Heterogeneous catalytic oxidation is a key technique used in the large-scale production of organic chemicals. However, the recent climate of environmental awareness has seen an increase in its use as a technique for reducing polluting emissions from chemical factories. Heterogeneous Catalytic Oxidation; Fundamental and Technological Aspects of the Selective and Total Oxidation of Organic Compounds presents the essence of catalytic chemistry, describing the structure of catalysts, the technology in which they are used and the chemical transformations that occur during the reaction. Including descriptions of how reactants and products interact on the molecular scale with the active sites on the surface of these materials, this text uses catalytic oxidation to explain the principles of heterogeneous catalysis. Following an introduction to the principles and chemistry of catalytic oxidation, Professor Hodnett uses detailed case studies which represent and illustrate the fundamentals and technology for specific aspects of heterogeneous catalytic oxidation, including:

* Propene oxidation to acrolein.
* n-Butane oxidation to maleic anhydride.
* Epoxidation over silver catalysts.
* Fundamentals and technologies of the catalytic destruction of volatile organic compounds.
* Ammoxidation for the insertion of nitrogen into organic structures.
* Oxidative insertion of chlorine into ethylene and catalytic combustion of chlorinated hydrocarbons.
* Liquid phase oxidations with particular emphasis on the use of hydrogen peroxide as an oxidizing agent.

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