

MiWare (Mine Water as a Resource)

Date: 18 September 2015

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Designation: Head Biometallurgy



- Labelled by Acqueau
- Coordinator: VTT (Finland)
- November 2014 – October 2017

Objectives:

- Development and demonstration of processes for the treatment of metal and sulphate-containing effluents from mining and metal industries.
- Reduction of sulphate and recovery of the valuable metals contained in these streams to provide economic solutions that are applicable worldwide under variable conditions.
- Project plans to deliver two demonstrated technologies.

Main targets for application of these technologies are the coal and gold mining industries.

Consortium

Research organizations:

VTT Technical Research
Centre of Finland
Mintek
IVL Sweden

Solutions providers:

Outotec (Finland) Oy
Chromafora Ab (Sweden)
Flootech Oy (Finland)

End-users:

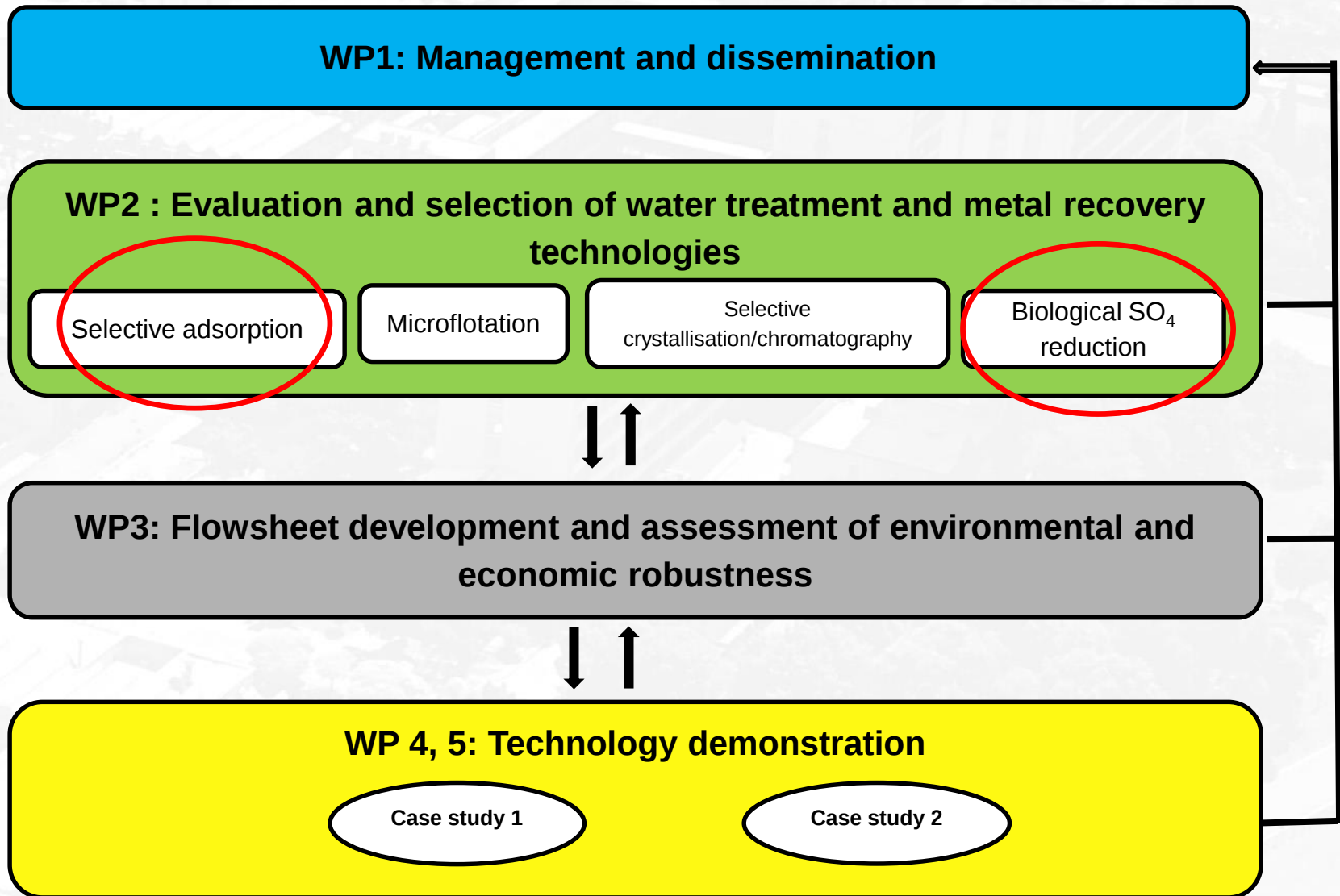
Agnico Eagle, Finland
Anglo Coal, South Africa
LKAB Luossavaara-
Kiirunavaara AB, Sweden



Associated partners:



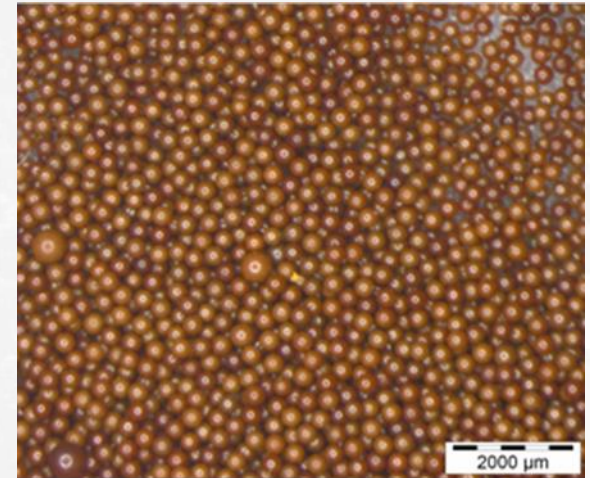
Project structure



Removal of low-level contaminants

Selective adsorption of low levels of elements from effluents using ion exchange (IX)

- Mintek has ion exchange technologies ready for commercialization available.
- The focus of previous test work at Mintek was on removal of elements such as uranium, base metals, gold, platinum group metals and rare earths.
- Evaluation of the selective adsorption of elements such as As and Sb from South African and European mining effluents.
- Appropriate IX resins for removal of these contaminants in the presence of high sulphate concentrations were identified.
- It was shown that As and Sb can be successfully removed from contaminated waste water.



Passive biological sulphate removal

Development/optimisation of passive systems for treatment of AMD from both the coal and gold mining industries in Europe and South Africa.



South Africa



Finland

- Ambient conditions, continuously operated
- Substrate: manure, wood shavings, wood chips, hay
- pH levels of the water can be successfully increased
- 80-90% sulphate removal achieved and base metal removal confirmed.



Thank You
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