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Some vapour filters are expected to give only a short time in use (15 to 20 minutes), being designed for escape purposes rather than workplace protection. Cranfield University have looked at the configuration of short breakthrough-time charcoal beds from the point of view of the kinetics of adsorption. Adsorption kinetics were observed to improve with increasing linear flow, resulting in a reduction in the critical bed depth. To date tests have been conducted using half mass beds, linear flows and dry air. Under these conditions a 2 cm diameter filter only requires half the charcoal that a 7 cm diameter bed does to achieve the same protection. Moreover, the reproducibility of results is shown to be much better. Although an associated increase in breathing resistance is experienced, we believe it to be tolerable for the short time that the filter is expected to be in use. Experiments have shown improved breakthrough times when tested with the particulate element in place, possibly due to improvements in flow distribution. Ultimately, the intention is to design a system that will provide 15 minutes of protection at a 30 l/min equivalent breathing rate.