TABLE A-5 ENTHALPY OF COMBUSTION

Substance	Formula	State	ΔH_c
hydrogen	H_2	*g*	–285.8
graphite	C	*s*	–393.5
carbon monoxide	CO	*g*	–283.0
methane	CH_4	*g*	–890.8
ethane	C_2H_6	*g*	–1560.7
propane	C_3H_8	*g*	–2219.2
butane	C_4H_{10}	*g*	–2877.6
pentane	C_5H_{12}	*g*	–3535.6
hexane	C_6H_{14}	*l*	–4163.2
heptane	C_7H_{16}	*l*	–4817.0
octane	C_8H_{18}	*l*	–5470.5
ethene (ethylene)	C_2H_4	*g*	–1411.2
propene (propylene)	C_3H_6	*g*	–2058.0
ethyne (acetylene)	C_2H_2	*g*	–1301.1
benzene	C_6H_6	*l*	–3267.6
toluene	C_7H_8	*l*	–3910.3
naphthalene	$C_{10}H_8$	*s*	–5156.3
anthracene	$C_{14}H_{10}$	*s*	–7163.0
methanol	CH_3OH	*l*	–726.1
ethanol	C_2H_5OH	*l*	–1366.8
ether	$(C_2H_5)_2O$	*l*	–2751.1
formaldehyde	CH_2O	*g*	–570.7
glucose	$C_6H_{12}O_6$	*s*	–2803.0
sucrose	$C_{12}H_{22}O_{11}$	*s*	–5640.9

ΔH_c = enthalpy of combustion of the given substance. All values of ΔH_c are expressed as kJ/mol of substance oxidized to $H_2O(l)$ and/or $CO_2(g)$ at constant pressure and 25°C.
s = solid, *l* = liquid, *g* = gas

TABLE A-6 THE ELEMENTS—SYMBOLS, ATOMIC NUMBERS, AND ATOMIC MASSES

Name of element	Symbol	Atomic number	Atomic mass
actinium	Ac	89	[227.0278]
aluminum	Al	13	26.981539
americium	Am	95	[243.0614]
antimony	Sb	51	121.757
argon	Ar	18	39.948
arsenic	As	33	74.92159
astatine	At	85	[209.9871]
barium	Ba	56	137.327
berkelium	Bk	97	[247.0703]
beryllium	Be	4	9.012182
bismuth	Bi	83	208.98037
bohrium	Bh	107	[262.12]
boron	B	5	10.811
bromine	Br	35	79.904
cadmium	Cd	48	112.411
calcium	Ca	20	40.078
californium	Cf	98	[251.0796]
carbon	C	6	12.011
cerium	Ce	58	140.115
cesium	Cs	55	132.90543
chlorine	Cl	17	35.4527
chromium	Cr	24	51.9961
cobalt	Co	27	58.93320
copper	Cu	29	63.546
curium	Cm	96	[247.0703]
darmstadtium	Ds	110	[271]
dubnium	Db	105	[262.114]
dysprosium	Dy	66	162.50
einsteinium	Es	99	[252.083]
erbium	Er	68	167.26
europium	Eu	63	151.966
fermium	Fm	100	[257.0951]
fluorine	F	9	18.9984032
francium	Fr	87	[223.0197]
gadolinium	Gd	64	157.25
gallium	Ga	31	69.723
germanium	Ge	32	72.61
gold	Au	79	196.96654
hafnium	Hf	72	178.49
hassium	Hs	108	[265]
helium	He	2	4.002602
holmium	Ho	67	164.930
hydrogen	H	1	1.00794
indium	In	49	114.818
iodine	I	53	126.904
iridium	Ir	77	192.22