

**TABLE 2-3 Common Functional Groups (continued)**

Compound class	General structure <sup>a</sup>	Functional group	Example
Aromatic compounds			 Methylbenzene (Toluene)
Aldehydes			 Propanal
Ketones			 3-Hexanone
Carboxylic acids			 Propanoic acid
Anhydrides			 Propanoic anhydride

<sup>a</sup>The letter R denotes an alkyl group (see text). Different alkyl groups can be distinguished by adding primes to the letter R: R', R'', and so forth.

**TABLE 2-3 Common Functional Groups**

Compound class	General structure <sup>a</sup>	Functional group	Example
Alkanes	R—H	None	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub> Butane
Haloalkanes	R—X̄ (X = F, Cl, Br, I)	—X̄:	CH <sub>3</sub> CH <sub>2</sub> —Br̄: Bromoethane
Alcohols	R—OH̄	—OH̄	 2-Propanol (Isopropyl alcohol)
Ethers	R—Ō—R'	—Ō—	CH <sub>3</sub> CH <sub>2</sub> —Ō—CH <sub>3</sub> Methoxyethane (Ethyl methyl ether)
Thiols	R—SH̄	—SH̄	CH <sub>3</sub> CH <sub>2</sub> —SH̄ Ethanethiol
Alkenes			 2-Methylpropene
Alkynes	(H)R—C≡C—R(H)	—C≡C—	CH <sub>3</sub> C≡CCH <sub>3</sub> 2-Butyne

<sup>a</sup>The letter R denotes an alkyl group (see text). Different alkyl groups can be distinguished by adding primes to the letter R: R', R'', and so forth.

**TABLE 2-3 Common Functional Groups (continued)**

Compound class	General structure <sup>a</sup>	Functional group	Example
Esters			 Methyl propanoate (Methyl propionate)
Amides			 Butanamide
Nitriles	R—C≡N:	—C≡N:	CH <sub>3</sub> C≡N: Ethanenitrile (Acetonitrile)
Amines			(CH <sub>3</sub> ) <sub>3</sub> N: N,N-Dimethylmethanamine (Trimethylamine)

**TABLE 2-5 Names and Physical Properties of Alkanes, C<sub>n</sub>H<sub>2n+2</sub>**

n	Name	Formula
1	Methane	CH <sub>4</sub>
2	Ethane	CH <sub>3</sub> CH <sub>3</sub>
3	Propane	CH <sub>3</sub> CH <sub>2</sub> CH <sub>3</sub>
4	Butane	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>
5	Pentane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>
6	Hexane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>4</sub> CH <sub>3</sub>
7	Heptane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>5</sub> CH <sub>3</sub>
8	Octane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>6</sub> CH <sub>3</sub>
9	Nonane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> CH <sub>3</sub>
10	Decane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>8</sub> CH <sub>3</sub>

**TABLE 2-5 Names and Physical Properties of Alkanes, C<sub>n</sub>H<sub>2n+2</sub>**

n	Name	Formula
11	Undecane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>9</sub> CH <sub>3</sub>
12	Dodecane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>10</sub> CH <sub>3</sub>
13	Tridecane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>11</sub> CH <sub>3</sub>
14	Tetradecane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>12</sub> CH <sub>3</sub>
15	Pentadecane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>13</sub> CH <sub>3</sub>
16	Hexadecane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>14</sub> CH <sub>3</sub>
17	Heptadecane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>15</sub> CH <sub>3</sub>
18	Octadecane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>16</sub> CH <sub>3</sub>
19	Nonadecane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>17</sub> CH <sub>3</sub>
20	Icosane	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>18</sub> CH <sub>3</sub>