

The solvent extraction separation of molybdenum and copper from acid leach residual solution of Chilean molybdenite concentrate

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A procedure for recovery and separation of molybdenum (VI) and copper (II) from acid leaching residual solution of Chilean molybdenite concentrate by solvent extraction is studied. The process for the recovery of metals was carried out in three stages: 1. 1) Leaching of molybdenite concentrate with nitric acid produced "in situ" by reaction of sodium nitrate and sulfuric acid. The dissolution process at 80°C was effective, yielding a solid phase constituted mainly of MoO₃ and a residual solution. 2. 2) From this solution, molybdenum was extracted with PC-88A, a non-specific alkylphosphonic extractant. It was determined that the extraction is highly efficient around pH 0.8, since cationic species of Mo(VI), feasible to be extracted by PC-88A, are predominant in such pH region. No co-extraction of others metals was observed at the pH of molybdenum recovery. This metal was stripped by ammonia to give an enriched aqueous phase containing 36 g/L. 3. 3) Copper may then be effectively extract