Precipitation stripping of nanometrical particles for the recovery of vanadium

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The demand for strategic metals such as chromium and vanadium is predicted to rise in the future. These metals can currently be found in the slag by-products of certain steel production processes. To help meet the rising demand, the CHROMIC project seeks to develop a hydrometallurgical process for the recovery and purification of these valuable resources. Various methods are being investigated for separation of the metal value from the resulting alkaline leach feeds, including solvent extraction. In case of the recovery of vanadium an interesting modification of the conventional solvent extraction process is the addition of a crystallization operation (precipitation stripping). The extraction was carried out using an Aliquat 336 solution in *n*-octanol/kerosene as extractant. Precipitation stripping was carried out using metal salt dissolved in a concentrated chloride solution. For some experiments, polyvinylpyrrolidone was used as stabilizer in order to avoid agglomeration and control growth. The metal vanadate particles are nanometrical in size, with morphologies varying from nanowires to spherical particles.