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Effect of N2 Flow Rate on MoO3 Microbelts Synthesized by Thermal process and Their CO2 gas Sensitivity Properties

MoO3 microbelts were successfully prepared by thermal process using MoS2 as a precursor. During synthesis process, nitrogen gas (N2) was purged into the furnace at three different flow rates; 6 sccm, 8 sccm, and 10 sccm, respectively. MoO3 microbelts with width in range of 8-50 and thickness approx. 2-5 then were prepared as a CO2 gas sensor, and the sensitivity was investigated by measuring the ratio of resistance of gas sensor in air to resistance of gas sensor in CO2 atmosphere for 60 s. The results show the sensitivities of gas sensors increase with time linearly and the sensitivity of CO2 gas sensor prepared from 10 sccm of N2 flow rate is the highest at 1.99, whereas the sensitivities of the other CO2 gas sensors prepared from 6 sccm and 8 sccm of N2 flow rates are lower and relatively identical at 1.39 and 1.40, respectively. In addition, the electrical properties of MoO3 microbelts studied by I-V characteristic curves reveal ohmic behavior.
Keywords: MoO3 microbelts, Thermal process, Gas sensor, I-V curve

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