

Selective Extraction Separation of Vanadium and Chromium in the Leaching/Aqueous Solution with Trioctylamine

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Abstract : Efficient extraction for separation of V and Cr in the leaching/aqueous solution is essential to the reuse of V and Cr in the V-Cr slag. Trioctylamine, a common tertiary amine extractant, with some good characters (e.g., weak base, insoluble in water and good stability) different from N1923, was investigated in this paper. The separation factor of Cr and V can be reached to 230.71 when initial pH of the aqueous solution is 0.5, so trioctylamine can be used for extracting Cr from the leaching/aqueous solution contained V and Cr. The highest extraction percentages of Cr and V were 98.73% and 90.22% when the initial pH values were 0.5 and 1.5, respectively. Via FT-IR spectra of loaded organic phase and trioctylamine, the hydrogen bond association mechanism of extracting V and Cr was investigated, which was the same with the way of extracting the two metals with primary amine N1923.

Keywords : selective extraction, trioctylamine, V and Cr, separation factor, hydrogen bond association

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