

## Supercritical temperature synthesis of fluorine-doped VO<sub>2</sub>(M) nanoparticle with improved thermochromic property

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<b>Abstract</b>	Fluorine-doped VO <sub>2</sub> (M) nanoparticles have been successfully synthesized using the hydrothermal method at a supercritical temperature of 490 degrees C. The pristine VO <sub>2</sub> (M) has the critical phase transformation temperature of 64 degrees C. The morphology and homogeneity of the monoclinic structure VO <sub>2</sub> (M) were adopted by the fluorine-doped system. The obtained particle size of the samples is smaller at the higher concentration of anion doping. The best reduction of critical temperature was achieved by fluorine doping of 0.13% up to 48 degrees C. The thin films of the fluorine-doped VO <sub>2</sub> (M) showed pronounced thermochromic property and therefore are suitable for smart window applications.
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