



*minerals*



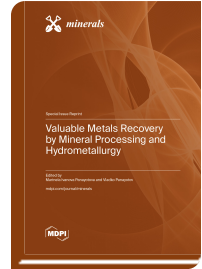
*Special Issue Reprint*

## **Valuable Metals Recovery by Mineral Processing and Hydrometallurgy**

[www.mdpi.com/books/reprint/10077](http://www.mdpi.com/books/reprint/10077)

Edited by  
Marinela Panayotova  
Vladko Panayotov

ISBN 978-3-7258-2157-0 (Hardback)  
ISBN 978-3-7258-2158-7 (PDF)



Various metals (including precious, critical and strategic metals) are needed for technologies, the sustainable development of society and everyday life. The demand for metals will increase over time. The processing of lower-grade and complex ores and metal extraction waste is essential, necessitating the implementation of novel approaches and technologies for carrying out mineral processing and metal extraction. To ensure a sufficient supply of metals in the future, they need to be recovered from unconventional sources. To produce metals, mined minerals must pass through a mineral beneficiation stage, followed by metallurgy/hydrometallurgy, or sometimes, they are directly subjected to hydrometallurgy. The flotation concentration of metal-containing ores is the most used mineral beneficiation process. Its efficiency depends on the preparation of minerals, the flotation reagent type and the concentration and other parameters of the flotation process, such as pulp pH values and oxidation–reduction conditions, temperature, applied external energy impacts, etc. A section of this Special Issue focuses on developments in flotation. Hydrometallurgical technology is a powerful means of extracting metals from concentrates, as well as low-grade ores and ores containing precious metals or rare earth elements (REEs). Another section is devoted to studies on hydrometallurgical methods. The waste obtained from mining, mineral processing and extractive metallurgy represents an unconventional source of metals. The third section of this Special Issue considers the extraction of metals from solid and liquid mining waste.



Order Your Print Copy  
You can order print copies at  
[www.mdpi.com/books/reprint/10077](http://www.mdpi.com/books/reprint/10077)

MDPI Books offers quality open access book publishing to promote the exchange of ideas and knowledge in a globalized world. MDPI Books encompasses all the benefits of open access – high availability and visibility, as well as wide and rapid dissemination. With MDPI Books, you can complement the digital version of your work with a high quality printed counterpart.



### **Open Access**

Your scholarly work is accessible worldwide without any restrictions. All authors retain the copyright for their work distributed under the terms of the Creative Commons Attribution License.



### **Author Focus**

Authors and editors profit from MDPI's over two decades of experience in open access publishing, our customized personal support throughout the entire publication process, and competitive processing charges as well as unique contributor discounts on book purchases.



### **High Quality & Rapid Publication**

MDPI ensures a thorough review for all published items and provides a fast publication procedure. State-of-the-art research and time-sensitive topics are released with a minimum amount of delay.



### **High Visibility**

Due to our global network and well-known channel partners, we ensure maximum visibility and broad dissemination. Title information of books is sent to international indexing databases and archives, such as the Directory of Open Access Books (DOAB), and the Verzeichnis Lieferbarer Bücher (VLB).



### **Print on Demand and Multiple Formats**

MDPI Books are available for purchase and to read online at any time. Our print-on-demand service offers a sustainable, cost-effective and fast way to publish MDPI Books printed versions.