Caspeo

Serving your process needs

The publisher, distributor and support of the BRGM process analysis software
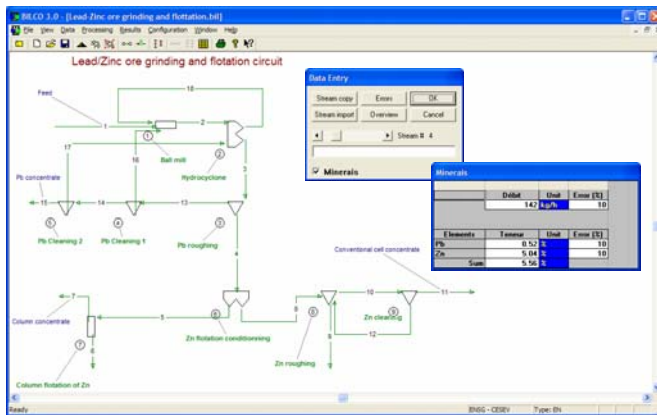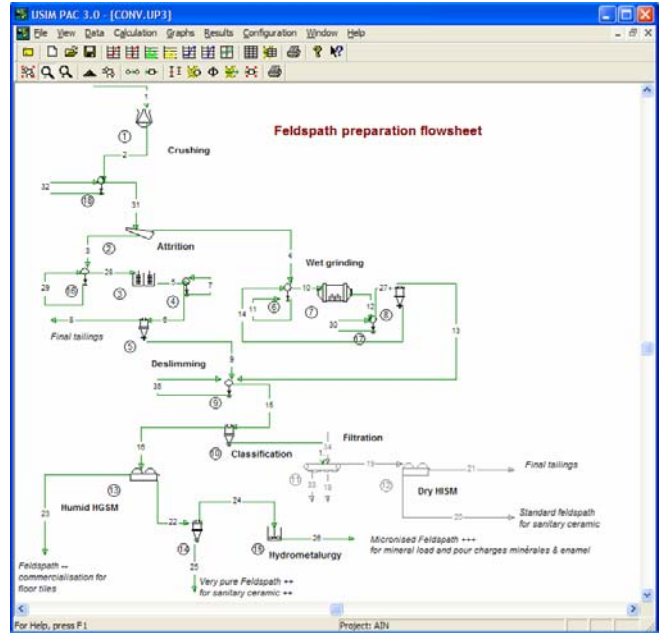
A range of software for process analysis

USIM PAC

A powerful tool for mineral processing engineers.

Based on a large set of unit operation models, USIM™ PAC can simulate a wide range of mineral processing plants.

USIM PAC improves efficiency during process design, plant sizing, plant survey, process optimization, capacity increase...

BILCO

BILCO™ provides you with a quick and accurate material balance for periodic metallurgical accounting and detailed plant performance survey.

The ability of BILCO to solve complex problems allows the calculation of complete coherent material balances of pilot plant campaigns.
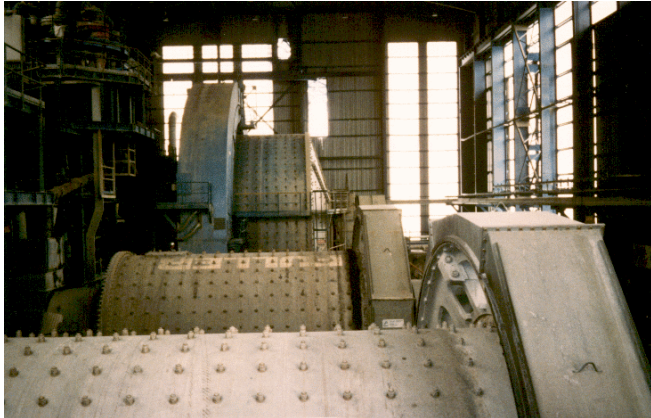
ECHANT

ECHANT™ is an aid in the design of sampling protocols for any solid materials.

ECHANT is a key factor in quality management by calculating the degree of confidence of measurements.

November 2004

Process design and optimization

USIM PAC

Fields of application

All types of ores and minerals such as :

* Iron ore,
* Base metals: oxidized and sulfide ores
* Precious metals: gold, silver, PGMs…
* Phosphate, potash
* Industrial minerals: kaolin, feldspar, carbonates, talc
* Construction material: sand and gravels, cement, clay, plaster...

A user-friendly interface focused on process engineers' tools

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

A click on a stream gives access to:

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

A click 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.

Stream Description		
File Tools		
Stream # 4		
Name Tailings		
	Value	Unit
Ore/flotation		
Mass flowrate	0.915658	t/h
Volumetric flowrate	0.209448	m3/h
Density	4.37177	kg/dm3
☑ Component grade per size		
☑ Floating ability per component		
Water		
Mass flowrate	2.5219	t/h
Volumetric flowrate	2.5219	m3/h
Density	1	kg/dm3
Pulp		
Mass flowrate	3.43756	t/h
Volumetric flowrate	2.73135	m3/h
Solid percent	26.6369	%
Density	1.25856	kg/dm3

Parameters of Equipment #1 - Mixe-settler - Solvent Extraction (1)	
Parameters	**Values**
Number of steps	1
Organic/Aqueous flowrate volumetric ratio if regulated	0
Entrainment of Organic in Aqueous (g of O per kg of A)	0
Entrainment of Aqueous in Organic (g of A per kg of O)	0
Reactions	Edit
Isotherm function	Edit
Isotherm definition	Edit
Correspondance for isotherm definition	Edit

Unit operation 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.

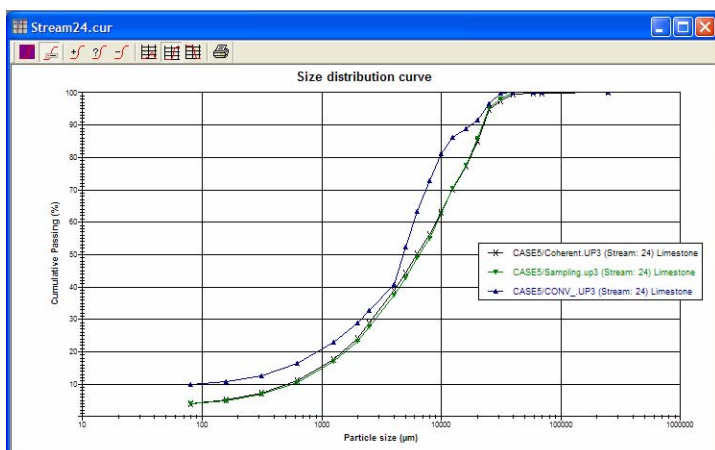### Powerful algorithms and methodologies for:

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

Data quality enhancement

BILCO

Data reconciliation by material balance

For a vast number of applications: mass balance, chemistry-mineralogy reconciliation, sensor implementation strategy.

Simultaneous calculation for flowrates and detailed composition relative to the level of confidence of measured data.

Calculation of accuracy of coherent data.

Configurable material conservation laws for each unit operation: partial conservation, phase transfers...
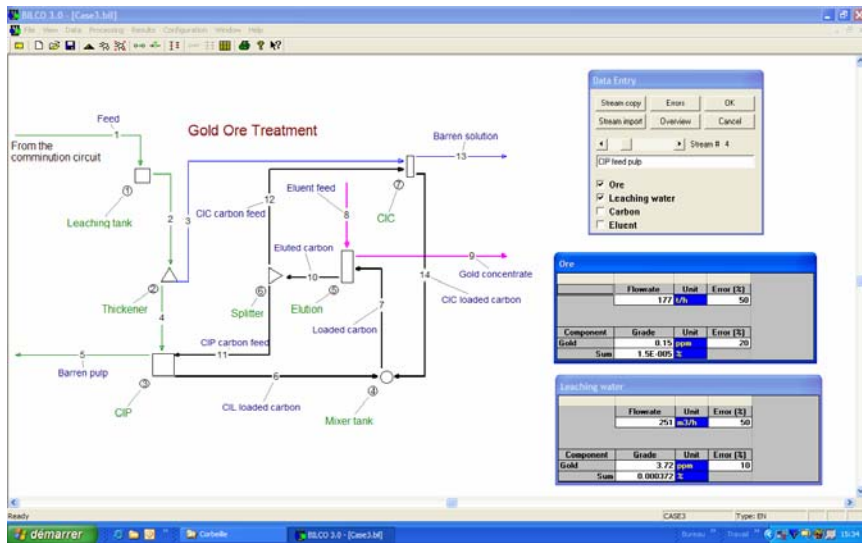
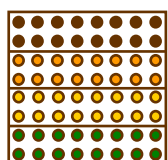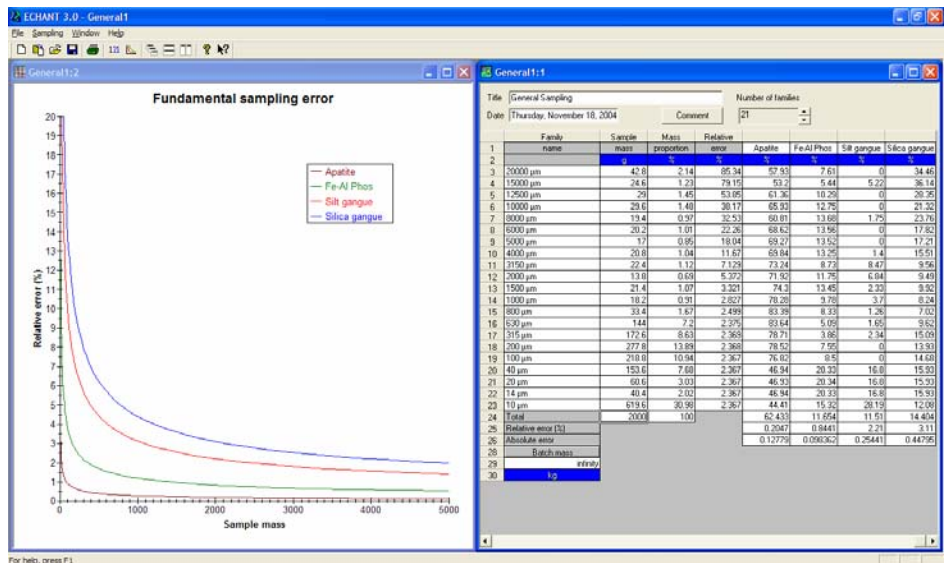

ECHANT

A sampling-aid tool

Based on Pierre Gy's theory.

Calculation of the Fundamental Sampling Error (FSE) for a given sample mass and vice versa.
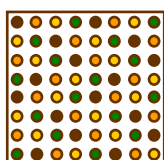
Design a step by step Sampling Plan for ores and calculation of its FSE .

Plot of the FSE variation versus the sample mass.

Various material examples illustrating the diversity of heterogeneity description.

 Heterogeneity of composition
Heterogeneity of distribution

 Heterogeneity of composition
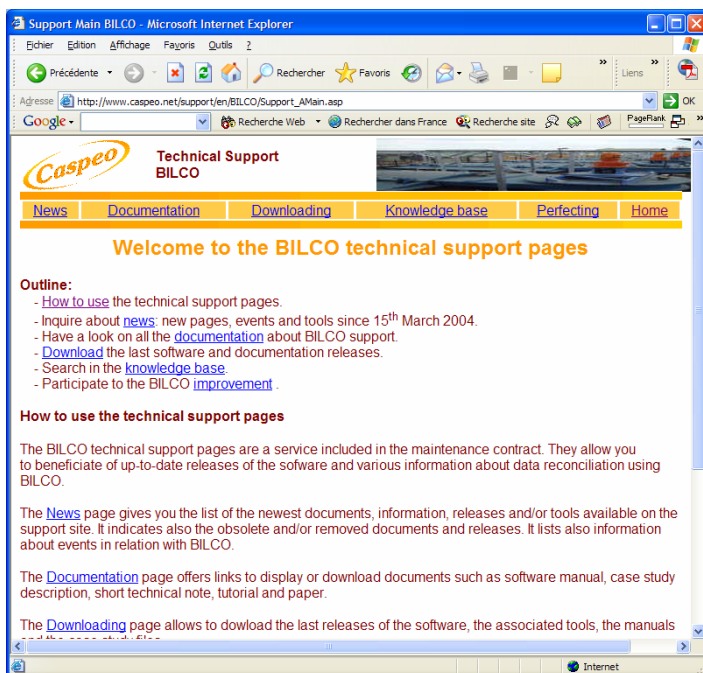Homogeneity of distribution

Serving your process needs

Associated services

Training
Customer-specific training sessions for sampling, data reconciliation, process modeling and simulation.
Largely based on case studies.

Support
Annual subscription.
Hotline (phone, fax, e-mail).
Access to the support web site.
Downloading of new software or documentation releases.
News, FAQ, technical notes, case studies.

More than 150 customers

Among them:
Eramet, CVRD, Codelco, Rio Tinto, Xstrata, LKAB, Newmont, Fosfertil, ICS, OCP, Kazzinc, De Beers, Imerys, Nordkalk Corporation,
Sofremines, Iscor Mining, Fluor Australia,
CSIRO, MichiganTech, Indian Bureau of Mines, Luleå University of Technology,
AJ Parker Center.

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