

PS7

MIXED METAL OXIDE BASED GAS SENSOR

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Metal oxide based gas sensors are continuously being evolved with new technologies for the development of sensing industry [1]. Biomarker detection through exhaled breath is one of the most developing non-invasive technique in diagnostic industry. There are lot of technologies being used for VOCs testing like gas chromatography, mass spectrometry [2], which are non-portable and pretty expensive. Metal oxide

based gas sensors are portable, inexpensive, and simple to be scaled for various applications. Mixed copper oxide (CuO/Cu₂O) based gas sensors doped with Sn has shown remarkable results for ethanol vapor detection. At operating temperature of 300°C, ethanol vapor shows maximum gas response ~220% over other VOC analytes like n-propanol, n-butanol, and acetone. The sensor shows response / recovery time of ~14 seconds/125 seconds for ethanol vapor detection. The morphology of Sn doped CuO/Cu₂O was characterized through SEM. Ethanol vapor being potential biomarker for liver damage [3], auto brewery syndrome [4], etc. This work can be further extended to improve sensing performance and developed sample can be tested for medical devices. Using different appropriate doping elements, sensing performance for ethanol as a biomarker can be improved.

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