

Preface

This book contains an overview of *Ceramic Membranes Applied in Separation Processes*. Membranes have been largely studied in recent years. They have great potential in several areas such as food, chemistry, pharmaceutical industries, and water and wastewater treatment. The separation processes by membranes are considered one of the most innovative technologies. These processes are considered fast and economical, occupy less space area, highly selective, flexible and compatible in most cases with other treatment processes. In general, the study of membranes can be divided into four major topics, materials for manufacture, study of membrane morphology, membrane modules, and the process. The study aims to achieve high performance, reducing costs with raw materials and process, defining its implementation and the reduction of environmental impacts. In selecting materials for the manufacture of membranes, ceramic materials (alumina, zirconia, titania, and silica) compared to polymeric materials have advantages such as longer life, high strength, and ease of cleaning. This book is aimed at students, researchers, and engineers who search for general knowledge in the field of membrane technology, particularly in the use of ceramic membranes.

The following chapters present several relevant aspects in the process of membrane separation, involving ceramic materials. Chapter 1 presents a brief introduction to the topic, Chap. 2 deals with an overview of some of the main processes of membrane separation, Chap. 3 presents the main raw materials used in the preparation of ceramic membranes as well as the main techniques of obtaining, Chap. 4 presents some techniques generally used in the characterization of ceramic membranes, Chap. 5 presents some applications of the ceramic membranes and, finally, Chap. 6 presents the ceramic membrane modules.

We wish that the following text guides the reader in a clear and objective way and that the information present will be appropriate for professionals and students

who want to access knowledge focused on the area of ceramic membranes applied in separation processes.

Finally, we would thank the staff of Springer Verlag for their professional guidance in regard to this book.

Caxias do Sul-RS, Brazil
March 2017

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Ceramic Membranes Applied in Separation Processes

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2018, IX, 91 p. 37 illus., 13 illus. in color., Hardcover

ISBN: 978-3-319-58603-8