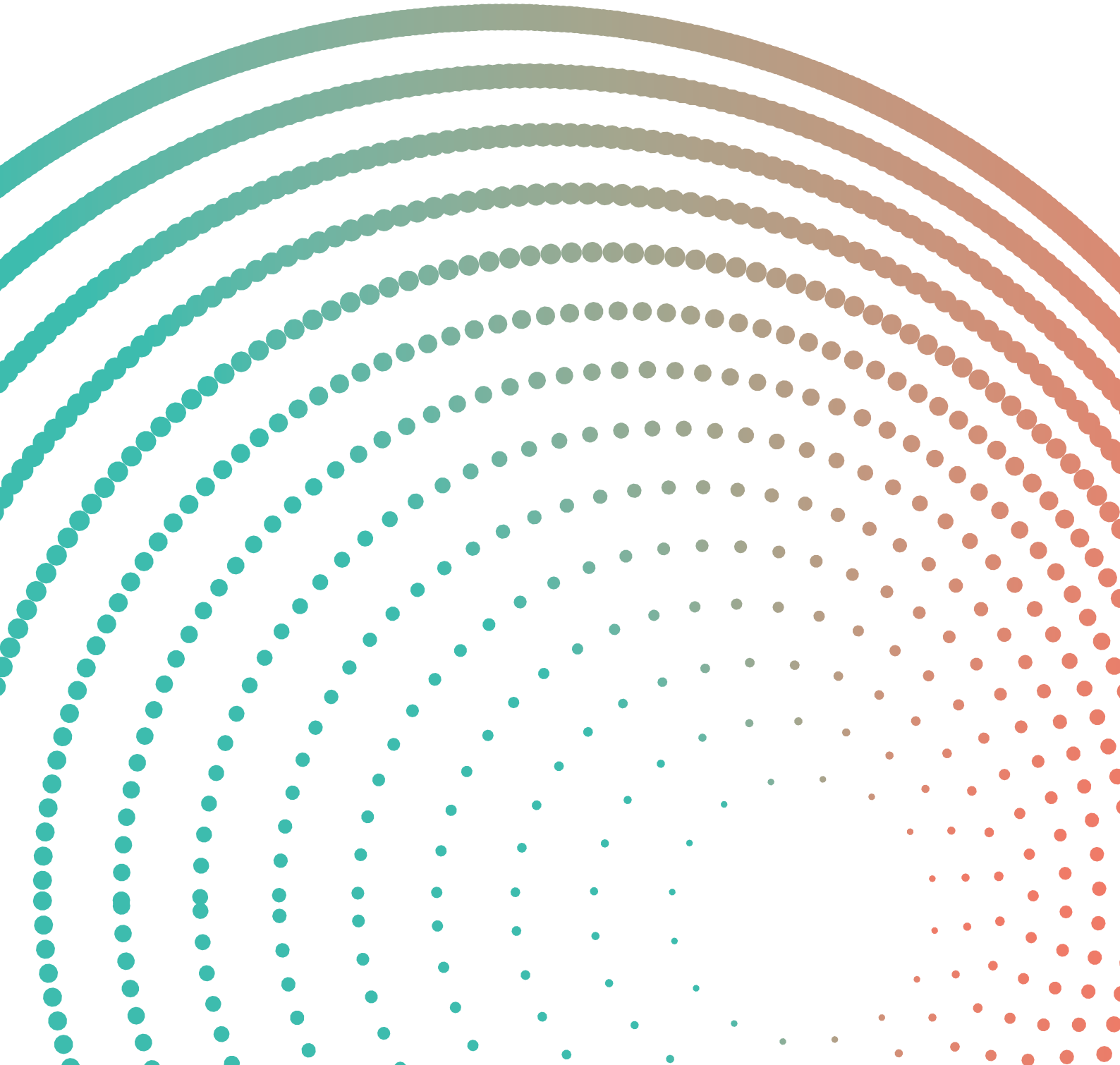
Flotation Circuit Optimisation

MOLYCOP

Laboratory Services

Process Optimisation



General Services

- Physical and chemical characterization of minerals
- Mineralogical characterisation
- Rougher float tests
- Open and closed loop tests
- Selection tests and optimization of reagents
- Selection tests and characterisation of defoamers
- Sedimentation tests
- Rheological tests
- Selection tests and optimisation of flocculants and/or coagulants
- Analysis by X-ray Fluorescence (FRX)
- Optimization through DOE and RSM.

Mineral Characterisation

Prior to all our studies, a detailed characterization of the head mineral:

- Humidity
- Specific gravity
- Chemical analysis
- Granulometric analysis
- Pulp natural pH
- Lime consumption.

Batch Flotation Tests

Support to clients in planning, carrying out and metallurgical analysis of the main flotation tests on a laboratory scale.

Rougher float tests:

- Effect of the type and dose of reagents (collectors, foaming agents, dispersants, depressants, etc.)
- Effects pH, P80, percentage of solid, type of water (process, sea, osmosis)

Flotation kinetic tests:

- Determination of the kinetic constant (K) and maximum recovery (Rmax).

Cycle Float Tests

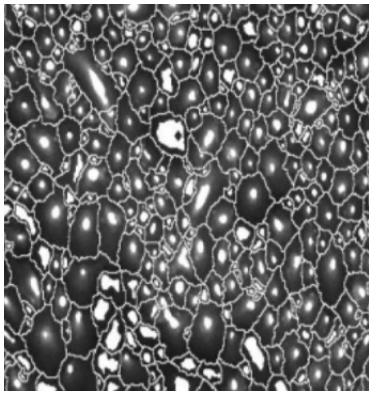
Open and closed cycle flotation tests:

- Evaluate the design of the flow sheet and the set of flotation reagents (collectors, frothers, dispersants, depressants, etc.)
- Produce a metallurgical projection for a study sample.

Characterisation of Sparkling

The Bubble Sizer is a portable device that is used to:

- Determine size and distribution of bubbles and Jg (superficial velocity of gas) in flotation cells
- Determine the optimal dose of sparkling wine for improve foam stability and grade of concentrated.

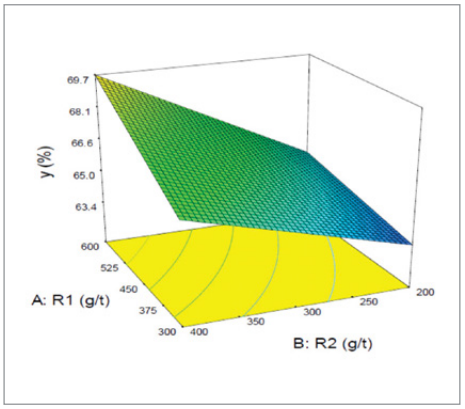


X-Ray Fluorescence Analysis

FRX Bruker S1 TITAN Portable Pistol:

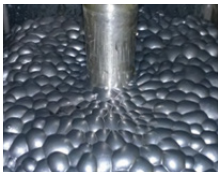
- Fast and secure analysis
- Manufacture and calibration of own curves
- Improved measurement accuracy
- Improved detection limits

Optimization of Processes Through DOE and RSM



Application of design of experiments (DOE) and statistical techniques for the planning of test programs and analysis of results:

- Full Factorial Design (2n)
- Fractional Factorial Design (2n-1)
- Composite Central Design (CCD)
- Response Surface Methodology (RSM)



Specific Services of Investigation and Development

Comprehensive optimisation in grinding and flotation:

- Research to optimise the grinding and flotation process through the chemical study of mineral pulp (Eh, pH, Dissolved Oxygen, etc.)
- Optimization of the flotation process
- Research to optimise flotation process variables, such as:
  Doses and types of reagents, granulometry, lime consumption, percentage of solids, etc.

Optimization in the flotation of altered minerals (clays, oxides, soluble copper, etc.):

- Research to optimize recovery and grade in altered minerals
- Decreased consumption of lime in acid minerals
- Mitigation of the effect of clays.

Control of impurities in collective and selective flotation concentrates:

- Zinc removal in copper concentrates
- Pyrite removal in copper concentrates.

Characterization of frothers and study of hydrodynamics of flotation cells:

- Characterisation of sparkling wines through the Molycop methodology
- Evaluation of hydrodynamics of flotation cells to optimise the use and dosing of foaming agents.

If you're interested in exploring Molycop's products and services, we're here to help.

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