

ABSTRACT

The present disclosure provides for a deposition method for porous metal oxides in ink-jet printing, the method comprising dissolving a metal component and a templating agent in a non-aqueous solvent to form a precursor solution, ink-jet printing this precursor solution, increasing the relative humidity until at least parts of the non-aqueous solvent are evaporated and replaced with water, thereby triggering an evaporation-induced self-assembly (EISA) of the templating agent in combination with inducing condensation of the metal component, followed by increasing the temperature to at least 200 °C in order to remove the templating agent and to obtain the porous metal oxide after cooling to room temperature. It also provides for a precursor solution for ink-jet printing comprising a metal component and a templating agent in a non-aqueous solvent, wherein the precursor solution is exposed to ink-jet printing followed by a combination of evaporation-induced self-assembly (EISA) of the templating agent in combination with condensation of the metal component. It also provides a gas sensor obtained by depositing the precursor solution as defined above on an inter-digitated electrode (IDE) according to the method as defined above.

[Fig. 1]