Hydrometallurgy, Electrochemistry and Precious Metals (Cyanidation) Laboratories - IGAG Montelibretti

National Research Council of Italy

Laboratory manager / Contact person for security	Instruments	Type of analysis / activity	Description of analysis / activity	Cost (€)
Dr. Stefano Ubaldini	Air suction system and air exchange (2500 m 3 /hour) that includes: extractor, motorized dampers ventilation, tower for the removal of toxic gases, exhaust fan off-gas, gas sensors, detectors-gas alarms, pumps recirculation; spectrometer for atomic absorption; balance sheet; digital pH meters; peristaltic pumps; filtration system under vacuum; leaching glass reactors; glass columns; mechanical stirrers supported for glass reactors; heating plates for magnetic stirring	Cyanidation tests	Leaching with cyanide by percolation (up to 30 ° C)	• Internal services (CNR researchers and associated A+B+C): 210 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 230 + VAT • Third-party service: 250 + VAT
			Leaching with cyanide in stirred reactor (up to 30 ° C)	• Internal services (CNR researchers and associated A+B+C): 215 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 240 + VAT • Third-party service: 265 + VAT
			Leaching with cyanide by percolation (from 31 ° to 80 ° C)	• Internal services (CNR researchers and associated A+B+C): 250 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 275 + VAT • Third-party service: 300 + VAT
			Leaching with cyanide in stirred reactor (from 31 ° to 80 ° C)	• Internal services (CNR researchers and associated A+B+C): 280 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 310 + VAT • Third-party service: 330 + VAT
			Liquid-liquid extraction from cyanide solution	• Internal services (CNR researchers and associated A+B+C): 200 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 220 + VAT • Third-party service: 240 + VAT
			Adsorption or desorption on actVATted carbon in column, from cyanide solution (up to 30 ° C)	• Internal services (CNR researchers and associated A+B+C): 210 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 230 + VAT • Third-party service: 260 + VAT
			Adsorption or desorption on actVATted carbon in stirred reactor, from cyanide solution (up to 30 ° C)	• Internal services (CNR researchers and associated A+B+C): 225 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 250 + VAT • Third-party service: 275 + VAT
			Adsorption or desorption on actVATted carbon in column, from cyanide solution (from 31 ° to 80 ° C)	• Internal services (CNR researchers and associated A+B+C): 240 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 265 + VAT • Third-party service: 285 + VAT
			Adsorption or desorption on actVATted carbon in stirred reactor, from cyanide solution (from 31° to 80° C)	• Internal services (CNR researchers and associated A+B+C): 250 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 275 + VAT • Third-party service: 300 + VAT
			Electrodeposition of cyanide solution	• Internal services (CNR researchers and associated A+B+C): 200 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 225 + VAT • Third-party service: 275 + VAT
			Cementation of cyanide solution	• Internal services (CNR researchers and associated A+B+C): 218+ VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 242 + VAT • Third-party service: 265 + VAT
			Titration of cyanide solution	• Internal services (CNR researchers and associated A+B+C): 55 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 65 + VAT • Third-party service: 75 + VAT
		AAS spectroscopy	Quantitative determination of precious metals contained in cyanide solution: Au, Ag, Pd, Pt	• Internal services (CNR researchers and associated A+B+C): 50 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 55 + VAT • Third-party service: 65 + VAT
			Quantitative determination of metals contained in cyanide solution: Fe, Cu, Ni, Zn, Cd, Co, Hg, Mn, Sb	• Internal services (CNR researchers and associated A+B+C): 30 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 35 + VAT • Third-party service: 45 + VAT

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Dr. Stefano Ubaldini	Batteries of stirred leaching glass reactors, immersed in water bath, Leaching glass reactor, controlled by thermocryostat Julabo mod. LH 45, complete with support flanges, and refrigerant connections to thermocryostat, Reactors leaching column for the static percolation, Thermostats Julabo mod. VC, UC and EM, Thermostated bath Falc, Automatic agitators Heavy Stirrer, Digital pH meter Amel mod. 337, Peristaltic pumps, Filtration system under vacuum, Thermostated stove Inter –Continental, 0250°C, Shaker Continental, Mobile hood Continental Astecair mod. 3000, Centrifuge ALC mod. 4235; complete equipment AMEL for electrochemical studies, consisting of: potentiostat, galvanostat, function generator, interface, current integrator, differential electrometer, digital pH meters; the instrumentation is electrically connected to an electrolytic cell thermostated laboratory	Hydrometallurgy and electrochemistry tests	Leaching by percolation (up to 30 ° C)	• Internal services (CNR researchers and associated A+B+C): 130 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 145 + VAT • Third-party service: 155 + VAT
			Leaching in stirred reactor (up to 30 ° C)	• Internal services (CNR researchers and associated A+B+C): 160 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 175 + VAT • Third-party service: 190 + VAT
			Leaching by percolation (from 31 ° to 80 ° C)	• Internal services (CNR researchers and associated A+B+C): 170 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 190 + VAT • Third-party service: 200 + VAT
			Leaching in stirred reactor (from 31° to 80° C)	• Internal services (CNR researchers and associated A+B+C): 190 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 210 + VAT • Third-party service: 220 + VAT
			Leaching in monitored-stirred reactor, controlled by a thermo cryostat (from -40 ° to 250 ° C)	• Internal services (CNR researchers and associated A+B+C): 240 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 265 + VAT • Third-party service: 280 + VAT
			Liquid-liquid extraction	• Internal services (CNR researchers and associated A+B+C): 138+ VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 154 + VAT • Third-party service: 170 + VAT
			Elettrodeposition	• Internal services (CNR researchers and associated A+B+C): 160 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 175 + VAT • Third-party service: 190 + VAT
			Adsorption or desorption on actVATted carbon in column (up to 30 ° C)	• Internal services (CNR researchers and associated A+B+C): 130 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 145 + VAT • Third-party service: 160 + VAT
			Adsorption or desorption on actVATted carbon in stirred reactor (up to 30 ° C)	• Internal services (CNR researchers and associated A+B+C): 150 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 165 + VAT • Third-party service: 180 + VAT
			Adsorption or desorption on actVATted carbon in column (from 31 ° to 80 ° C)	• Internal services (CNR researchers and associated A+B+C): 160 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 175 + VAT • Third-party service: 190 + VAT
			Adsorption or desorption on actVATted carbon stirred reactor (from 31 ° to 80 °C)	• Internal services (CNR researchers and associated A+B+C): 168+ VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 187 + VAT • Third-party service: 200 + VAT
			Cementation	• Internal services (CNR researchers and associated A+B+C): 150 + VAT (no VAT only for fund transfer inside CNR) • Public Research Institutions and Universities service: 165 + VAT • Third-party service: 175 + VAT