Alkane Functionalization
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DESCRIPTION

Presents state-of-the-art information concerning the syntheses of valuable functionalized organic compounds from alkanes, with a focus on simple, mild, and green catalytic processes.

*Alkane Functionalization* offers a comprehensive review of the state-of-the-art of catalytic functionalization of alkanes under mild and green conditions. Written by a team of leading experts on the topic, the book examines the latest research developments in the synthesis of valuable functionalized organic compounds from alkanes.

The authors describe the various modes of interaction of alkanes with metal centres and examine the oxidative alkane functionalization upon C-O bond formation. They address the many types of mechanisms, discuss typical catalytic systems and highlight the strategies inspired by biological catalytic systems. The book also describes alkane functionalization upon C-heteroatom bond formation as well as oxidative and non-oxidative approaches. In addition, the book explores non-transition metal catalysts and metal-free catalytic systems and presents selected types of functionalization of sp3 C-H bonds pertaining to substrates other than alkanes. This important resource:

- Presents a guide to the most recent advances concerning the syntheses of valuable functionalized organic compounds from alkanes
- Contains information from leading experts on the topic
• Offers information on the catalytic functionalization of alkanes that allows for improved simplicity and sustainability compared to current multi-stage industrial processes

• Explores the challenges inherent with the application of alkanes as starting materials for syntheses of added value functionalized organic compounds

Written for academic researchers and industrial scientists working in the fields of coordination chemistry, organometallic chemistry, catalysis, organic synthesis and green chemistry, Alkane Functionalization is an important resource for accessing the most up-to-date information available in the field of catalytic functionalization of alkanes.

ABOUT THE AUTHOR

ARMANDO J. L. POMBEIRO is full professor at the Instituto Superior Técnico (IST) of the Universidade de Lisboa (ULisboa), Portugal. He is President of the College of Chemistry of ULisboa and of the Centro de Química Estrutural (IST), Director of the Catalysis and Sustainability (CATSUS) PhD program, and full member of the Academy of Sciences of Lisbon. His research addresses activation of small molecules with industrial, environmental or biological significance, including metal-mediated synthesis and catalysis (e.g., functionalization of alkanes), self-assembly of polynuclear and supramolecular structures, non-covalent interactions in synthesis, crystal engineering of coordination compounds, molecular electrochemistry and theoretical studies. He authored or edited 7 books, (co-)authored over 800 research publications and 40 patents. His work has received over 20,000 citations and he has an h index of over 60 (Web of Science). He is the recipient of several scientific prizes, including from the Chemical Societies of France, Royal Spanish and Portugal, as well as from the Technical University of Lisbon, and the Vanadis Award.

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