

SHIBAYAMA LAB.

[Mineral Processing and Recycling]

Integrated Research Centre for Sustainable Energy and Materials

Akita University

Graduate School of International Resource Sciences

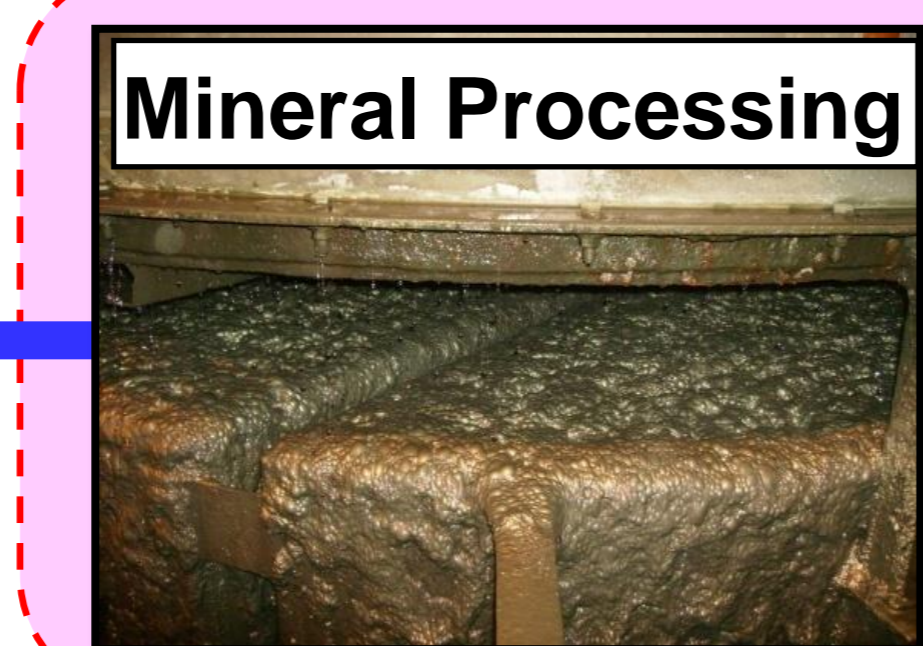
Mineral Processing Lab.

Development of treatment process for copper ore bearing impurities

Typical Cu production flow



Placement of impurities treatment process



Treatment of copper concentrates containing high amounts of As and Sb impurities by a smelting process is difficult due to environmental restriction.



MESCO HP
<http://www.mesco.co.jp/>

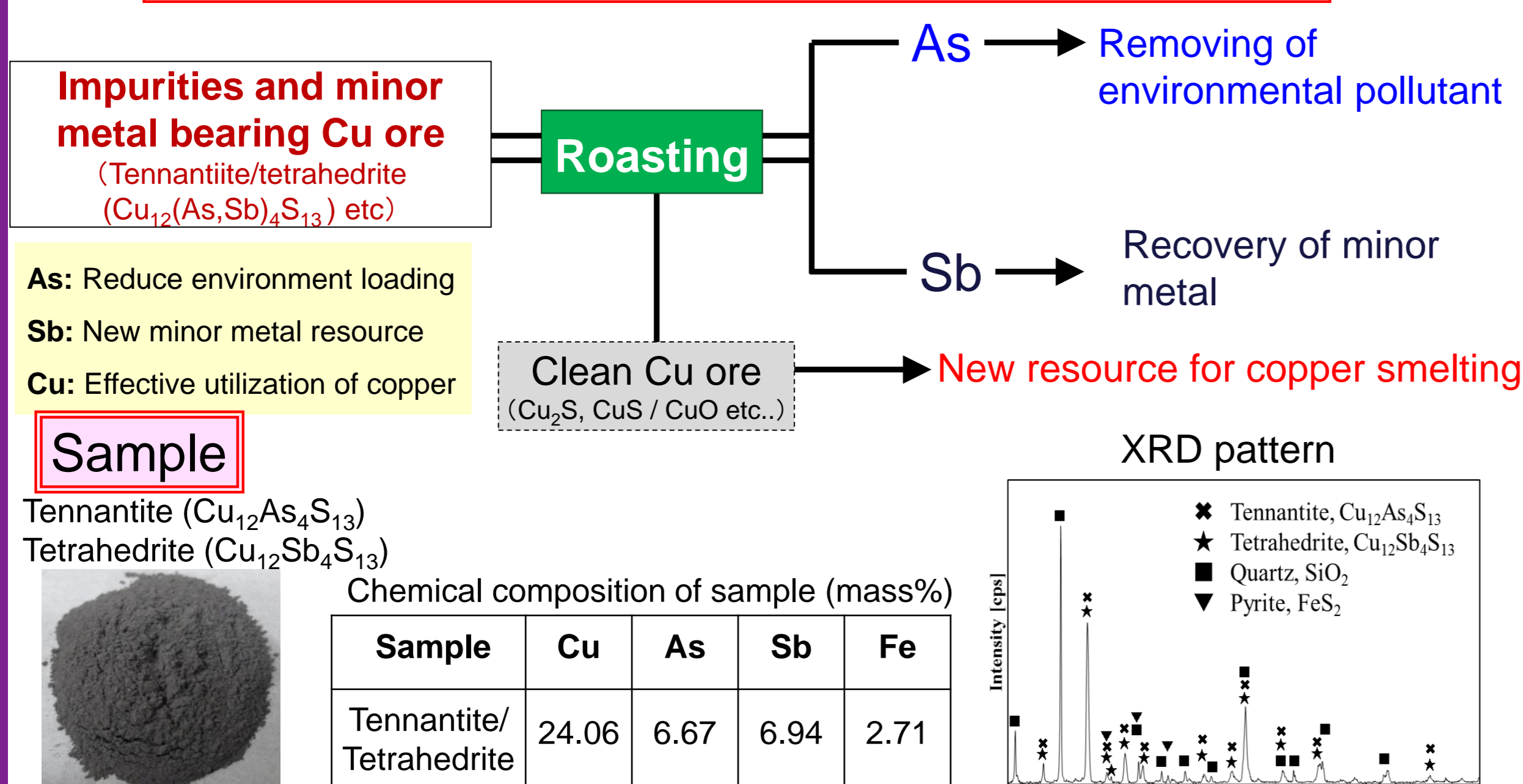


SMM HP
<http://www.smm.co.jp/>

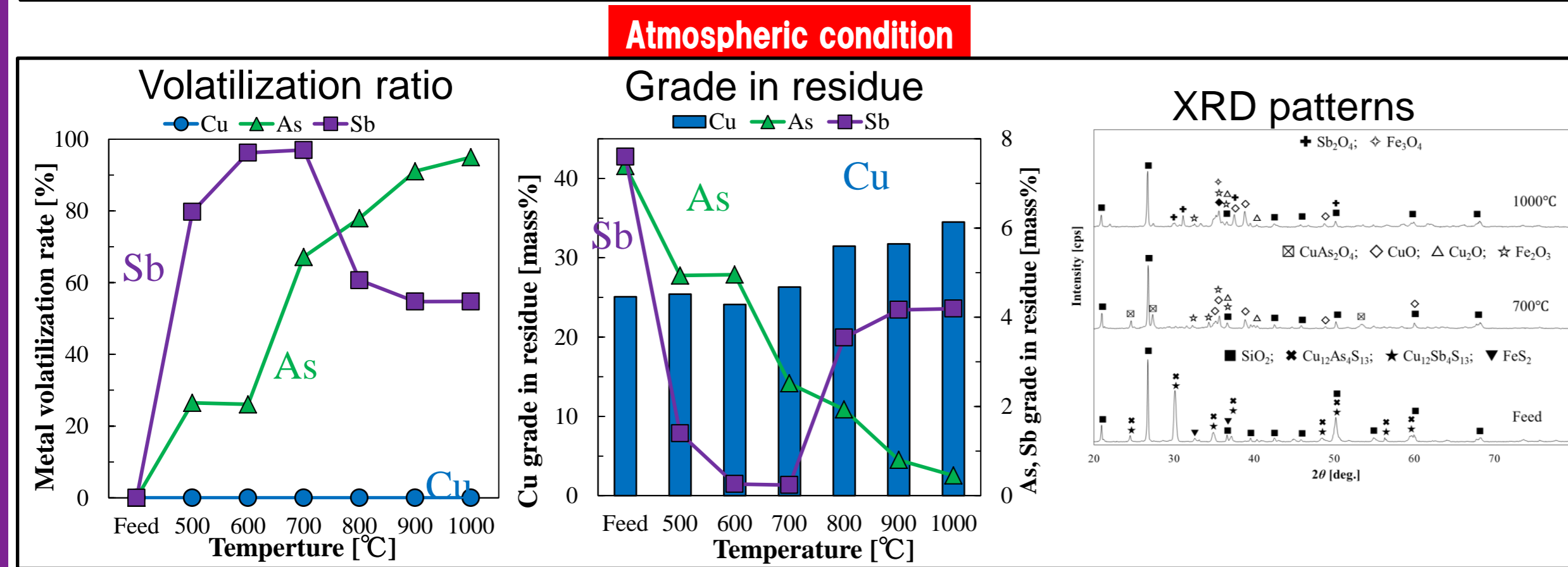
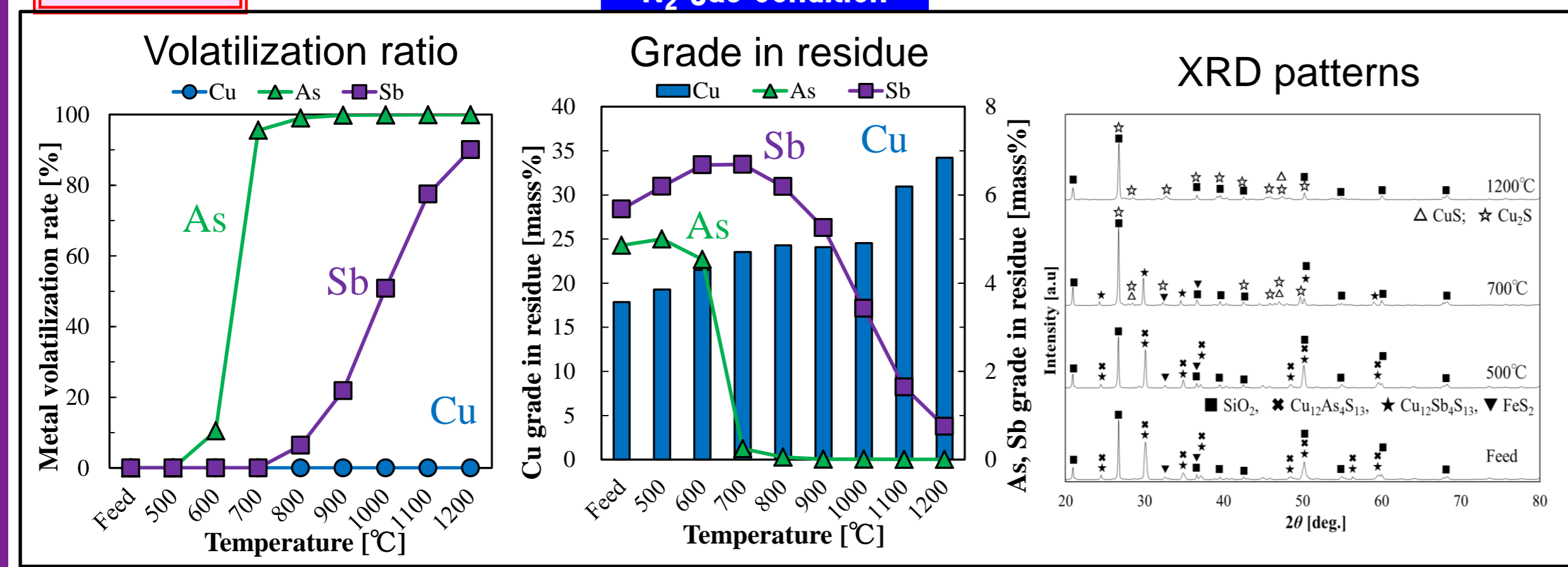
Objective

To investigate feasibility of impurities (arsenic and antimony) separation from copper ore by roasting or high pressure leaching, mineral processing technique.

Treatment flow of As / Sb by roasting

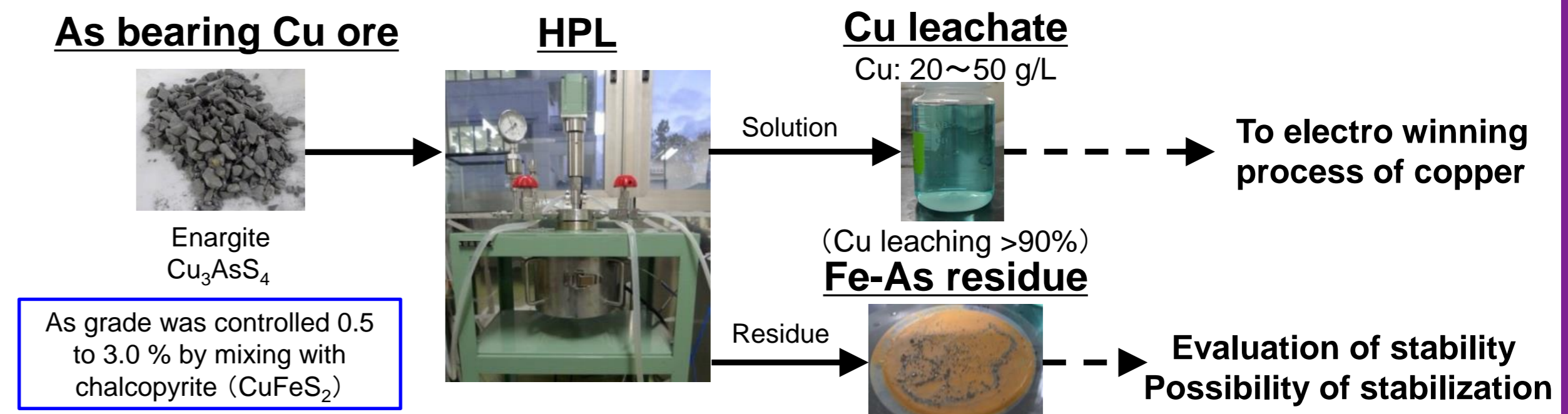


Results

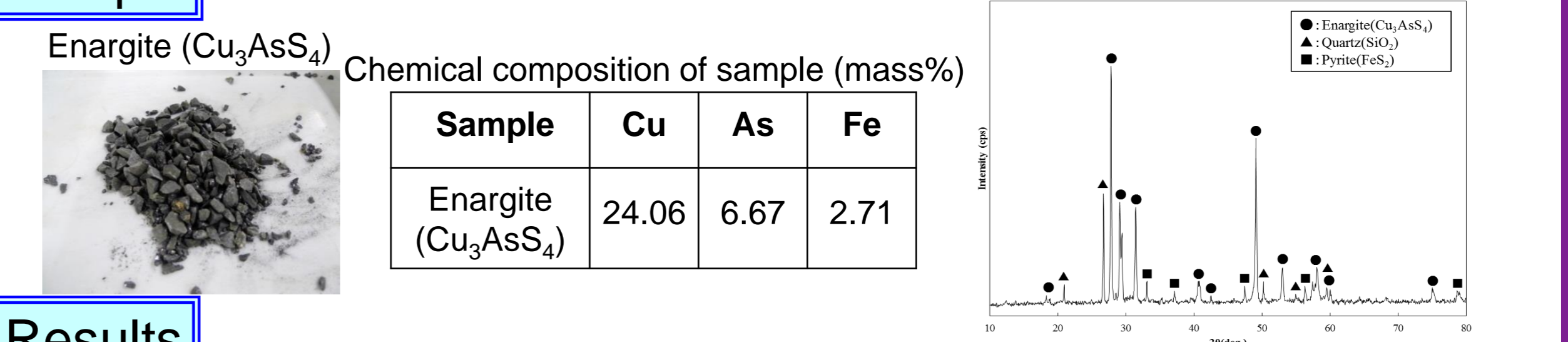


As and Sb were selectively separated by controlling the roasting temperature. Copper content of the final residue (clean copper concentrate) was increased to more than 34 %

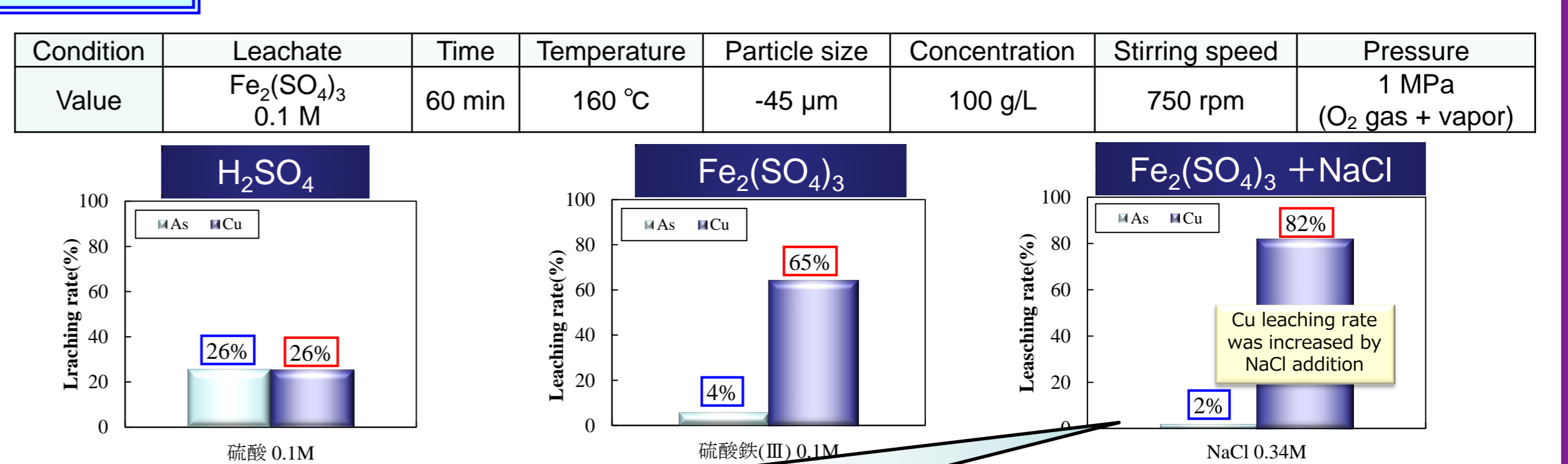
Treatment flow of As by high pressure leaching



Sample



Results



Condition	Cu leachate	Fe-As residue	XRD of residue
Concentration (g/L)	Cu: >20, As: 0.22, Fe: 0.42	Cu: 5.93, As: 11.9, Fe: 19.8	Weight ratio of residue from leach: 89.3%

