

BOOK REVIEW

Clays and Clay Minerals in Jordan by Hani N. Khoury, Amman: University of Jordan, 2002; 116 pages. Deposit No: 2002/8/1959.

This book on Clays and Clay Minerals is the first in a series of books that presents an objective view of the type and nature of industrial rocks and minerals in Jordan. The chapters in this book examine the diversity of clays in Jordan and summarize their origin and their mineralogical, chemical and industrial properties. None of the clay deposits described in Jordan is of world class quality, but many can be utilized locally and regionally. Chapter 1 briefly summarizes clay formation, the structure and properties of the clay minerals and their applications, and shows the location of the important clay deposits in Jordan. Chapter 2 discusses kaolin as to its origin, chemical and physical properties, processing, uses, and describes the geology, mineralogy, and the physical and chemical properties of several Jordanian kaolin deposits. Also described in this chapter is an alunite deposit which is associated with one of the kaolin deposits. Two of the deposits were evaluated for industrial applications including ceramics and paint filler.

The subject of chapter 3 is bentonite, in which the physical and chemical properties, beneficiation and processing techniques, and industrial applications are described. The bentonite occurrences in Jordan are described and analyzed as to their mineralogy, particle size and chemical composition and each occurrence is evaluated as to its possible use by industry including drilling mud, foundry binders, absorbents, and animal feed binders. Also described are some suggested beneficiation processes to upgrade the bentonite.

Chapter 4 is on palygorskite and in this chapter the structure, physical properties, processing, and specifications and uses are described. Two occurrences of palygorskite in Jordan are described as to the miner-

alogy, chemical composition and particle size, and then the author suggests some possible industrial utilization.

Other clay deposits are described in chapter 5 which are generally mixtures of kaolinite, illite and smectite. These would be classed as common clays that have potential utilization as a raw material for structural clay products and lightweight aggregate. The geology, mineralogy, chemical analyses, and ceramic evaluations are described. Two unique deposits are described in this chapter. The first is an occurrence of volkonskoite which is a chromium smectite and the second is the Dead Sea black mud which is a marine-like sediment. The mineral components of these Dead Sea muds are kaolinite, smectite, calcite and magnesite. This black mud is used for its therapeutic effects for treatment of skin diseases and for face masks for its cleansing effect. In the last section of this chapter the engineering behavior of some clays in Jordan is discussed including landslide potential and stabilization for construction.

This small publication is a good example of a book that describes in detail the clays and clay minerals located in a small country that may be of industrial use in that region. The author and the graduate students that contributed much of the analytical data utilized modern analytical techniques including X-ray diffraction, infrared spectroscopy and electron microscopy. The figures and tables make this book very understandable and the references are adequate. For those clay mineralogists and clay scientists interested in applied clay mineralogy, this is a good book to have on their library shelves as it focuses on the utilization of marginal clays and common clays.

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