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[54] **FLUID BED REDUCTION TO PRODUCE FLOWABLE MOLYBDENUM METAL**

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Related U.S. Application Data

[63] Continuation of Ser. No. 479,026, Feb. 12, 1990, abandoned.

[51] **Int. Cl.**[5] **C22B 34/34**

[52] **U.S. Cl.** **75/623**

[58] **Field of Search** 75/623

[56] **References Cited**

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[57] **ABSTRACT**

Flowable molybdenum metal powder of controlled particle size distribution is produced by stage-wise reduction wherein, in a first stage, molybdenum trioxide feed is preferably introduced at depth in a fluid bed of molybdenum dioxide and is reduced in an atmosphere containing at least 50% hydrogen, by volume, at a temperature between 560° and 620° C. and the product molybdenum dioxide is then reduced to molybdenum metal in a second stage fluid bed at a temperature between 1025° C. and 1075° C. in an atmosphere containing at least 50% hydrogen employed in amount of at least 2.75 times stoichiometric while controlling the off-gas dewpoint to be at least 21° C. and controlling the off-gas hydrogen:water vapor ratio so as not to exceed 24:1 and removing the product spheroidal molybdenum metal particles from the bottom of the bed to prevent collapse of the bed.

14 Claims, 5 Drawing Sheets