UsimPac

Technical description

The process engineer's toolbox

Caspeo

Serving your process needs

UsimPac

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- **Simulate the steady state of a process**
- **Calculate flowrates and composition for all the circuit streams**
- **Determine key operating parameters such as residence time or energy consumptions**

Process design

- Define the main treatment stages to reach a given objective
- Determine the forecasted material balance for each stream
- Size the main equipment and define the settings
- Quickly assess configurations
- Evaluate and use the process flexibility
- Estimate the investment and operating costs
- Contribute to the technical and economic feasibility studies

Process monitoring and optimization

- Control the performances
- Plant survey
- Identify bottlenecks
- Increase the process capacity
- Improve the final product quality
- Saving energy, water and reagents consumption
- Reduce pilot and industrial tests
- Evaluate and limit environmental impact
- Adapt the process to the raw material variability
- Increase reactivity, facing up to the market variations

Mineral industry for all types of minerals and ores

- Iron, base metals, sulphide and oxidized ores
- Precious metals, Diamonds
- Phosphate, potash
- Industrial minerals (kaolin, feldspar, carbonate, talc…)
- Building materials: aggregates, cement, plaster
- Uranium, coal

Other industries

- Industrial and urban waste management
- Valuation of biomass

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Productivity increase

Cost reduction

A user-friendly interface focused on process engineers' tools

The flowsheet is easily drawn using a set of unit operation icons.

Clicking on a stream gives access to:

- The material flowrate, size distribution and composition;
- The size distribution and washability curve.

Clicking on a unit operation gives access to:

- The unit size and settings, the mathematical model parameters;
- The partition curve and the split curve.

Tables permit display of global plant performances.

A library of unit operation mathematical models

- Crushing, grinding, attrition, fine grinding;
- Size classification, gravity and magnetic separation, flotation;
- Solid-liquid separation: settling, thickening, filtration;

Hydrometallurgy: leaching, CIP, CIL, precipitation, solvent extraction, electrowinning

Powerful algorithms and methodologies for:

- Process simulation;
- Equipment sizing;
- Equipment setting optimization;
- Capital cost estimation;
- Sensitivity analysis to evaluate process flexibility.

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