

Title (en)
POROUS METAL OXIDE SEMICONDUCTOR SPECTRALLY SENSITIZED WITH METAL OXIDE

Title (de)
SPEKTRAL MIT METALLOXID SENSIBILISIERTER POR SER METALLOXIDHALBLEITER

Title (fr)
SEMI-CONDUCTEUR D'OXYDE METALLIQUE POREUX DONT LE SPECTRE EST SENSIBILISE PAR UN OXYDE METALLIQUE

Publication
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Application
EP 03787808 A 20030729

Priority

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Abstract (en)
[origin: WO2004017345A1] A porous metal oxide semiconductor with a band gap of greater than 2.9 eV spectrally sensitized on its internal and external surface with one or more metal oxides with a band-gap of less than 2.9 eV or a mixture thereof; a process for spectrally sensitizing a nanoporous metal oxide with a band-gap of greater than 2.9 eV on its internal and external surface comprising the steps of: providing a nanoporous metal oxide with a band gap of greater than 2.9 eV, applying a solution of a metal compound or salt which upon pyrolysis or upon hydrolysis and subsequent pyrolysis yields a metal oxide with a band-gap of less than 2.9 eV and heating the nano-porous metal oxide oxide with a band-gap of greater than 2.9 eV to which the metal salt had been applied to pyrolyse or hydrolyse and subsequently pyrolyse the salt to the metal oxide with a band-gap of less than 2.9 eV; and a second process for spectrally sensitizing a nano-porous metal oxide with a band-gap of greater than 2.9 eV on its internal and external surface comprising the steps of: (i) preparing a solution containing a metal compound or salt that pyrolyses or hydrolyses and subsequently pyrolyses to a metal oxide semiconductor with a band-gap of greater than 2.9 eV and a metal compound or salt that pyrolyses or hydrolyses and subsequently pyrolyses to a metal oxide with a band-gap of less than 2.9 eV, (ii) adding a water-soluble polymer to the solution prepared in step (i), (iii) coating the solution prepared in step (ii) on a support, and (iv) heating the coated support prepared in step (iii) to a temperature at which the water-soluble polymer is no longer present in the coating support.

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