

DETECTION OF VOLATILE ORGANIC COMPOUNDS USING TITANIUM DIOXIDE COATED WITH DYE-PORPHYRINS THIN FILMS IN BULK ACOUSTIC SYSTEM

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ABSTRACT

Thin films of titanium dioxide (TiO₂) coated with dye porphyrins were prepared on Quartz Crystal Microbalance (QCM) using sol-gel dip coating method. Two porphyrins dye, 5,10,15,20-tetraphenyl-21H,23H-porphine manganese (III) chloride and 5,10,15,20-tetraphenyl-21H,23H-porphine iron (III) chloride were used as sensing materials. Bulk acoustic system have been designed and used to detect some volatile organic compounds (VOCs). The sensing sensitivity of the QCM coated with thin films has been measured with respect to acetone and 2-propanol vapors. It was found that all thin films were sensitive and have selectivity properties towards both vapors.

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