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Standard Bond Energies

Single Bonds	ΔH°^*	Single Bonds	ΔH°^*	Multiple Bonds	ΔH°^*
H-H	104.2	B-F	150	C=C	146
C-C	83	B-O	125	N=N	109
N-N	38.4	C-N	73	O=O	119
O-O	35	N-CO	86	C=N	147
F-F	36.6	C-O	85.5	C=O (CO ₂)	192
Si-Si	52	O-CO	110	C=O (aldehyde)	177
P-P	50	C-S	65	C=O (ketone)	178
S-S	54	C-F	116	C=O (ester)	179
Cl-Cl	58	C-Cl	81	C=O (amide)	179
Br-Br	46	C-Br	68	C=O (halide)	177
I-I	36.	C-I	51	C=S (CS ₂)	138
H-C	99	C-B	90	N=O (HONO)	143
H-N	93	C-Si	76	P=O (POCl ₃)	110
H-O	111	C-P	70	P=S (PSCl ₃)	70
H-F	135	N-O	55	S=O (SO ₂)	128
H-Cl	103	S-O	87	S=O (DMSO)	93
H-Br	87.5	Si-F	135	P=P	84
H-I	71	Si-Cl	90	P≡P	117
H-B	90	Si-O	110	C≡O	258
H-S	81	P-Cl	79	C≡C	200
H-Si	75	P-Br	65	N≡N	226
H-P	77	P-O	90	C≡N	213

* Average Bond Dissociation Enthalpies in kcal per mole
(There can be considerable variability in some of these values.)

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Bond Dissociation Energies *

atom or group	methyl	ethyl	i-propyl	t-butyl	phenyl	benzyl	allyl	acetyl	vinyl
H	103	98	95	93	110	85	88	87	112
F	110	110	109		124	94		119	
Cl	85	82	81	80	95	68	70	82	90
Br	71	70	69	66	79	55	56	68	80
I	57	54	54	51	64	40	42	51	
OH	93	94	92	91	111	79	82	107	
NH₂	87	87	86	85	104	72	75	95	
CN	116	114	112		128	100			128
CH₃	88	85	84	81	101	73	75	81	98
C₂H₅	85	82	81	78	99	71	72	78	95
(CH₃)₂CH	84	81	79	74	97	70	71	76	93
(CH₃)₃C	81	78	74	68	94	67	67		89
C₆H₅	101	99	97	94	110	83	87	93	108
C₆H₅CH₂	73	71	70	67	83	59	59	63	81

* In kcal per mole

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Many of the bond energies listed here were taken from the following sources:

R.T.Sanderson, *Polar Covalence*, 1983R.T.Sanderson, *Chemical Bonds and Bond Energy*, 1976