Metallurgical Engineering IV
Information Literacy

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23 February 2018
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Welcome to the Material Science & Metallurgical Engineering subject guide.

This guide will provide students, researchers and staff with access to subject and information resources.

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Open collection: 669

In the reference section the books with start with the letter N, e.g. **N669**

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**Office hours**

Please make an appointment via email: lesego.makahola@up.ac.za

Monday - Friday
Assignment

Analyze the pyrometallurgical processes to extract copper from gold-copper ore.
Keywords

Analyze the pyrometallurgical processes to extract copper from gold-copper ore
Where to search

- Encyclopaedias and reference works
- Handbooks
- Research articles
- Internet
Metallurgical Engineering: Books

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E-reference books:
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pyrometallurgy
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Catalogue
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- Sabinet
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Pyrometallurgy

[Dictionary/Encyclopedia] pyrometallurgy
From Dictionary of Metals (2012)

...pyrometallurgy. High-temperature winning or refining of metals....

[Dictionary/Encyclopedia] Pyrometallurgy

...production of zinc and mercury. 3. Concluding Remarks Pyrometallurgy will continue to be the extractive method of choice for treating high-grade ores, such as iron ore. However, in the case of low-grade ores, a combination of hydrometallurgical... More ▼

[CHAPTER] 1.2.1 Pyrometallurgy
From Membrane-Based Separations in Metallurgy - Principles and Applications (2017)

...amount of impurities. For requirements on highly purified metals, zone melting is used. Pyrometallurgy has been intensively used for production of copper, zinc, nickel, etc. The technologies for these metals are relatively mature.... More ▼
reduction, oxidation blowing, and matte smelting. With these operations, the separation of target metals and impurities is achieved.

The thermal energy for the pyrometallurgical process is in most cases supplied by fuel burning, and sometimes by exothermic reaction inherent of the chemical reactions. For the latter, an example is oxidizing roasting and smelting of sulfide ore. In addition, thermal reduction of metal is a self-heating process. Refining is used to remove the small amount of impurities. For requirements on highly purified metals, zone melting is used.

Pyrometallurgy has been intensively used for production of copper, zinc, nickel, etc. The technologies for these metals are relatively mature. The flow diagram for copper pyrometallurgy is shown in [Fig. 1.1]. The principal procedures include copper matte generation by smelting, copper blister formation by blowing, fire refining, and electrolytic refining. Blistер copper oxidation is refined in reverberatory furnace, followed by cast of copper anode for electrolytic refining.
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Keywords

Analyze the pyrometallurgical processes to extract copper from gold-copper ore

• Pyrometallurgical processes
• Copper
• Gold-copper ore
Phase equilibria in the pyrometallurgy of sulfide ores
T Rosenqvist - Metallurgical Transactions B, 1978 - Springer
Abstract: Although reaction kinetics and process dynamics may greatly affect the engineering of pyrometallurgical processes, the limits of what can be achieved are set by the equilibrium relations. After a discussion of some experimental techniques this lecture reviews the phase equilibria.
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High power ultrasonics in pyrometallurgy: current status and recent development
SV Komarov, M Kusaba, OV Abramov - ISIJ International, 2005 - jlc.jst.go.jp
In recent years, a large number of studies have been published on the use of high intensity ultrasonics in various high temperature technologies. This paper provides an overview of the recent achievements and ongoing works on the application of high intensity sound waves to the pyrometallurgical process.
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Phase relationships in the pyrometallurgy of copper
JF Elliott - Metallurgical Transactions B, 1976 - Springer
Thermodynamic data in the literature relating to phase relationships in the Cu-Fe-O-SiO2 system have been reviewed critically. These phase relationships in the range of 1100 to 1350°C for the binary, ternary and quaternary systems that are components of the quinary
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pyrometallurgical processes

E.g., "heart attack" AND stress
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<td>Comparative assessment of metallurgical recovery of metals from electronic waste with special emphasis on bioleaching</td>
<td>Priya, A., Halt, S.</td>
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- Research commons

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- IBSS (For the social sciences)
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