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Abstract of the Disclosure

**HIGH DENSITY, LOW OXYGEN RE AND RE-BASED CONSOLIDATED POWDER
MATERIALS FOR USE AS DEPOSITION SOURCES & METHODS OF MAKING
SAME**

A method of making Re and Re-based materials comprises steps of: providing a Re powder starting material or a Re powder starting material and at least one additional powder material; subjecting at least the Re powder to a first degassing treatment for reducing the oxygen content thereof; increasing the density of the degassed Re powder or a mixture of the degassed Re powder and the at least one additional powder material to form a green billet; subjecting the billet to a second degassing treatment to further reduce the oxygen content; and consolidating the billet to form a consolidated material with greater than about 95 % of theoretical density and low oxygen content below about 200 ppm for Re and below about 500 ppm for Re-based materials formed from the mixture, excluding oxygen from non-metallic compounds and ceramics. Materials so produced are useful in the manufacture of deposition sources such as sputtering targets.

(Figure 1)