

ATLAS OF NON-SILICATE MINERALS IN THIN SECTION²

This very attractive new atlas is based on a Catalan precursor volume, *Atlès d'associacions minerals en làmina prima*, and its Spanish counterpart, both of which are out of print. The original editions were published in 1997 with generous support from the Folch Foundation, which was established in honor of Dr. Joaquin Folch i Girona (1891–1984) for his significant contributions to the systematic mineralogical exploration of Catalonia.

Special Publication 7 of *The Canadian Mineralogist* captures the beauty and magic of non-silicate minerals in thin section. With its wealth of mineralogical data and its stunning photographs, it goes well beyond being a mere reference book for researchers and students. It also invites the casual reader to explore the secret universe of minerals through optical microscopy, a key subdiscipline of geology, which, however, is now unfortunately disappearing from the core Earth science curriculum of many universities. It is encouraging to see that a mining company (Osisko Mining Corporation) supported the publication of this book, thus demonstrating that careful microscopic investigations are of interest to the industry as well.

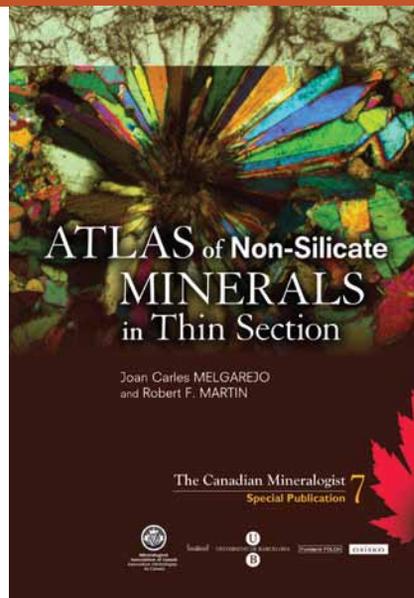
The book describes more than 400 non-silicate minerals, which were selected for their overall petrographic, economic or environmental importance. A special treat is that nearly eighty of the described and depicted minerals are from the respective type localities. The organization of the contents of this volume follows the new Dana classification of minerals (Gaines et al. 1997). It presents Dana's classes 1 through 50 in 16 chapters, which correspond to the various mineral groups. The book was assembled by Joan Carles Melgarejo and Robert F. Martin, but most of the chapters contain significant contributions from ten fellow mineralogists (acknowledged on pages 17–19).

Before presenting the selected minerals, each chapter starts with a concise introduction into the mineral group and provides a summary on general aspects, such as physical properties, occurrence, petrogenetic and metallogenetic implications, and industrial applications. It notably also addresses environmental aspects of each mineral group, which adds a modern touch, as it sets the stage for an increasingly important part of mineral sciences, namely, environmental mineralogy. The introductory pages also provide a valuable table of contents, which lists all selected minerals, ordered according to their Dana number, with their name and formula as approved by the International Mineralogical Association and their Strunz classification. Each chapter introduction also presents important references for the mineral group as a whole. Fortunately, the book includes an alphabetical index, which helps those readers who are less virtuoso in dealing with the Dana numbers.

The presentations for each mineral are well organized and arranged in an appealing layout, typically on one page. Following the name and formula, basic crystallographic information is provided, including unit-cell constants and some of the most intense peaks observed in powder X-ray diffraction patterns. The authors also suggest elements that should in general be analyzed. These entries are followed by information on optical characteristics and habit, and by features that allow for distinction from similar or related minerals.

Especially valuable are the entries on known occurrences and parageneses of the minerals. This information has been very carefully researched and is supported by an excellent selection of references, which have been chosen to reflect the different geological environments in which the minerals occur. For this reason, the number of references varies widely for different mineral species. Additional references containing structural details of each mineral are given at the end of the description. The invaluable references make this book an ideal starting point for researchers who are beginning to investigate a mineral they have never seen before.

2 Melgarejo JC, Martin RF (2011) Atlas of Non-Silicate Minerals in Thin Section. Special Publication 7 of *The Canadian Mineralogist*, Mineralogical Association of Canada, Quebec, Canada, 522 pp, ISBN 978-0-921294-51-1



The stunning microscope images were chosen to demonstrate the most valuable distinguishing features of a given mineral. The photomicrographs show the mineral of interest in both singly and doubly polarized light and in various assemblages. In many cases, a second image in plane-polarized light, but with the polarizer rotated by 90° relative to the first image, is provided in order to show pleochroism. More than one page is allocated to some of the most common species (e.g. calcite, gypsum), because the authors wanted to document additional types of occurrences, textures, or assemblages. Unfortunately, scale bars are missing in many pictures. Even though the information on size is available in the figure captions, it would have been much nicer and easier for the reader if all pictures were presented in a consistent manner, i.e. with scale bars appearing on the actual images. Moreover, labels that identify the different minerals visible in the photographs are almost entirely absent. Many of the images would have benefited from such labels.

Particularly noteworthy is that this volume showcases minerals that are neglected in many other publications, namely, diverse species in the borate, phosphate, arsenate, and vanadate groups, a range of minerals occurring primarily in mine waste environments, and a selection of more common organic minerals, presented in chapter 17. This chapter also discusses a shortcoming of the Dana classification, in which all organic minerals are grouped into one class, even though various ionic and molecular groups can be distinguished.

The enclosed CD contains all the photomicrographs presented in the book. It represents a precious resource for the classroom and scientific presentations. The pictures do not appear in the same order as in the book; rather, they are alphabetically ordered within each group. Moreover, in those cases where scale bars are either missing or not labeled, one has to find the size information in the book. These two points make the use of the otherwise valuable CD a bit cumbersome.

This superbly illustrated book is of great interest to all geoscientists. Rather than keeping it on your shelf, however, it would be much better to place it on your coffee table, so that you can browse through it again and again. Immerse yourself in the fascinating and colorful world of non-silicate minerals under the polarizing microscope!

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REFERENCE

Gaines RV, Skinner CW, Foord EE, Mason B, Rosenzweig A (1997) *Dana's New Mineralogy: The System of Mineralogy of James Dwight Dana and Edward Salisbury Dana*, 8th Edition, John Wiley & Sons, New York, 1819 pp