

Natural zeolites: from genesis to applications

Preface

This issue of the European Journal of Mineralogy includes five selected contributions from the thematic session “Natural zeolites: from genesis to applications” of the XIV International Clay Conference, that was held in the beautiful location of Castellaneta Marina (Taranto, Southern Italy) from June 14 to 20, 2009. This specific session (under the auspices of the INZA – International Natural Zeolites Association) was one of the 43 thematic sessions of the Conference; its technical program included 10 oral presentations, with 2 invited lectures, and 23 poster communications. The papers presented in the session not only span the entire field of methodologies required to understand these peculiar minerals, but also, above all, the ways to explore and exploit those unique properties that can be utilized for industrial, agricultural, and environmental amelioration purposes.

In addition to their specific technological properties, natural zeolites are also attractive because of their wide geographical distribution. Because they are produced in the course of natural geological processes, and always occur in mixed deposits in close association with other minerals, they do not display the purity and properties of their synthetic counterparts. However, their low cost (cents per kilogram versus the dollars or euros per kilogram typical of synthetic zeolites) definitely makes them attractive for applications requiring large amounts of material.

The papers were selected for this issue in order to give an overview of all the investigative fields treated in the session, starting from genesis and occurrence with the paper by Godelitsas et al., which deals with the exploration of a mordenite-bearing tuff from Kimolos island in Greece; details on the crystal-chemistry of a natural phillipsite from the Neapolitan Yellow Tuff (Italy) are given by Gatta et al., whereas the reaction kinetics of natural analcime are investigated by Chipera & Bish. As far as the applications of natural zeolites are concerned, the paper by Snellings et al. explores the pozzolanic reaction between clinoptilolite and portlandite by means of a time and spatially resolved IR study, whereas an interesting study on organo-zeolitic-soil systems and their application to the vegetation of mine waste is reported on by Leggo et al.

We wish to underline the success of the session both in terms of the number of participants as well as the quality of submitted papers; both aspects definitely confirm that natural zeolites still engender considerable attention within the scientific community.

Finally, we would like to thank the members of the XIV ICC organizing committee and specifically the chief organizer Dr. Saverio Fiore, whose efforts contributed significantly to the success of the meeting and who also accepted our proposal for a thematic session on natural zeolites. A special thanks is also due to the Managing Committee of the European Journal of Mineralogy for reserving space in this issue.

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