

Case Study

UK Ozone Treatment Firm Uses Real-Time Monitoring to Protect Workers

Exoair were looking for a way to accurately measure and control the ozone generated from their UV lamps, used to clean commercial kitchen exhausts.



Project

Ozone treatment monitoring

Location

United Kingdom

Date

2007 & 2012

Services

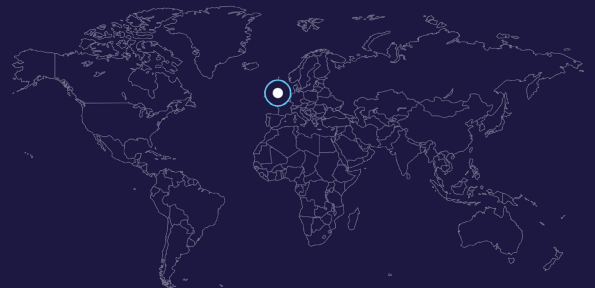
Series 500 handheld Ozone monitor 0-0.5ppm

Measurements

Ozone

Sector

Ozone



The customer

Exoair Master Limited provides a full range of kitchen ventilation services to commercial kitchens across the UK and Northern Ireland. Geoff Allum established the business in 2004 and now leads a fast growing, acknowledged market leader serving thousands of customers nationwide.

Exoair specialises in the use of ozone treatment technology in commercial kitchen exhausts. By reducing grease deposits within the canopy and extract ductwork, ozone treatment can reduce fire risk. It also reduces the levels of odours experienced at the point of discharge, which is an important consideration for the busy inner city kitchen.

The problem

The regular removal of grease from kitchen ducts is a significant recurring maintenance cost and, if not carried out regularly, poses a serious fire hazard. Exoair's system uses UV lamps to produce just the right level of ozone to oxidise grease molecules in the exhaust.



However, too much ozone would result in discharge of ozone from the exhaust, which could be harmful to human health. Whilst the World Health Organisation sets a long term ozone exposure limit of <0.05ppm, Geoff says Exoair sets its own maximum ozone discharge limit at just 0.04ppm, (that's 40 parts per billion).

In addition, the amount of ozone required varies. Low amounts are needed during start up and low cooking loads, but large amounts are needed for periods of high cooking intensity, particularly when rich or spicy food is being cooked. Therefore close control of ozone is needed according to the stage of cooking cycle.

Setting up the system requires accurate measurement of discharged ozone. Repeatability is critical, as the readings are relied upon to establish the effects of different settings. Geoff had previously tried several different makes of ozone monitor and found that whilst they might read correctly at first, they would be swamped by ozone and for several hours afterwards would not register changes in the ozone level as it fell.

“The ability of the Series 500 to produce reliable and repeatable ozone readings takes the guesswork out of installations, and boosts the engineer’s and customer’s confidence.”

Geoff Allum
Exoair Master Limited

The solution

Geoff contacted Aeroqual's UK-based ozone equipment partner Advanced Ozone Products Limited (AOzP) looking for a solution. Through discussions with AOzP about the application it was agreed that Aeroqual's Series 500 handheld data logging monitor with 0 to 0.5ppm ozone sensor head would provide the accuracy and repeatability required.

Not only can instantaneous ozone levels be read from the Series 500's large digital display, they can also be logged to the on-board memory for analysis back at the office. The recordings form an objective record of the ozone levels produced on site and become part of the commissioning files. Furthermore, the design of the monitor means that the plug-in sensor head can be quickly and easily replaced to maintain calibration, with other plug-in sensor heads allowing a variety of concentration ranges and gases other than ozone to be monitored.

Evaluation

Geoff and his engineers find the monitor very easy and quick to use. He says, “The first time we used the Aeroqual Series 500 it provided such solid readings.” Rather than get stuck displaying a high reading following exposure to ozone, the Series 500 quickly tracks the level of ozone down as the concentration decreases.

Even more important is the repeatability, with the same results being obtained when the process is repeated, and also when comparing the results from two instruments. Repeatability gives the engineer a solid foundation for adjustment decisions and instils confidence in the process. The Series 500 is even used to check customers’ own monitors when they complain of spurious ozone readings.

The data logging feature works particularly well not only as a record of the engineer’s findings but also to show trending when tuning the system. Apart from removing the guesswork from this process the Series 500 is also an invaluable maintenance tool in determining when key components need replacing. Customers are more ready to have expensive UV lamps replaced when there is evidence they are not producing sufficient ozone rather than just due to hours of run time.

Recently the monitor’s time-stamped data logging capability was used to identify the source of an ozone leak in London’s Canary Wharf that occurred only at night. Not surprisingly, Geoff has nothing but praise for Aeroqual’s monitor. He advises, “If you want an ozone measurement instrument, get Aeroqual – nothing else compares.”

