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## Preparation of Nanocrystalline Tin Oxide by the Hydrosol Method

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**Abstract** — The gas sensitivity and powder properties obtained by hydrosol process are investigated and compared with a conventional route powder. The XRD peaks are broadened considerably for hydrosol powder showing a decrease in crystallite size. The SnO<sub>2</sub> powder derived by hydrosol process was resistant to grain growth at elevated temperature. The crystallite size of the normal route powder calcined at 600°C for 3 hours was about 27 nm, which decreased to about 7 nm for the hydrosol route powder. TEM results showed an un-agglomerated microstructure for hydrosol derived powder. The LPG gas sensitivity showed an enhancement from 35 to 118 for 1000 ppm using powder prepared by the hydrosol route. The decreased crystallite size and formation of un-agglomerated powder were responsible for enhanced gas sensitivity.