| Absorption (cm-1) | Appearance | Group | Compound Class | Comments |
|---|---|---|---|---|
| 3700-3584 | medium, sharp | O-H stretching | alcohol | free |
| 3550-3200 | strong, broad | O-H stretching | alcohol | intermolecular bonded |
| 3500 | medium | N-H stretching | primary amine | |
| 3400-3300 | medium | N-H stretching | aliphatic primary amine | |
| 3350-3310 | medium | N-H stretching | secondary amine | |
| 3300-2500 | strong, broad | O-H stretching | carboxylic acid | usually centered on 3000 cm-1 |
| 3200-2700 | weak, broad | O-H stretching | alcohol | intramolecular bonded |
| 3000-2800 | strong, broad | N-H stretching | amine salt | |
| 3333-3267 | strong, sharp | C-H stretching | alkyne | |
| 3100-3000 | medium | C-H stretching | alkene | |
| 3000-2840 | medium | C-H stretching | alkane | |
| 2830-2695 | medium | C-H stretching | aldehyde | doublet |
| 2600-2550 | weak | S-H stretching | thiol | |
| 2349 | strong | O=C=O stretching | carbon dioxide | |
| 2275-2250 | strong, broad | N=C=O stretching | isocyanate | |
| 2260-2222 | weak | CΞN stretching | nitrile | |
| 2260-2190 | weak | CΞC stretching | alkyne | disubstituted |
| 2175-2140 | strong | S-CΞN stretching | thiocyanate | |
| 2160-2120 | strong | N=N=N stretching | azide | |
| 2150 | | C=C=O stretching | ketene | |
| 2145-2120 | strong | N=C=N stretching | carbodiimide | |
| 2140-2100 | weak | CΞC stretching | alkyne | monosubstituted |
| 2140-1990 | strong | N=C=S stretching | isothiocyanate | |
| 2000-1900 | medium | C=C=C stretching | allene | |
| 2000 | | C=C=N stretching | ketenimine | |
| 2000-1650 | weak | C-H bending | aromatic compound | overtone |
| 1818 | strong | C=O stretching | anhydride | |
| 1815-1785 | strong | C=O stretching | acid halide | |
| 1800-1770 | strong | C=O stretching | conjugated acid halide | |
| 1775 | strong | C=O stretching | conjugated anhydride | |
| 1770-1780 | strong | C=O stretching | vinyl / phenyl ester | |
| 1760 | strong | C=O stretching | carboxylic acid | monomer |
| 1750-1735 | strong | C=O stretching | esters | 6-membered lactone |
| 1750-1735 | strong | C=O stretching | δ-lactone | γ: 1770 |
| 1745 | strong | C=O stretching | cyclopentanone | |
| 1740-1720 | strong | C=O stretching | aldehyde | |
| 1730-1715 | strong | C=O stretching | α,β-unsaturated ester | or formates |
| 1725-1705 | strong | C=O stretching | aliphatic ketone | or cyclohexanone or cyclopentenone |
| 1720-1706 | strong | C=O stretching | carboxylic acid | dimer |
| 1710-1680 | strong | C=O stretching | conjugated acid | dimer |
| 1710-1685 | strong | C=O stretching | conjugated aldehyde | |
| 1690 | strong | C=O stretching | primary amide | free (associated: 1650) |
| 1690-1640 | medium | C=N stretching | imine / oxime | |
| 1685-1666 | strong | C=O stretching | conjugated ketone | |
| 1680 | strong | C=O stretching | secondary amide | free (associated: 1640) |
| 1680 | strong | C=O stretching | tertiary amide | free (associated: 1630) |
| 1650 | strong | C=O stretching | δ-lactam | |

| | | | | |
|---|---|---|---|---|
| 1750-1700 | strong | C=O stretching | γ-lactam | |
| 1760-1730 | strong | C=O stretching | β-lactam | |
| 1678-1668 | weak | C=C stretching | alkene | disubstituted (trans) |
| 1675-1665 | weak | C=C stretching | alkene | trisubstituted |
| 1675-1665 | weak | C=C stretching | alkene | tetrasubstituted |
| 1662-1626 | medium | C=C stretching | alkene | disubstituted (cis) |
| 1658-1648 | medium | C=C stretching | alkene | vinylidene |
| 1650-1600 | medium | C=C stretching | conjugated alkene | |
| 1650-1580 | medium | N-H bending | amine | |
| 1650-1566 | medium | C=C stretching | cyclic alkene | |
| 1648-1638 | strong | C=C stretching | alkene | monosubstituted |
| 1620-1610 | strong | C=C stretching | α,β-unsaturated ketone | |
| 1550-1500 | strong | N-O stretching | nitro compound | |
| 1465 | medium | C-H bending | alkane | methylene group |
| 1450 | medium | C-H bending | alkane | methyl group |
| 1390-1380 | medium | C-H bending | aldehyde | |
| 1385-1380 | medium | C-H bending | alkane | gem dimethyl |
| 1440-1395 | medium | O-H bending | carboxylic acid | |
| 1420-1330 | medium | O-H bending | alcohol | |
| 1415-1380 | strong | S=O stretching | sulfate | |
| 1410-1380 | strong | S=O stretching | sulfonyl chloride | |
| 1400-1000 | strong | C-F stretching | fluoro compound | |
| 1390-1310 | medium | O-H bending | phenol | |
| 1372-1335 | strong | S=O stretching | sulfonate | |
| 1370-1335 | strong | S=O stretching | sulfonamide | |
| 1350-1342 | strong | S=O stretching | sulfonic acid | anhydrous |
| 1350-1300 | strong | S=O stretching | sulfone | |
| 1342-1266 | strong | C-N stretching | aromatic amine | |
| 1310-1250 | strong | C-O stretching | aromatic ester | |
| 1275-1200 | strong | C-O stretching | alkyl aryl ether | |
| 1250-1020 | medium | C-N stretching | amine | |
| 1225-1200 | strong | C-O stretching | vinyl ether | |
| 1210-1163 | strong | C-O stretching | ester | |
| 1205-1124 | strong | C-O stretching | tertiary alcohol | |
| 1150-1085 | strong | C-O stretching | aliphatic ether | |
| 1124-1087 | strong | C-O stretching | secondary alcohol | |
| 1085-1050 | strong | C-O stretching | primary alcohol | |
| 1070-1030 | strong | S=O stretching | sulfoxide | |
| 1050-1040 | strong, broad | CO-O-CO stretching | anhydride | |
| 995-985 | strong | C=C bending | alkene | monosubstituted |
| 980-960 | strong | C=C bending | alkene | disubstituted (trans) |
| 895-885 | strong | C=C bending | alkene | vinylidene |
| 850-550 | strong | C-Cl stretching | halo compound | |
| 840-790 | medium | C=C bending | alkene | trisubstituted |
| 730-665 | strong | C=C bending | alkene | disubstituted (cis) |
| 690-515 | strong | C-Br stretching | halo compound | |
| 600-500 | strong | C-I stretching | halo compound | |
| 880 ± 20 | strong | C-H bending | 1,2,4-trisubstituted | |

| | | | |
|---|---|---|---|
| 880 ± 20 | strong | C-H bending | 1,3-disubstituted |
| 810 ± 20 | strong | C-H bending | 1,4-disubstituted or |
| 780 ± 20 | strong | C-H bending | 1,2,3-trisubstituted |
| 755 ± 20 | strong | C-H bending | 1,2-disubstituted |
| 750 ± 20 | strong | C-H bending | monosubstituted |