

Title (en)

METHOD FOR PRODUCING METAL OXIDES AND METAL CHALCOGENIDES COMPRISING A DEFINED MICROSTRUCTURE

Title (de)

VERFAHREN ZUR HERSTELLUNG VON METALLOXIDEN UND METALLCHALKOGENIDEN MIT EINER DEFINIERTEN MIKROSTRUKTURIERUNG

Title (fr)

PROCEDE DE PRODUCTION D'OXYDES METALLIQUES ET DE CHALCOGENURES METALLIQUES A MICROSTRUCTURE DEFINIE

Publication

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Application

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Abstract (en)

[origin: WO02076910A2] Microstructured and nanostructured surfaces with specific chemical properties and a specific surface structure, which up to the present have been produced in separate processes, such as e.g. embossing or lithographic processes, are required in various application fields. The inventive method permits the production of metal oxides or metal chalcogenides with a predefinable nanostructure or microstructure. To achieve this, the metal oxides or metal chalcogenides that have the desired nanostructure or microstructure but not the desired mechanical or chemical properties and that have been deposited on a substrate are subjected to a temperature of between 300 DEG C and 500 DEG C and a pressure of between 10 mbar and 2 bar in the presence of chalcogenide ions or metal ions or oxygen ions over a period of between 10 mins. and 5 hrs. This leads to an exchange of individual components of the metal oxide or the metal chalcogenide, whereby either the oxygen is replaced by chalcogenide ions or the chalcogenide ions are replaced by oxygen. However, it is also possible to replace a metal ion by another metal ion. The nanostructure or microstructure of the respective parent compound remains intact during said ion exchange. In this way, novel compounds, which have different properties from the parent compound but the same surface microstructure, are obtained.

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C04B 41/80; B82B 1/00; C30B 31/00

IPC 8 full level

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