

9.4. TYPICAL INTERATOMIC DISTANCES: INORGANIC COMPOUNDS

Table 9.4.1.5. Atomic distances between halogens and actinoids

Atom pair	<i>N</i>	Mean	s.u.	<i>d</i> ₁	Smallest 5%	First quartile	Median	Third quartile	<i>d</i> ₂
Th ⁴⁺ —F ⁻	26	233.3	10.4	0.0	219.3	226.8	231.3	237.0	500.0
Pa ⁵⁺ —F ⁻	4	216.5	3.4	0.0	212.4	214.0	216.0	218.0	500.0
U ⁴⁺ —F ⁻	35	232.1	12.7	0.0	216.8	222.5	228.3	241.2	500.0
U ⁵⁺ —F ⁻	16	204.4	10.4	0.0	192.5	196.0	203.0	208.0	500.0
U ⁶⁺ —F ⁻	25	211.8	21.4	170.0	180.2	187.6	220.3	223.9	280.0
Np ⁴⁺ —F ⁻	8	215.8	17.8	0.0	172.8	218.0	220.0	222.0	500.0
Pu ³⁺ —F ⁻	4	241.5	6.4	0.0	234.4	236.0	238.0	247.0	500.0
Th ⁴⁺ —Cl ⁻	15	292.9	19.4	0.0	245.5	279.5	302.4	303.3	500.0
U ⁴⁺ —Cl ⁻	14	268.1	17.7	0.0	241.4	261.0	264.7	267.5	500.0
U ⁵⁺ —Cl ⁻	5	250.6	11.7	0.0	242.2	243.2	247.0	249.5	500.0
U ⁶⁺ —Cl ⁻	17	264.6	20.1	0.0	229.7	246.5	273.0	275.9	500.0
Pu ³⁺ —Cl ⁻	6	281.0	19.9	0.0	252.6	270.5	272.0	293.0	500.0
Am ³⁺ —Cl ⁻	4	281.5	24.0	0.0	250.4	252.0	280.0	288.0	500.0
Th ⁴⁺ —Cl ⁻	15	292.9	19.4	0.0	245.5	279.5	302.4	303.3	500.0
Th ⁴⁺ —Br ⁻	5	288.6	26.7	0.0	256.5	282.5	285.0	287.5	500.0
U ⁴⁺ —Br ⁻	5	281.0	24.2	0.0	260.5	270.5	273.0	277.5	500.0
Pu ³⁺ —Br ⁻	4	309.0	8.2	0.0	302.4	304.0	306.0	308.0	500.0
U ³⁺ —I ⁻	4	320.5	7.2	0.0	314.4	316.0	318.0	320.0	500.0

Table 9.4.1.6. Atomic distances between oxygen and main-group elements in their preferred oxidation states

Atom pair	<i>N</i>	Mean	s.u.	<i>d</i> ₁	Smallest 5%	First quartile	Median	Third quartile	<i>d</i> ₂
Li ⁺ —O ²⁻	745	194.9	10.2	164.0	178.4	188.4	193.9	203.0	218.0
Na ⁺ —O ²⁻	1914	233.6	10.8	196.0	214.9	227.6	233.7	239.4	268.0
K ⁺ —O ²⁻	1434	276.4	13.0	254.0	259.3	267.4	273.8	282.6	326.0
Rb ⁺ —O ²⁻	330	288.7	12.1	258.0	269.5	280.7	288.4	295.2	322.0
Cs ⁺ —O ²⁻	290	305.2	12.4	270.0	280.5	297.5	306.3	314.1	328.0
Be ²⁺ —O ²⁻	195	161.1	5.1	146.0	152.8	157.6	161.1	164.1	178.0
Mg ²⁺ —O ²⁻	1121	201.6	9.0	166.0	185.2	197.6	202.8	206.6	228.0
Ca ²⁺ —O ²⁻	1624	233.0	12.4	184.0	209.8	228.1	233.2	238.6	286.0
Sr ²⁺ —O ²⁻	372	248.7	11.4	212.0	226.8	242.9	250.5	256.9	270.0
Ba ²⁺ —O ²⁻	1012	273.8	14.6	222.0	246.9	265.4	274.9	283.0	312.0
B ³⁺ —O ²⁻	407	134.3	3.6	116.0	127.1	132.8	134.8	136.6	142.0
Al ³⁺ —O ²⁻	914	161.8	4.5	138.0	154.1	160.0	162.4	164.4	170.0
Ga ³⁺ —O ²⁻	111	180.3	3.5	170.0	175.0	177.7	180.3	183.0	188.0
In ³⁺ —O ²⁻	153	208.2	8.8	184.0	189.6	203.9	209.1	213.2	230.0
Tl ³⁺ —O ²⁻	23	214.2	4.4	206.0	187.6	210.8	214.2	217.5	224.0
C ⁴⁺ —O ²⁻	413	125.3	4.9	104.0	115.9	123.5	126.0	128.3	142.0
Si ⁴⁺ —O ²⁻	2679	159.6	5.3	126.0	150.6	157.8	160.0	162.4	180.0
Ge ⁴⁺ —O ²⁻	329	172.1	7.7	144.0	160.3	169.3	172.1	175.0	194.0
Sn ⁴⁺ —O ²⁻	170	202.8	6.4	188.0	191.7	198.1	204.0	206.2	222.0
Pb ⁴⁺ —O ²⁻	56	211.9	5.0	200.0	201.2	207.5	213.7	215.4	222.0
N ⁵⁺ —O ²⁻	301	120.7	4.0	106.0	112.3	118.9	121.5	123.4	132.0
P ⁵⁺ —O ²⁻	1391	149.6	4.7	122.0	142.3	147.3	150.1	152.4	172.0
As ⁵⁺ —O ²⁻	251	166.0	3.9	150.0	159.4	164.4	166.3	167.7	182.0
Sb ⁵⁺ —O ²⁻	161	197.7	7.1	184.0	188.0	193.2	196.7	200.0	220.0
Bi ⁵⁺ —O ²⁻	6	229.0	0.0	228.0	226.5	227.2	228.2	229.1	230.0
S ⁶⁺ —O ²⁻	998	144.3	5.5	118.0	135.6	142.5	144.7	146.6	178.0
Se ⁶⁺ —O ²⁻	86	160.8	3.2	152.0	154.3	159.6	161.3	162.9	168.0
Te ⁶⁺ —O ²⁻	113	189.2	4.1	176.0	182.2	186.8	190.0	191.5	200.0
Cl ⁷⁺ —O ²⁻	89	139.5	5.5	122.0	128.3	136.8	140.9	143.1	150.0
Br ⁷⁺ —O ²⁻	3	160.3	1.2	158.0	158.3	159.5	160.5	161.2	162.0
I ⁷⁺ —O ²⁻	39	180.3	4.7	170.0	171.6	177.4	180.4	183.6	190.0