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Sommario/riassunto	<p>Leaching is a primary extractive operation in hydrometallurgical processing, by which a metal of interest is transferred from naturally occurring minerals into an aqueous solution. In essence, it involves the selective dissolution of valuable minerals, where the ore, concentrate, or matte is brought into contact with an active chemical solution known as a leach solution. Currently, the hydrometallurgical processes have a great number of applications, not only in the mining sector—in particular, for the recovery of precious metals—but also in the environmental sector, for the recovery of toxic metals from wastes of various types, and their reuse as valuable metals, after purification. Therefore, there is an increasing need to develop novel solutions, to implement environmentally sustainable practices in the recovery of these valuable and precious metals, with particular reference to critical metals; those included in materials that are indispensable to modern life and for which an exponential increase in consumption is already a reality, or will be in a short-term perspective. For publication in this Special Issue, consideration has been given to articles that contribute to the optimization of the kinetic conditions of innovative hydrometallurgical processes—economic and of low environmental impact—applied to the recovery of valuable and critical metals.</p>