

## specialist tools:

- METSIM
- HSC Chemistry
- ProSim Simulis
- Primavera P6
- SysCAD
- FluidFlow 3
- Bentley Microstation
- xNumbers (VBA)

## process modeling experience:

- Nickel laterites; both sulphide and hydroxide flowsheets
- Pressure oxidation of nickel sulphides
- Pressure oxidation and recovery for molybdenite processing
- Pressure oxidation of gold-bearing arsenopyrite (in SysCAD)
- Multiple hearth roasting and calcine leaching of molybdenite
- Aluminothermic production of ferromolybdenum
- Complete roast leach electrowin zinc refinery (for Tecnicas Reunidas) with all utilities, mercury and selenium removal and acid plant
- Steam methane reforming for hydrogen production (can be adapted to Midrex, ammonia, methanol, FT etc)
- Coal gasification with gas scrubbing, shift conversion and H<sub>2</sub>S/ CO<sub>2</sub> removal by Selexol, power generation by gas turbine
- Bayer process (using SysCAD)
- Vanadium soda roast and recovery to V<sub>2</sub>O<sub>5</sub> (using SysCAD)
- Iron ore beneficiation flowsheets (crushing, milling, spirals, flotation, selective flocculation, magnetic cobbles, LIMS, WHIMS, SLon)
- Copper concentrator (Nifty) water balance
- Pb/Zn concentrator (Admiral Bay)
- Production of boric acid from borates (complete process with all utilities including acid plant, for Satimola project)
- Coal washing incorporating dense media cyclones and spirals
- Upgrading of a rare earths concentrate
- Chalcocite atmospheric leach, SXEW (for Vale)
- Rock phosphate concentrator
- Synthetic rutile plant design



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