



MINING AND MINERALS TRAINING

Copper and Cobalt Hydrometallurgy

5 day course

Classroom, online or in-house

Course overview

The copperbelt runs oxide, sulphide and mixed ores through circuits that were often built for one of them, and cobalt makes the chemistry harder because it follows copper through most of the flowsheet until it is deliberately separated. This course works through both metals together. Delegates work through ore mineralogy and why acid consumption is the figure that decides whether an oxide ore is economic. Leaching is covered across agitation, vat and heap routes, with acid balance and gangue reaction. Sulphide treatment follows, including roasting, pressure leaching and bioleaching. Solid liquid separation and counter current decantation are addressed. Solvent extraction is worked through in detail: reagent selection, isotherms, phase disengagement and crud. Electrowinning follows, covering current efficiency, cathode quality and the impurities that cause rejection. Cobalt separation, purification and precipitation are covered. The course closes on impurity management, on reagent cost and on plant metallurgical accounting.

What you will learn

- Relate ore mineralogy to acid consumption and route selection
- Operate agitation, vat and heap leaching with an acid balance
- Treat sulphides by roasting, pressure leaching or bioleaching
- Run counter current decantation and solid liquid separation
- Control solvent extraction isotherms, phase disengagement and crud
- Electrowin copper at good current efficiency and cathode quality
- Separate and precipitate cobalt, and account for plant metallurgy

Who should attend

- Metallurgists on copper and cobalt operations
- Plant operators and shift supervisors in hydrometallurgy
- Process engineers on copperbelt projects
- Laboratory staff supporting leach and solvent extraction plants
- Graduate metallurgists entering base metals

Course outline

- 01 Circuits built for one ore type
- 02 Ore mineralogy and acid consumption
- 03 Agitation, vat and heap leaching
- 04 Sulphide treatment routes
- 05 Counter current decantation
- 06 Solvent extraction, isotherms and crud
- 07 Electrowinning and cathode quality
- 08 Cobalt separation, impurities and metal accounting

Upcoming dates



Dates	Venue	Format	Fee per delegate
28 September to 2 October 2026	Durban, South Africa	Classroom	R19,950
12 to 16 October 2026	Cape Town, South Africa	Classroom	R19,950
30 November to 4 December 2026	Kigali, Rwanda	Classroom	USD 1,325
21 to 25 December 2026	Maputo, Mozambique	Classroom	USD 1,325

Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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