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Gas-Sensing Properties of Tin Oxide-Based Volatile Organic Compound Sensors for Total Volatile Organic Compound Gases

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This study is an investigation on the total volatile organic compound (T-VOC) gas-sensing properties of platinum-added tin oxide (Pt/SnO_2) thick films. We have prepared a T-VOC test gas on the basis of analytical data of the actual indoor air condition of Japanese residences. The T-VOC test gas has 16 components, which belong to 6 groups, namely, aldehydes, aliphatic compounds, aromatic compounds, terpenes, esters, and alcohols. Pt/SnO_2 possesses a good potential for T-VOC gas detection. We discuss the contribution ratios of each group in the T-VOC test gas for the sensor response of the Pt/SnO_2 thick films. The responses of the Pt/SnO_2 thick film are not dominated by parts of the groups, but depend on all the groups in the T-VOC test gas.

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