

Mineralogical Society of Great Britain and Ireland

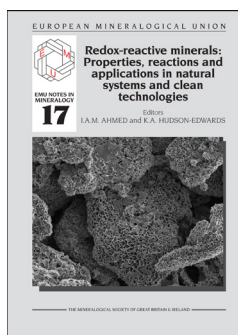
www.minersoc.org

MINERALOGICAL SOCIETY NEW BOOK TITLES

This issue of *Elements* sees a veritable feast of new book content in the joint European Mineralogical Union–Mineralogical Society series, the EMU Notes in Mineralogy.

Two new volumes have been published in the EMU Notes in Mineralogy series:

Volume 17—*Redox-Reactive Minerals: Properties, Reactions and Applications in Natural Systems and Clean Technologies*



Minerals are naturally occurring inorganic solids that make up the solid part of most solar terrestrial planets. Redox-active elements such as iron, manganese, titanium and sulfur in these minerals allow them to engage in a wide range of electron-transfer reactions, including those mediated by biota or processes involved in palaeo-weathering and biogeochemical cycling. The importance of redox-reactive minerals in many natural and industrial processes has been demonstrated by a plethora of scientific publications and industrial applications in recent decades. In this book, the influence of redox-reactive

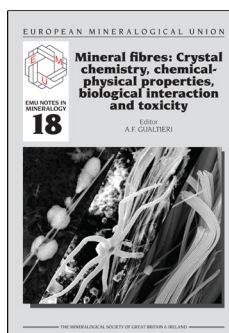
minerals on key biogeochemical processes and opportunities for their application in environmental technologies are outlined and illustrated in 14 comprehensive chapters. The book will be a key reference for Earth science students, geologists, geochemists and engineers and other researchers and practitioners in this rapidly growing interdisciplinary field and includes the following content:

- Chapter 1: “Introduction to Redox-Reactive Minerals in Natural Systems and Clean Technologies.” I.A.M. Ahmed and K.A. Hudson-Edwards
- Chapter 2: “Influence of Iron Oxide Structure and Size on their Redox Reactivity.” C. Chanéac and J.-P. Jolivet
- Chapter 3. “Mössbauer and Raman Spectroscopic Characterization of Iron-bearing Minerals in Mars Exploration and Cultural Heritage.” G. Klingelhöfer, F. Rull, G. Venegas, F. Gázquez and J. Medina
- Chapter 4. “The Timescales of Mineral Redox Reactions.” B. Gilbert and G.A. Waychunas
- Chapter 5. “Biogeochemical Redox Processes of Sulfide Minerals.” D.J. Vaughan and V.S. Coker
- Chapter 6. “Geochemical Proxies for Biogeochemical Cycling and Ocean Anoxia.” C.L. Peacock, A. Lalonde, and K. Konhauser
- Chapter 7. “Formation of Manganese Oxide Minerals by Bacteria.” S.W. Lee, M. Jones, J. Romano, and B.M. Tebo
- Chapter 8. “Bioconversion of Fe(III)-Oxide Waste into a Nanoscale Magnetic Material.” V.S. Coker, M. Watts, and J.R. Lloyd
- Chapter 9. “Impact of Iron Redox Chemistry on Nuclear Waste Disposal.” C.I. Pearce, K.M. Rosso, R.A.D. Patrick, and A.R. Felmy
- Chapter 10. “Biogeochemical Modelling of Redox Processes in Low-Temperature Natural Systems.” I.A.M. Ahmed, P. Acero, and L.F. Auqué
- Chapter 11. “Breakdown of Organic Contaminants in Soil by Manganese Oxides: A Short Review.” K.L. Johnson, C.M. McCann, C.E. Clarke

- Chapter 12. “Redox Active Minerals in Recycling and Remediation of Mine Wastes.” K.A. Hudson-Edwards and D. Kossoff
- Chapter 13. “Functionality and Applications of Redox-Active Porous Metal–Organic Framework Structures.” T. Devic and C. Serre
- Chapter 14. “Removal of Arsenic, Iron, Manganese and Other Pollutants from Waters using Redox-Reactive Minerals.” A.A. Bogush, J.K. Kim, and L.C. Campos

The book is available from the Mineralogical Society online bookshop: www.minersoc.org (click on bookshop) at a price of £55 (institutions) and £40 for individuals (+ shipping). Copies are also available from the Mineralogical Society of America and from Amazon.

Volume 18—*Mineral Fibres: Crystal Chemistry, Chemical-Physical Properties, Biological Interaction and Toxicity*



Asbestos is probably one of the most studied substances ever. Asbestos is synonymous with argument and controversy: it is magic but feared, essential but dreaded, a strategic natural raw material but a source of concern and hazard; it is banned but still used safely, and so the list goes on. Asbestos-related diseases are certainly of significant concern in terms of occupational and public health. Asbestos World Health Organisation officials estimate that 125,000,000 people worldwide are exposed annually to asbestos in occupational settings, and >100,000 people die annually of diseases associated with asbestos

exposure. The use of asbestos has been banned in most developed countries, but chrysotile asbestos is still used in many developing countries. This book presents the state-of-the-art in the vast multidisciplinary research field of asbestos and of mineral fibres in general. The protagonists of the book are the mineral fibres, with their immense complexity and poorly understood biochemical interactions. The approach of the chemist/mineralogist/crystallographer puts the fibre in focus, whereas the approach of the biochemist/toxicologist/doctor assumes the perspective of the organism interacting with the fibre. The perspectives of both the ‘invader’ and the ‘invaded’ must be considered together to establish a conclusive model to explain the toxicity of mineral fibres. In fact, this sharing of different perspectives and working in a multidisciplinary way is the key to understanding the mechanism of asbestos-induced carcinogenesis. With this in mind, the state-of-the-art in the field of mineral fibres is illustrated and discussed in this volume, with a multidisciplinary approach taking into account all the different scientific strands (biology, chemistry, epidemiology, mineralogy, physics, toxicology etc.). The different views have been considered in an attempt to assemble the pieces of the jigsaw and to present the reader with an up-to-date and complete picture.

- Chapter 1. “Introduction.” A. F. Gualtieri
- Chapter 2. “The Crystal Structure of Mineral Fibres.” P. Ballirano, A. Bloise, A. F. Gualtieri, M. Lezzerini, A. Pacella, N. Perchiazzi M. Dogan and A. U. Dogan
- Chapter 3. “Crystal Habit of Mineral Fibres.” E. Belluso, A. Cavallo and D. Halterman
- Chapter 4. “Bulk Spectroscopy of Mineral Fibres.” G. B. Andreozzi and S. Pollastri

- Chapter 5. "The Analysis of Asbestos Minerals using Vibrational Spectroscopies (FTIR, Raman): Crystal-Chemistry, Identification and Environmental Applications." G. Della Ventura
- Chapter 6. "Surface and Bulk Properties of Mineral Fibres Relevant to Toxicity." F. Turci, M. Tomatis and A. Pacella
- Chapter 7. "Thermal Behaviour of Mineral Fibres." A. Bloise, R. Kusiorowski, M. Lassinantti Gualtieri and A. F. Gualtieri
- Chapter 8. "In Vitro Biological Activity and Mechanisms of Lung and Pleural Cancers Induced by Mineral Fibres." B. T. Mossman and A. Pugnali
- Chapter 9. "In Vivo Biological Activity of Mineral Fibres." S. Capella, E. Belluso, N. Bursi Gandolfi, E. Tibaldi, D. Mandrioli and F. Belpoggi
- Chapter 10. "Dissolution and Biodurability of Mineral Fibres." M. Rozalén, F. J. Huertas, A. Pacella and P. Ballirano
- Chapter 11. "Epidemiological Approaches to Health Effects of Mineral Fibres: Development of Knowledge and Current Practice." B. W. Case and A. Marinaccio
- Chapter 12. "Differential Pathological Response and Pleural Transport of Mineral Fibres." D. M. Bernstein and E. N. Pavlisko
- Chapter 13. "Biological Activities of Asbestos and Other Mineral Fibres." M. Carbone and H. Yang
- Chapter 14. "Insights into Mineral Fibre-Induced Lung Epithelial Cell Toxicity and Pulmonary Fibrosis." R. P. Jablonski, S.-J. Kim, P. Cheresch and D. W. Kamp
- Chapter 15. "Towards a General Model for Predicting the Toxicity and Pathogenicity of Mineral Fibres." A. F. Gualtieri, B. T. Mossman and V. L. Roggli

The book is available from the Mineralogical Society online bookshop: www.minersoc.org (click on bookshop) at a price of £55 (institutions) and £40 for individuals (+ shipping). Copies are also available from the Mineralogical Society of America and from Amazon.

Impact Factor

As we await the annual arrival of the *Journal Citation Reports (JCR)* (impact factors for 2017 will be old news by the time you read this), we ponder on the ever-increasing number of ways in which our journals are assessed: scientific impact, social media impact, sales impact and reputation. Clarivate, the organization responsible for *JCR*, took several months to index issues of several mineralogy journals from late 2016 (papers from the December 2016 issue of *Clay Minerals* were finally listed in *Web of Science* in May 2017). Competitor journals in the commercial realm are entirely up-to-date. No responses other than holding messages were received from Clarivate to multiple enquiries about progress. Readers are asked to keep this in mind when considering the numbers produced by agencies such as Clarivate.

FORTHCOMING SOCIETY MEETINGS

Training Course: **The Application of Analytical SEM (EDX) and EPMA (WDX) in the Earth Sciences**

(<http://www.nhm.ac.uk/business-services/training/application-of-analytical-sem-and-epma.html>)
27 February – 2 March 2018
Natural History Museum,
London, UK

European Microbeam Analysis Society (EMAS) 2018 Workshop

End-June 2018
Bristol, UK

Granulites and Granulites

10–13 July 2018
Ullapool, Scotland, UK

IMA 2018 (www.ima2018.com)
13–17 August 2018
Melbourne, Australia

MEETING: REDOX-ACTIVE MINERALS IN NATURAL SYSTEMS

The 'Redox-Active Minerals in Natural Systems' meeting was held at the University of Manchester (UK) at the Manchester Institute of Biotechnology on 21–22 June 2017. It was a very interesting, cross-disciplinary meeting of four of the Society's special interest groups (Clay Minerals Group, Environmental Mineralogy Group, Geochemistry Group, and Geomicrobiology Network). Each of these special interest groups sponsored a session at the meeting and delegates were encouraged to move between sessions.

Keynote lectures, including the Society's Hallimond Lecture, were presented at the meeting. Abstracts for these lectures can be found at www.minersoc.org/redox.html

- Mineralogical Society Hallimond Lecturer: Barrie Johnson (Bangor University Wales), 'Redox Bio-Transformations of Inorganic Species Dictate the Dynamics of Extremely Acidic Environments'
- Geomicrobiology Network: Amelia-Elena Rotaru (University of Southern Denmark), 'Syntrophic Acetate Oxidation Between Geobacter and Methanosarcina from the Bothnian Bay Facilitated by Conductive Minerals'
- Clay Minerals Group: Anke Neumann (University of Newcastle, UK), 'Iron-bearing Clay Minerals: From Wallflower to Most Wanted'
- Geochemistry Group: Susan Little (Imperial College, London), 'Pseudo-redox Control on the Oceanic Budget of Zn and Zn Isotopes'
- Environmental Mineralogy Group: Rob Newton (University of Leeds, UK): 'Ocean Sulfate in the Phanerozoic Earth System: History and Impact'

SOCIETY AWARDS 2017



Bruce Yardley and Hilary Downes



Vicky Coker (LEFT), Hilary Downes (RIGHT)

Prof. Hilary Downes, MSGBI President, presented the 2017 awards to winners Prof. Bruce Yardley (Collins Medal) and Dr Vicky Coker (Max Hey Medal), during the recent meeting 'Redox-Active Minerals in Natural Systems' held at the University of Manchester, UK.

The Mineralogical Society-Schlumberger Award will be presented to Prof. Maggie Cusack at a future meeting of the Society. The citations and responses will be published in a forthcoming issue of *Mineralogical Magazine*.