

## Bond Lengths and Enthalpies

Bond	Length (pm)	Enthalpy (kJ/mol)	Bond	Length (pm)	Enthalpy (kJ/mol)	Bond	Length (pm)	Enthalpy (kJ/mol)	Bond	Length (pm)	Enthalpy (kJ/mol)
H-H	74	436	N-S	168		Si-Br	216		Cl-Cl	199	242
H-F	92	567	N-F	139	272	Si-I	240		Cl-Br	214	218
H-Cl	127	431	N-Cl	191	200	P-H	142		Cl-I	243	208
H-Br	141	366	N-Br	214	243	P-Si	227		Br-Br	228	193
H-I	161	299	N-I	222		P-P	221		Br-I	248	175
C-H	109	413	O-H	96	463	P-F	156		I-I	266	151
C-C	154	348	O-P	160		P-Cl	204		C=C	134	614
C-Si	186	301	O-O	148	146	P-Br	222		C=N	127	615
C-N	147	293	O-S	151		P-I	243		C=O	123	799
C-O	143	358	O-F	142	190	S-H	134	339	N=N	122	418
C-P	187		O-Cl	164	203	S-P	210		N=O	120	607
C-S	181	259	O-Br	172		S-S	204	266	O=O	121	495
C-F	133	485	O-I	194	234	S-F	158	327	C≡C	121	839
C-Cl	177	328	Si-H	148	323	S-Cl	201	253	C≡N	115	891
C-Br	194	276	Si-Si	234	226	S-Br	225	218	C≡O	113	1072
C-I	213	240	Si-O	161	368	S-I	234		N≡N	110	941
N-H	101	391	Si-S	210		F-F	143	155	N≡O	106	
N-N	146	163	Si-N	172		F-Cl	166	253	S=O		523
N-P	177		Si-F	156		F-Br	178	237	S=S		418
N-O	144	201	Si-Cl	204		F-I	187				

Brown, LeMay, and Bursten. *Chemistry: The Central Science*, 7<sup>th</sup> ed.; Prentice Hall: Upper Saddle River, NJ, 1997; p280.

Silberberg, Martin S. *Chemistry: The Molecular Nature of Matter and Change*, 4<sup>th</sup> ed.; McGraw-Hill: New York, 2006; p 342.