Preface: special issue on green chemistry

Mingyuan He^{1,2*} & Buxing Han^{3,4*}¹Research Institute of Petrochem Processing, SINOPEC, Beijing 100083, China²Shanghai Key Laboratory of Green Chemistry & Chemical Processes, Department of Chemistry, East China Normal University, Shanghai 200062, China³Beijing National Laboratory for Molecular Sciences, CAS Key Laboratory of Colloid and Interface and Thermodynamics, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China⁴University of Chinese Academy of Sciences, Beijing 100049, China

Received June 4, 2017; accepted June 5, 2017; published online June 9, 2017

Citation: He M, Han B. Preface: Special Issue on Green Chemistry. *Sci China Chem*, 2017, 60: 837–838, doi: 10.1007/s11426-017-9094-0

The growing up of green chemistry has now a history of more than twenty years, with a blooming development demonstrated by its great contribution to sustainable development and economical benefit to our society. It is well accepted that green chemistry is the development and utilization of a set of principles to reduce or eliminate the use or generation of hazardous substances in the design, manufacture, and applications of chemical products. Green chemistry becomes now one of the most important areas of chemistry.

Green chemistry involves a number of interesting topics, such as development of atom-economy synthetic routes, design and use of high efficient and stable green catalysts, design and utilization of green and functional solvents, use of renewable feedstocks, such as biomass and carbon dioxide, use of greener, cheaper, and safer reagents in chemical synthesis and processes, design and production of greener products, development of clean and effective chemical processes and technologies, and evaluation of greenness of the chemical processes.

The theory and practice of green chemistry are especially important for China because the country has very big population and is in shortage of resources, and chemical industry contributes significantly to the nation's environment pollution. In last twenty years, academia, industry, funding agen-

cies, and government in China have paid much attention to green chemistry. Many leading chemists and chemical engineers are focusing their work on this field, and great achievements have been made continuously.

As guest editors, we edited a special issue on green chemistry in *Science China Chemistry* in 2010. Since much progress on green chemistry has been achieved in China in recent years, we re-organize this special issue to aim at reflecting the recent progress, including properties and application of green solvents, green catalysis, transformation of biomass-based feedstocks and CO₂ conversion to value-added chemicals. It contains 1 highlight, 5 reviews and 11 research articles. Obviously, this collection is a limited selection from a large number of exciting developments in the field in China.

Green chemistry is the way to sustainable development of chemical industry. Development of green chemistry is a long-term task, and is still in the early stage. Many challenging scientific and technological issues in this field need to be solved, which require creativity, imagination, and innovation of chemists, chemical engineers, and the experts in other related fields. We believe that green chemistry has a bright future, and it will change chemistry and the world. We hope that this special issue will be helpful to the colleagues working in this field and inspire more studies on green chemistry.

Finally, we would like to thank the authors and reviewers for their great contributions to this special issue.

*Corresponding authors (email: hemingyuan@126.com; hanbx@iccas.ac.cn)

Prof. Mingyuan He is the vice Chairman of Academic Committee, Research Institute of Petroleum Processing, China Petroleum and Chemicals Corporation, and is also a professor and director of Shanghai Key Laboratory of Green Chemistry & Chemical Processes, East China Normal University. He is a member of Chinese Academy of Sciences. In 2000, he was appointed as Principal Scientist for the State Key Basic Research Program in the field of green chemistry. He was elected as Vice President of International Zeolite Association in 2007. His research interests include catalytic materials for oil refining and petrochemical production, heavy oil cracking, FCC gasoline octane enhancement, and new spec gasoline production, etc.

Prof. Buxing Han received his Ph.D. degree at Institute of Chemistry, Chinese Academy of Sciences (CAS), in 1988, and did postdoctoral research from 1989 to 1991 at the University of Saskatchewan, Canada. He has been a professor at Institute of Chemistry, CAS since 1993. He is a member of CAS, Fellow of Royal Society of Chemistry, and was the former Chairman of Subcommittee on Green Chemistry of International Union of Pure and Applied Chemistry (IUPAC), and Titular member of Division III of IUPAC. His research interests include properties of green solvent systems and applications of green solvents in green chemistry, especially conversion of CO₂ and biomass into value-added chemicals.