	-2			1.56			1.72		1.78				
		+6			0.20									
17	Cl	-1			1.67			1.72		1.65				
		+5		0.20										
		+7			0.28									
19	K	+1					1.46	1.54	1.59	1.63	1.67	1.68		
20	Ca	+2					1.08	1.15	1.20	1.26	1.36	1.43		
21	Sc	+3					0.83		0.95					
22	Ti	+2						0.94						
		+3						0.75						
		+4				0.61	0.69							
23	V	+2					0.87							

Z	Element	Valence	Coordination numbers									
			II	III	IV	V	VI	VII	VIII	IX	X	XII
24	Cr	+3						0.72				
		+4						0.67				
		+5			0.44	0.54		0.62				
		+2						0.81(L)				
									0.90(H)			
		+3							0.70			
		+4				0.52			0.63			
25	Mn	+5			0.43							
		+6			0.38							
		+2						0.75(L)		1.01		
									0.91(H)			
		+3				0.66		0.66(L)				
									0.73(H)			
		+4							0.62			
26	Fe	+6			0.35							
		+7			0.34							
		+2			0.71(H)			0.69(L)				
								0.86(H)				
		+3			0.57(H)			0.63(L)				
27	Co	+2			0.65(H)			0.73(L)				
								0.83(H)				
		+3						0.61(L)				
								0.69(H)				
28	Ni	+2						0.77				
		+3						0.64(L)				
								0.68(H)				
29	Cu	+1	0.54									

Z	Element	Valence	Coordination numbers									
			II	III	IV	V	VI	VII	VIII	IX	X	XII
		+2			0.70	0.73	0.81					
30	Zn	+2			0.68	0.76	0.83		0.98			
31	Ga	+3			0.55	0.63	0.70					
32	Ge	+4			0.48		0.62					
33	As	+5			0.42		0.58					
34	Se	-2					1.88		1.90			
		+6			0.37							
35	Br	-1					1.88		1.84			
		+7			0.34							
37	Rb	+1					1.57	1.64	1.68		1.74	1.81
38	Sr	+2					1.21	1.29	1.33		1.40	1.48
39	Y	+3					0.98		1.10	1.18		
40	Zr	+4					0.80	0.86	0.92			
41	Nb	+2					0.79					
		+3					0.78					
		+4					0.77					
		+5			0.40		0.72	0.74				
42	Mo	+3					0.75					
		+4					0.73					
		+5					0.71					
		+6			0.50	0.58	0.68	0.79				
43	Tc	+4					0.72					
44	Ru	+3					0.76					
		+4					0.70					
45	Rh	+3					0.75					
		+4					0.71					
46	Pd	+1	0.67									
		+2			0.72		0.94					

Z	Element	Valence	Coordination numbers									
			II	III	IV	V	VI	VII	VIII	IX	X	XII
		+3						0.84				
		+4						0.70				
47	Ag	+1	0.75		1.10	1.20	1.23	1.32	1.38			
		+3			0.73							
48	Cd	+2			0.88	0.95	1.03	1.08	1.15			1.39
49	In	+3					0.88		1.00			
50	Sn	+2							1.30			
		+4						0.77				
51	Sb	+3			0.85	0.88						
		+5						0.69				
52	Te	+4		0.60								
53	I	-1					2.13		1.97			
		+5					1.03					
55	Cs	+1					1.78		1.82	1.86	1.89	1.96
56	Ba	+2					1.44	1.47	1.50	1.55	1.60	1.68
57	La	+3					1.13	1.18	1.26	1.28	1.36	1.40
58	Ce	+3					1.09		1.22	1.23		1.37
		+4					0.88		1.05			
59	Pr	+3					1.08		1.22			
		+4					0.86		1.07			
60	Nd	+3					1.06		1.20	1.17		
61	Pm	+3					1.04					
62	Sm	+3					1.04		1.17			
63	Eu	+2					1.25		1.33			
		+3					1.03	1.11	1.15			
64	Gd	+3					1.02	1.12	1.14			
65	Tb	+3					1.00	1.10	1.12			
		+4					0.84		0.96			

Z	Element	Valence	Coordination numbers									
			II	III	IV	V	VI	VII	VIII	IX	X	XII
66	Dy	+3						0.99		1.11		
67	Ho	+3						0.98		1.10		
68	Er	+3						0.97		1.08		
69	Tm	+3						0.96		1.07		
70	Yb	+3						0.95		1.06		
71	Lu	+3						0.94		1.05		
72	Hf	+4						0.79		0.91		
73	Ta	+3						0.75				
		+4						0.74				
		+5						0.72		0.77		
74	W	+4						0.73				
		+6			0.50			0.68				
75	Re	+4						0.71				
		+5						0.60				
		+6						0.60				
		+7			0.48			0.65				
76	Os	+4					0.71					
77	Ir	+3						0.81				
		+4						0.71				
78	Pt	+2			0.68							
		+4						0.71				
79	Au	+3			0.78							
80	Hg	+1		1.05								
		+2	0.77		1.04		1.10		1.22			
81	Tl	+1						1.58		1.68		1.84
		+3						0.97		1.08		
82	Pb	+2			1.02			1.26		1.37	1.41	1.57
		+4						0.86		1.02		

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			II	III	IV	V	VI	VII	VIII	IX	X	XII
83	Bi	+3				1.07	1.10		1.19			
84	Po	+4							1.16			
87	Ra	+2							1.56			1.72
90	Th	+4					1.08		1.12	1.17		
91	Pa	+4							1.09			
		+5						0.99	1.03			
92	U	+3					1.12					
		+4						1.06	1.08	1.13		
		+5					0.84	1.04				
		+6	0.53		0.56		0.81	0.96				
93	Np	+2					1.18					
		+3					1.10					
		+4						1.06				
94	Pu	+3					1.09					
		+4					0.88	1.04				
95	Am	+3					1.08					
		+4						1.03				
96	Cm	+3					1.06					
		+4						1.08				
97	Bk	+3					1.04					
		+4						1.01				
98	Cf	+3					1.03					

\*Ionic radii from Whittaker and Muntus, 1970. L = low spin (electrons paired), H = high spin (single electrons).