



TRIALS TO SAFELY REDUCE ENERGY CONSUMPTION OF FUME CUPBOARDS USING C-FOILS

CLIENT | LOCATION

Wilton Centre, UK

SECTOR

Research and development laboratories

PROJECT BRIEF

By improving the containment of a Fume Cupboard you can safely reduce the capture face velocity (CFV) subsequently reducing its energy consumption and operating costs.

Our brief was to examine whether C-foils could be safely used in reducing fume cupboard energy consumption and to what degree.

SOLUTION

Eeco2 conducted an independent study of the C-foil to determine the potential benefits of using the device as an aid in reducing fume cupboard energy consumption.

Comparison results were based on containment robustness testing using SF6 gas as defined in ISO 14175 also backed up with smoke visualisation tests to show air flow patterns.

C-foils improve the containment robustness of the fume cupboard by reducing the impact of certain external influences such as an operator walking past, thus enabling the safe reduction of the capture face velocity without compromising operator safety.

At 0.4m/s an improvement of between 30 - 50% on containment robustness was seen when the C-foils were installed, enabling the cupboard to provide a similar protection when operating at 0.5m/s (without C-foils).

Significant energy savings in fan, heating and cooling energy were identified due to the subsequent reduction in the required fresh air volume required following the installation of the C-foils. Installation is

quick and easy with very little downtime.

Benefits are dependent on fume cupboard design i.e. a fume cupboard that is >15 years is not designed to operate at a face velocity of <0.5m/s and the C-foils may not improve containment sufficiently.

Some >20 year old cupboards were tested with C-foils that did not demonstrate any improvement in containment robustness.

Benefits vary depending on the supply and extract control system of the fume cupboard and associated laboratory.

RESULTS



£371

Energy cost savings (per year per fume cupboard)

3 tonnes of CO₂

Emissions reduction (per year per fume cupboard)

12,900 kWh

Energy savings delivered (per year per fume cupboard)

FOR FURTHER INFO

T: +44 (0) 1625 660 717 E: info@eeco2.com