

Review of the Book “Combustion Synthesis”

Edited by Maximillian Lackner, Austria

Combustion Synthesis is the study and execution of the science and technology involved in the production of a range of advanced materials with specialist properties for use in a wide and varied range of modern applications by redox reaction.

This Bentham E-Book compiles a broad spectrum of the current state of the art by bringing together in one publication information from leading academics and industry experts in the field. It demonstrates that there has been rapid development in the last fifty years taking this technology from theory, models and lab experiments up to the macrokinetic stage in the production of many advanced ceramic, refractory and metallic materials.

Over 35 professionals from more than dozen a countries have contributed to this volume edited by **Maximillian Lackner** who is himself an acknowledged specialist in this area of science and technology.

The book is laid out in 15 chapters which seek to provide an informed balance between established technology and the latest cutting edge of research in the field.

In Chapter one there is a very wide ranging review of the combustion and combustion synthesis processes from prehistoric times through to modern days.

The introduction also summarises the contents of the book chapter by chapter so that areas of special interest to the reader can be easily identified for immediate study and reference rather than necessarily progressing by reading through the book from beginning to end in a conventional manner. There is also an extensive list of references so that readers can pursue specific topics further if they wish to do so.

The book highlights areas where significant progress has been made in recent years as well as where further research and development would bring additional benefits both to the understanding of the complex processes and to the commercial exploitation of some of these advances. In many cases technical modifications are required to elevate the process from laboratory to pilot or to industrial scale. This requires the concept of SHS which is basically self propagating synthesis to take the constituent elements through the different phases of the process to the final end product with the minimum of added energy to the system at every level.

SHs is forecast to be an increasingly important technology in future in the production of such ceramic materials as aluminides borides, carbides, nitrides, silicides and other nano materials in general.

The format of the book makes access to individual topics quick and easy and its chapters can be studied individually and in any order preferred by the reader for their

specific requirements making this a valuable point of reference in this scientific field and to be strongly recommended to all with an interest in combustion synthesis.

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