

**AIRCLEAN Ltd.,**  
P.O. Box 147,  
Maidstone ME14 2LA  
Tel: 01622 832777 – FILTERS  
01622 832525 – HEPA & AHU  
Fax: 01622 832507  
e-mail: [sales@airclean.co.uk](mailto:sales@airclean.co.uk)

**AIRCLEAN**  
YOUR AIR FILTER MANUFACTURER



## Why Fume Extraction?

When you have not got Fume Extraction in the busy workshop, the reasons become obvious to everyone, but in particular:

- **Welding and Soldering Fumes**

Pollutants created when welding or soldering consist of gaseous products and particulates. The fumes that are visible, are usually particulates, ie smoke which are mixed with the gaseous products. Some of these particles are not visible to the naked eye (below 10 micron), which are a danger in themselves as they can become trapped within the lung, and cause irritation to the lung and possibly disease.

When welding, oxides of iron, zinc, cadmium and magnesium are produced and similarly when soldering metals such as copper and chromium are released.

All of these produce such ailments as: Eye Irritation - Metal Fume Fever - Siderosis  
Headaches - Chest Pains - Lung Oedema

- **Oil mist**

Exposure to oil mist can lead to allergies, eye irritation and infections, and Oil Lung. In addition the oil from the mist will land on all surfaces, which then becomes a hazard in its own right, with the increased risk of an accident within the workshop.

The build up of oil within ventilation ducts leads to bacteria cultures growing within them, which are then spread throughout the whole building. It is then obvious that fume extraction should be located at the source of propagation.

- **Dust & Solvents**

Fumes exist in other locations and operations than, those readily perceived as hazardous, such as: Printing Workshops, School Laboratories, Plastic Welding, Injection Moulding Machines, Paper Cutting/Folding, Artwork Studios.

Fume Extraction at source is essential; it not only protects the employee directly involved in the process but those who happen to walk by or are in a nearby office. Remember those who have died from passive smoking.

Fume Extraction at source reduces heating costs as you extract a smaller amount of air at source than bringing in substantial quantities of fresh air to dilute the contamination in the whole environment.

Fume extraction at source allows the operator to see the product they are working on, and reduces waste and rework, as they are not "waving a welding torch" at arms length to keep their "heads away from the work area".

## HOW MUCH AIR – do we need to remove

As always it depends on the operation, if the process produced enormous amounts of gases from combustion then higher levels will be required. If the contaminants are "heavy" (the fumes fall to the bench) the equipment will need to suck them off the floor rather than collect them as they rise from the workplace, so again higher extract volumes would be required. A perforated extraction table may be better suited to this particular application, rather than the more usual elephants hose concept.

Some ideas on effective extract rates:

- Soldering and small confined work - use a 75mm Diameter Hose and extract 75 – 175 m3/hr
- MIG /TIG up to 3mm plate work -use a 160 mm Dia Hose and extract 800 – 1200 m3/hr
- Heavy Welding and some Plasma Cutting - use 200mm Dia Hose and extract 800-1600 m3/hr

E&OE 09/06