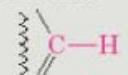


**TABLE 12.1** Characteristic IR Absorptions of Some Functional Groups

| Functional group class   | Band position (cm <sup>-1</sup> ) | Intensity of absorption |
|--|-----------------------------------|-------------------------|
| Alkanes, alkyl groups<br>C-H   | 2850–2960                         | Medium to strong        |
| Alkenes<br>=C-H  | 3020–3100                         | Medium                  |
| C=C  | 1640–1680                         | Medium                  |
| Alkynes<br>≡C-H  | 3300                              | Strong                  |
| -C≡C-  | 2100–2260                         | Medium                  |
| Alkyl halides<br>C-Cl  | 600–800                           | Strong                  |
| C-Br   | 500–600                           | Strong                  |
| C-I  | 500                               | Strong                  |
| Alcohols<br>O-H  | 3400–3650                         | Strong, broad           |
| C-O  | 1050–1150                         | Strong                  |
| Aromatics<br> | 3030                              | Weak                    |

## Approximate IR absorption frequencies

|   |           |                    |
|---|-----------|--------------------|
|  | 1660–2000 | Weak               |
|   | 1450–1600 | Medium             |
| Amines<br>N-H   | 3300–3500 | Medium             |
| C-N   | 1030–1230 | Medium             |
| Carbonyl compounds <sup>a</sup><br>C=O  | 1670–1780 | Strong             |
| Carboxylic acids<br>O-H   | 2500–3100 | Strong, very broad |
| Nitriles<br>C≡N   | 2210–2260 | Medium             |
| Nitro compounds<br>NO <sub>2</sub>  | 1540      | Strong             |

