

TABLE 8.4 Average Bond Enthalpies (kJ/mol)
Single Bonds

C—H	413	N—H	391	O—H	463	F—F	155
C—C	348	N—N	163	O—O	146		
C—N	293	N—O	201	O—F	190	Cl—F	253
C—O	358	N—F	272	O—Cl	203	Cl—Cl	242
C—F	485	N—Cl	200	O—I	234		
C—Cl	328	N—Br	243			Br—F	237
C—Br	276			S—H	339	Br—Cl	218
C—I	240	H—H	436	S—F	327	Br—Br	193
C—S	259	H—F	567	S—Cl	253		
		H—Cl	431	S—Br	218	I—Cl	208
Si—H	323	H—Br	366	S—S	266	I—Br	175
Si—Si	226	H—I	299			I—I	151
Si—C	301						
Si—O	368						
Si—Cl	464						

Multiple Bonds

C=C	614	N=N	418	O ₂	495
C≡C	839	N≡N	941		
C=N	615	N=O	607	S=O	523
C≡N	891			S=S	418
C=O	799				
C≡O	1072				

Common Polyatomic Ions

1- charge		2- charge		3- charge	
Formula	Name	Formula	Name	Formula	Name
H ₂ PO ₄ ⁻	Dihydrogen phosphate	HPO ₄ ²⁻	Hydrogen phosphate	PO ₄ ³⁻	Phosphate
C ₂ H ₃ O ₂ ⁻	Acetate	C ₂ O ₄ ²⁻	Oxalate	PO ₃ ³⁻	Phosphite
HSO ₃ ⁻	Hydrogen sulfite	SO ₃ ²⁻	Sulfite		
HSO ₄ ⁻	Hydrogen sulfate	SO ₄ ²⁻	Sulfate		
HCO ₃ ⁻	Hydrogen carbonate	CO ₃ ²⁻	Carbonate		
NO ₂ ⁻	Nitrite	CrO ₄ ²⁻	Chromate		
NO ₃ ⁻	Nitrate	Cr ₂ O ₇ ²⁻	Dichromate		
CN ⁻	Cyanide	SiO ₃ ²⁻	Silicate		
OH ⁻	Hydroxide				
MnO ₄ ⁻	Permanganate				
ClO ⁻	Hypochlorite				
ClO ₂ ⁻	Chlorite				
ClO ₃ ⁻	Chlorate				
ClO ₄ ⁻	Perchlorate				