

Progress in the understanding of leaching reactions and reactors

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Leaching and dissolution are central to hydrometallurgical processes. Over the last quarter of a century, steady progress has been made in modelling of leaching reactors, with large tank and autoclave installations across the globe. At the same time, progress in understanding the mechanisms of dissolution of both economic and gangue minerals has been made. The purpose of this paper is to survey this progress. Of particular importance are progress in three specific areas: (i) there is a growing acknowledgement that the electronic structure of sulphide minerals is crucial; (ii) a novel mechanism of the dissolution of silicates and oxide minerals has been proposed; and (iii) a better comprehension of the dissolution of salts, such as gypsum and carbonates, has been achieved. The main concepts of these models are briefly described, and examples are provided.