

Flotation

A. Main topics

- Flotation as a key-technique in ore treatment and recycling

B. Targeted audience

Beginning with 16 years old students

C. Key concepts

1. The introduction of flotation made it possible to collect valuable minerals from less concentrated sources than before, making it crucial for economically successful mining operations throughout Europe.
2. The physico-chemical properties of the material introduced to this process are not only used but also manipulated in an elegant way to separate and concentrate target minerals.
3. Not only in primary mining but in recycling processes as well, this technique is utilized – for example the de-inking of used paper.

D. Experimental activity:

A sample of lead zinc ore can be separated using a flotation cell. By adding several chemical agents to a slurry of finely milled lead zinc ore first the silvery lead-containing mineral accumulates in the foam separated from the slurry. After some adjustments the yellowish zinc-containing material accumulates in the froth.

E. Toolkit material

- Samples of lead zinc ore
- A set of chemical agents needed
- A set of glassware
- Flotation cell
- Protocol with the description of the experiments
- Pedagogical dossier with explications, pictures, etc. that can be used by the teacher
- A short video clip showing the outcome of the experiment

F. For information on the toolkit

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