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'Nuisance Dust' – a Case for Recalibration?

Hugh Datson and Brian Marker
DustScan Ltd, Oxford, UK (hughd@dustscan.co.uk)

This paper considers the case for a review and recalibration of limit values and acceptability criteria for 'nuisance dust', a widely encountered but poorly defined and regulated aspect of particulate matter pollution. Specific dust fractions such as PM10 and asbestiforms are well characterised and have limit values enshrined in legislation. National, and international, limit values for acceptable concentrations of PM10 and other fractions of particulate matter have been defined and agreed. In the United Kingdom (UK), these apply to both public and workplace exposures. By contrast, there is no standard definition or universal criteria against which acceptable levels for 'nuisance dust' can be assessed. This has implications for land-use planning and resource utilisation. Without meaningful limit values, inappropriate development might take place too near to residential dwellings or land containing economically important mineral resources may be effectively sterilised. Furthermore, the expression 'nuisance dust' is unhelpful in that 'nuisance' has a specific meaning in environmental law whilst 'nuisance dust' is often taken to mean 'generally visible particulate matter'. As such, it is associated with the social and broader environmental impacts of particulate matter. PM10 concentrations are usually expressed as a mass concentration over time. These can be determined using a range of techniques. While results from different instruments are generally comparable, data obtained from alternative methods for measuring 'nuisance dust' are rarely interchangeable. In the UK, many of the methods typically used are derived from approaches developed under the HMIP (Her Majesty's Inspectorate of Pollution) regime in the 1960s onwards. Typical methods for 'nuisance dust' sampling focus on measurement of dust mass (from the weight of dust collected in an open container over time) or dust soiling (from loss of reflectance and or obscuration of a surface discoloured by dust over time). 'Custom and practice' acceptance criteria for dust samples obtained by mass or soiling techniques have been developed and are widely applied even though they were not necessarily calibrated thoroughly and have not been reviewed recently. Furthermore, as sampling techniques have evolved, criteria developed for one method have been adapted for another. Criteria and limit values have sometimes been based on an insufficient knowledge of sampler characteristics. Ideally, limit values should be calibrated for the locality to take differences in dust density and visibility into account. Work is needed on the definition of criteria and limit values, and sampling practices for coarse dust fractions, followed by discussion of good practices for securing effective monitoring that is proportionate and fit for purpose. With social changes and the evolution of environmental controls since the 1960s, the public perception of 'nuisance dust' has changed and needs to be addressed by reviewing existing thresholds in relation to the range of monitoring devices currently in use.