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(54) **SYSTEM AND METHOD FOR PRODUCING COPPER POWDER BY ELECTROWINNING USING THE FERROUS/FERRIC ANODE REACTION**

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(51) **Int. Cl.**

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See application file for complete search history.

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(57) **ABSTRACT**

The present invention relates, generally, to a method for electrowinning copper powder, and more particularly to a method for electrowinning copper powder from a copper-containing solution using the ferrous/ferric anode reaction. In accordance with various embodiments of the present invention, a process for producing copper powder by electrowinning employs alternative anode reaction technology, namely, the ferrous/ferric anode reaction, and enables the efficient and cost-effective production of copper powder at a total cell voltage of less than about 1.5 V and at current densities of greater than 50 A/ft^2. A copper powder electrowinning process in accordance with the present invention also reduces or eliminates acid mist generation that is characteristic of electrowinning operations utilizing conventional electrowinning chemistry (e.g., oxygen evolution at the anode), which is advantageous.

19 Claims, 9 Drawing Sheets