

18/03/2014

Attention: Council Health Department

THE SEED KV CONTROL SYSTEM - MEASURING ODOUR NUISANCE & CONTROLLING ENERGY SAVINGS FOR EXISTING KITCHEN VENTILATION SYSTEMS

Dear Sir/Madam,

I write to introduce **SEED KV** - our [patent-pending] ventilation control system. **SEED KV** has a unique odour sensing system that monitors exhaust system discharges and varies fan speeds and cleaning systems to prevent odour nuisance.

What is the product?

The **SEED KV** control system comprises fan controllers and sensors. It uses an electronic nose and an “odour nuisance map” to control kitchen fan ventilation systems and filtration systems.

It has several systems of sensors:-

- 1) A sensor system indicating minimum turndown from a capture perspective inside the kitchen. This uses the German Ventilation Code VDI 2052 to determine the minimum flow rate to capture emissions inside the kitchen.
- 2) A sensor system polling external conditions and their ability to hinder or enhance odour dilution. This compares wind direction and strength to a site-specific “odour nuisance map”. It calculates the predicted dilution effect of the external conditions.
- 3) A sensor system using an artificial nose that determines the “odour units” of the discharge. This uses a vast array of electronic and chemical sensors to determine the likely odour units. It is site-calibrated across key chemicals from the cooking process, mostly polycyclic aromatic hydrocarbons (PAH).

With the inputs of these sensor systems, the controller calculates what minimum fan speeds the system can operate at to maintain EPA compliance. If scrubbing, UV or grease extraction systems are installed, it can provide control or switching such that these systems only operate as required by external conditions. This can prevent unnecessary operational costs such as water, energy and detergent. It also greatly extends the life of these systems.

What is unique?

1. **SEED KV** uses “an electronic nose”.
2. **SEED KV** evaluates external conditions in terms of odour nuisance and manages fan speeds and filtration systems such that odour nuisance is prevented in an energy efficient fashion.

No other ventilation system in USA or Australia uses this combination of sensors or this technique.

Modern Kitchen ventilation controllers

Note there are a number of products on the market that will turn down kitchen exhaust fan speeds in response to various signals such as hood temperature or optical sensors. Whilst they save energy, they may be placing the owner at risk of odour nuisance complaint.

When kitchen ventilation systems slow down, the threat of odour nuisance rises because:-

- 1) The discharge is less diluted by external conditions because it discharges at a lower velocity.
- 2) The discharge may be more polluted [subject to hood configuration].
- 3) The filters become less effective because they rely on velocity for “impingement” (capture).

The Australian standard for kitchen ventilation outlines minimum velocities for discharge and minimum filtration efficiencies. The purpose of these requirements is not to improve conditions inside the kitchen but to improve amenity outside the building.

When systems slow down, the owner risks allegations of non-compliance and of creating odour nuisance.

Why would an owner want to install SEED KV?

SEED KV is programmed to permit energy saving reductions in air quantities whilst maintaining operations where odour nuisance is unlikely to be substantiated. The odour sensors will maintain 5 olf or lower at the site boundary.

It ultimately provides the owner the peace of mind that odour nuisance cannot be substantiated. If a scrubbing system fails, the owner gets an immediate signal that there is a problem. This may enable them to proactively engage their neighbours before the complaint reaches a legal scenario.

The Perceived Market

We originally developed this system in response to Council requests for odour nuisance mitigation measures & control.

Common examples of odour nuisance include:-

- 1) Restaurant discharges near low level apartments
- 2) Kitchen discharges near residential or commercial buildings

It is not expected to be common-place but it will be desirable for owners who are faced with higher risks. It may be useful for monitoring high risk installations.

Regards



Rob Lord

0422274367

rob@seedengrs.com