

Berichte aus der Umweltwissenschaft

**Herbert Pöllmann**

**Mineralisation of Wastes and Industrial Residues**

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# **Mineralisation of Wastes and Industrial Residues**

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The present book is an introduction into the basics of immobilization and application of mineral reservoir technology for immobilization of hazardous substances. It concentrates in the special part on the description of the most important mineral structure types, which are potentially usable as toxic waste immobilization material. Additionally, aspects coming from different compositions of mineral residues and different methods for application of reservoir mineral technology play an important role.

The book contains expertise, which was developed from different basic research projects, practical applications, joint industrial projects, dissertations, diploma theses, but also international presentations and university lessons and also practical work. It was always apparent that a complete summary of basic background aspects and the relevant properties derived from the basics was not available. The book therefore is not only focused on students from environmental sciences but also can help to find the way in application work to better describe the important background of mineral reservoir immobilization. The book is written to document background knowledge but also for practical work helping to find more precise informations. The main topics given in 10 chapters are :

- 1. Nomenclature-cement writing Introduction, immobilisation, fixation processes – Explanations of definitions**
- 2. Classification of mineral reservoirs (Nature identical Compounds)**
- 3. Prove of Reservoir Mineral Formation**
- 4. Mineralogical and chemical characterisation of selected, mainly inorganic residues and wastes**
- 5. Hardening and Immobilisation using binders – Mineralogy, Chemistry, Technology**
- 6. The Inner Barrier system in waste disposals**
- 7. The mineralogical and chemical barrier in contamination areas**
- 8. Biological enrichment of heavy metals by phytoremediation**
- 9. Applications of mineral reservoirs for toxic element bonding**
- 10. CO<sub>2</sub>-capture and sequestration**

The book should be used by students to understand the basics of immobilization, mineral reservoirs and industrial wastes but gives also some insight into possible strategies for treatment which can be used by beginners as well by professionals. A chapter on treatment technologies of carbon dioxide including mineralization techniques is included.