Infrared Absorption Spectroscopy Characterization of Liquid-Solid Interfaces: The Case of Chiral Modification of Catalysts

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Highlights

- Infrared absorption spectroscopy is ideal for studying chemistry at liquid-solid interfaces.
- The presence of solvents may affect adsorption in unique ways not seen in gas phase.
- Cinchona alkaloid adsorption may be primarily through the N atom, not via the aromatic ring as commonly assumed.
- Their ring orientation depends on concentration, and correlates with catalytic performance.
- Competitive adsorption is controlled by a balance between the strength of the bond to the surface and solubility.
- The competitive adsorption behavior explains the non-linear kinetics seen in catalysis.