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Ftir functional group table pdf

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A reference chart for basic organic functional groups has been created to aid in the identification of infrared (IR) spectroscopy. Functional groups are structural units within organic compounds that can be identified using IR, which measures absorption frequencies of different molecules. The chart provides information on the positions and intensities of IR bands corresponding to various functional groups, as well as their typical ranges. The chart includes a table listing specific IR absorption frequencies for common functional groups, such as: * Alcohols (alcohol-free, intermolecular bonded) * Amines (primary, aliphatic primary, secondary) * Carboxylic acids * Nitriles * Alkenes and alkynes * Ketones * Esters Each row in the table provides a range of frequencies for different types of functional groups, allowing users to quickly identify the presence of specific groups in an organic compound. The chart is designed to be easy to read and understand, making it a useful tool for students and professionals working with IR spectroscopy and organic chemistry. Overall, this reference chart aims to simplify the complex task of identifying functional groups using IR spectroscopy by providing a concise and accessible guide to common functional group ranges and frequencies. The following is a list of infrared (IR) absorption frequencies and their corresponding chemical bond types: * C=N stretching imine/oxime: 1690-1640 cm-1 * C=O stretching conjugated ketone: 1685-1666 cm-1 * C=O stretching secondary amide free: 1680 cm-1 * C=O stretching tertiary amide free: 1680 cm-1 (associated with 1630 cm-1) * δ-lactam: 1750-1700, 1760-1730 cm-1 * Alkene disubstituted (trans): 1678-1668 cm-1 * Alkene trisubstituted: 1675-1665 cm-1 * Alkene tetrasubstituted: 1675-1665 cm-1 * C=C stretching alkene disubstituted (cis): 1662-1626 cm-1 * C=C stretching vinylidene: 1658-1648 cm-1 * Conjugated alkene: 1650-1600 cm-1 * N-H bending amine: 1650-1566 cm-1 * C=C stretching cyclic alkene: 1650-1580 cm-1 And so on. The list continues with various IR absorption frequencies and their corresponding chemical bond types, including: * Nitro compound: 1550-1500, 1372-1290 cm-1 * Alkane methylene group: 1465 cm-1 * Methyl group: 1450 cm-1 * Aldehyde: 1385-1380, 1370-1365 cm-1 * Gem dimethyl alkane: 1400-1000 cm-1 And many more.