FLOW RATES OF CONTROLLED ATMOSPHERES REQUIRED FOR MAINTENANCE OF GAS LEVELS IN BOLTED METAL FARM BINS

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Tests were conducted in bolted metal bins of different size with units which generate nitrogen-based atmospheres by the combustion of propane or by the separation of oxygen from air using pressurised membrane filtration. All bins tested were loaded with wheat. Having purged a structure with an appropriate, low oxygen atmosphere, the flow rates of gas required to maintain the atmosphere were assessed under typical weather conditions in the UK. The premise that larger structures of a particular shape and design would require fewer atmosphere changes per day to maintain a lethal atmosphere was investigated. The flow rates required for maintenance were controlled to some extent by wind speed. Data are presented which relate maintenance flow rate to structure size and the prevailing weather conditions.