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**Effect Of Odour Laboratory In The Evaluation Of Odour Removal Performance Of Air Scrubbers**

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Earlier research in evaluating odour performance of air scrubbers demonstrated considerably differences between laboratories with different panel procedures and equipment that are allowed within the European standard for odour concentration (EN13725). In the Netherlands odour regulations for livestock facilities include odour removal percentages that are based on measurements by different laboratories. An exploratory study was carried out with the aim to investigate whether systematic differences exist between laboratory types when evaluating odour removal performance of combined air scrubbers (combi-scrubbers). The odour sampling and measurements were carried out both by a laboratory using the so-called forced choice method (lab A) and a laboratory using the yes/no-method (lab B). Also the olfactometric equipment used differs with regards to the stabilisation time that is applied. Measurements were carried out at two types of combi-scrubbers on four farm locations, two farms per type. At each farm 6 odour removal measurements were done simultaneously by the two laboratories in the summer of 2016. Systematic differences in reported odour concentrations existed between both laboratories. Concentrations measured by lab A were on average 4.5 times as high as the values of lab B. The correlation between the odour concentrations of identical samples taken simultaneously by both labs was weak ( $r = 0.24$ ), which together with the large systematic difference, indicates a low level of reproducibility. The study showed that both combi-scrubbers achieved much lower odour removal efficiencies than their assigned values of 85% and 70% in odour regulations, mean farm removal efficiencies varying between -1 and 35%. Odour removal performances did not significantly differ between both laboratories at these low removal efficiencies. It is concluded that the observed low reproducibility between the two laboratories raise doubts to the effectiveness of the current method for determining odour emission factors and odour removal efficiencies in odour regulations.

*Keywords:*

**odour, olfactometry, measurement method, air scrubber**