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Autore	Jha Bhagwanjee
Titolo	Fly Ash Zeolites [[electronic resource]] : Innovations, Applications, and Directions / / by Bhagwanjee Jha, Devendra Narain Singh
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Collana	Advanced Structured Materials, , 1869-8433 ; ; 78
Disciplina	660.2995
Soggetti	Materials science Chemical engineering Engineering geology Engineering—Geology Foundations Hydraulics Geotechnical engineering Characterization and Evaluation of Materials Industrial Chemistry/Chemical Engineering Geoengineering, Foundations, Hydraulics Geotechnical Engineering & Applied Earth Sciences
Lingua di pubblicazione	Inglese
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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Basics of zeolites -- Conventional Methods for synthesis of fly ash zeolites -- Mechanism of Zeolitization of Fly Ash -- Novel Techniques for Synthesis & Characterization of Fly Ash Zeolites -- Applications of Fly Ash Zeolites: Case Studies -- Future Scope on Fly Ash Zeolites.
Sommario/riassunto	This book presents a thorough review of the state-of-knowledge and recent innovations in the synthesis of pure and improved grades of fly ash zeolites (FAZ). Addressing improvements to conventional methods, it also showcases a novel technique for the synthesis of high cation exchangers from fly ash and detailed characterization techniques for the products obtained. In addition, it examines in detail various areas

of specific applications of fly ash zeolites. Over the years, several methods such as hydrothermal, fusion prior to hydrothermal, microwave assisted hydrothermal and molten salt techniques for producing FAZ have been developed. However, one-step and two-step reactions between the fly ash and alkali usually generate alkaline wastes that may cause environmental contamination. In addition, the separation of FAZ from the partially activated fly ash (the impurities) remains a major concern for researchers and industrialists alike. In view of these challenges, this book presents a novel technique for three-step activation (TSA), which focuses on recycling the fly ash-NaOH-water reaction by-products until zeolitic residue is formed. The FAZ (the final residue after third step reactions) synthesized in this manner exhibits exceptionally high cation exchange capacity, specific surface area and pore area. This book offers a comprehensive compendium of reading material on fly ash and its recycled product, the zeolites. Students at both undergraduate and graduate levels, researchers, and practicing engineers will all find this book to be a valuable guide in their respective fields.
