PRODUCTION OF PURE TUNGSTEN OXIDE FROM SCHEELITE CONCENTRATES

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ABSTRACT

Scheelite concentrates, obtained from Uludag, Bursa (Türkiye), containing roughly 50% W, are treated by the chelate-added acidic leaching route. Dissolved tungsten ions are then selectively precipitated by the addition of "ammonia ion containing" reagents -either organic or inorganic, and thus are purified from other ions present in the solution. The optimum precipitation conditions are investigated with the aim of producing pure tungsten oxide via thermal breakdown process. Weight loss ratios of the samples vary between 8.7 and 9.6% at the end of two-hour thermal breakdown process. This amount validates the formula suggested for the complex salt; \((\text{NH}_4)_3 \text{PW}_{12}\text{O}_{40} \cdot 9\text{H}_2\text{O}\). Tungsten trioxide obtained, on the other hand, can be suitably employed in tungsten-related powder metallurgy applications with its extremely low impurity content of 0.04% Mo, 0.15% \(\text{SiO}_2\), 0.06% Fe and 0.03% Al.