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Structural and morphology comparison between m-LaVO4 and LaVO3 compounds

prepared by sol–gel acrylamide polymerization and solid state reaction

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We contrast the production of LaVO3 polycrystalline samples obtained by reduction of m-LaVO4 prepared

by sol–gel acrylamide polymerization (SGAP) and solid state reaction (SSR). For SGAP the formation of m-

LaVO4 occurs at 400 ◦C, for SSR at 1400 ◦C. For m-LaVO4-SGAP we observe a homogeneous morphology

with needle-shaped grains of 50nm average size. The SSR presents a broader size distribution in the

micrometer range. Both m-LaVO4 samples were reduced into LaVO3 using a Zr rod at 850 ◦C in vacuum.

LaVO3-SGAP presents a homogeneous grain distribution with an average size of 745 nm. LaVO3-SSR has

an average size of 3.45\_m. The stoichiometry of all compoundswas confirmed by energy dispersive X-ray

spectroscopy. X-ray powder diffraction and transmission electron microscopy give crystal structures in

agreement with those reported in the literature.