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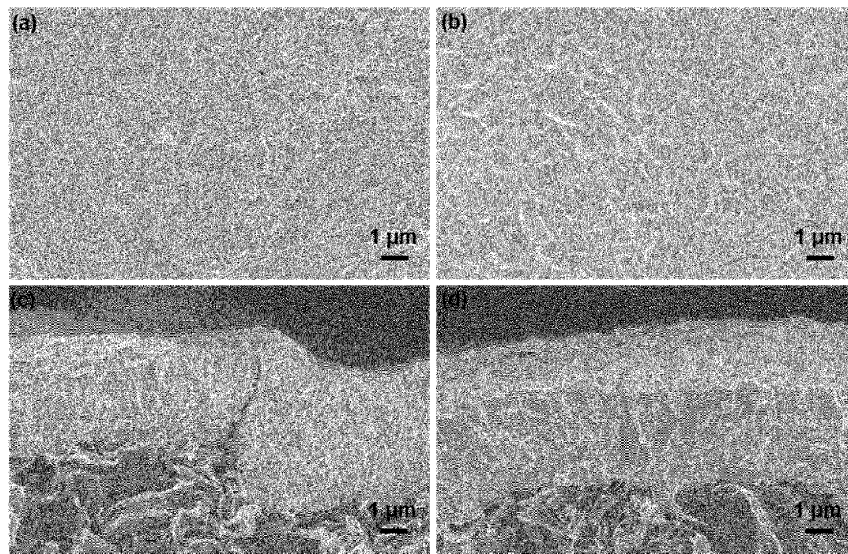
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(54) Title: SUBSTRATE COMPRISING TANTALUM COATING

Figure 2



(57) Abstract: In a first aspect, the present disclosure relates to a gas-phase deposition process for coating a carbonaceous substrate with a tantalum carbide coating, wherein the process comprises a coating step. The coating step comprises placing a carbonaceous substrate into a reaction chamber, heating the reaction chamber to a temperature between about 1100°C to about 1500 °C for a duration of between about 1 h to about 24 h. The coating step further comprises supplying a process gas to the reaction chamber, wherein the process gas comprises a halide containing species and wherein for at least 15 minutes after the start of the process, the process gas comprises less than 4 at.-% of carbon and less than 10 vol.-% of H₂. Further, the coating step comprises and supplying a tantalum containing species to the reaction chamber, or placing a solid comprising tantalum into the reaction chamber. Alternatively, the process comprises placing a solid comprising a tantalum halide into the reaction chamber.

[Continued on next page]

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