

# Flotation cell of high performance minerals.

University of Chile has generated a new froth flotation cell that combines centrifugal and magnetic effects, significantly reducing the use of water in copper mining.

## THE CHALLENGE

Mineral flotation is a large-scale process widely used in the mining industry to selectively separate minerals with economic value from an original rock.

Because the flotation process demands a high level of water consumption, some mining companies are currently working in desalination plants, but none have explored alternatives to reduce water consumption.

This new type of flotation cell allows to significantly reduce the current use of water in the process of separation of valuable minerals; all while maintaining similar mineral treatment capacities.

## THE TECHNOLOGY

This new flotation cell introduces a suspension of particles (pulp) and disperse air in the form of bubbles through a cylindrical equipment where centrifugal effects are generated, which are coupled with the application of external magnetic forces.

These gravitational (centrifugation) and magnetic effects allow the achievement of 10% and greater mass recoveries with 50% or higher solids percentages, which is difficult to achieve in conventional cells.

## STAGE OF DEVELOPMENT

- Laboratory tests.
- Black Colt Mining, Chile, plant tests.
- Controlled prototype tests underat Ingeniería y Construcción Salas Hermanos Ltd.
- Numerical simulations and mathematical modeling of the process.

## COMPETITIVE ADVANTAGES

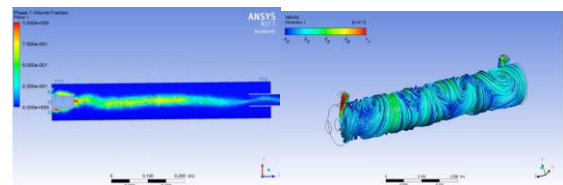
- Possibility of increasing the percentages of solids in the flotation process.
- Significant reduction of water uses in mineral processing plants.
- Mineral Separation efficiencies similar to those of conventional flotation circuits.



Lab prototype



Pilot prototype for test



Numerical simulations in ANSYS.

## APPLICATIONS

- Copper mining industry flotation process.

## OPPORTUNITY

Available for **out-licensing** and collaboration in scaling and industrial assembly.

## INTELLECTUAL PROPERTY/REFERENCES

- Patent applications CL 2016-03331, US, AU, PE.