Sensors and Materials, Vol. 17, No. 7 (2005) 355–364
MYU Tokyo

S & M 0613

"Electronic Nose" —A New Monitoring Device for Environmental Applications

Krishna C. Persaud*, Peter Wareham,
Anna Maria Pisanelli and Emmanuel Scorsone

School of Chemical Engineering and Analytical Science, The University of Manchester,
PO Box 88, Sackville Street, Manchester M60 1QD, UK

(Received February 21, 2005; accepted May 9, 2005)

Key words: odour sensing, sensor arrays, environmental monitoring

Environmental applications of odour sensing technology have been limited by problems of achieving stable measurements when confronted with highly variable environmental factors. We present three case studies for odour sensor technology applied to (a) detection of dry rot in buildings using a sampler and preconcentrator based on solid phase microextraction coupled to a metal oxide sensor array; (b) continuous monitoring of the odour of waste water; (c) discrimination of volatiles emitted by fires in the development of a smart fire alarm system. Each of these applications has required understanding of the nature of the volatiles to be detected and discriminated, specific sampling methods and dedicated sensors, electronics and software.

*Corresponding author, e-mail address: krishna.persaud@manchester.ac.uk