



## Frequently Asked questions for Fume Extraction

### 1. What type of filter comes with the fume extraction unit?

PACE fume extraction systems are sold with a standard combination filter already installed. The standard filter is a combination pre filter, a high efficiency HEPA filter and a gas filter.

### 2. Can PACE fume extraction systems remove fumes generated by chemicals or adhesives?

The standard combination filter comes with a gas filter layer to remove trace chemical generated in various electronic soldering applications. An optional adhesive filter is available for the Arm-Evac 50, 105, 200, and 250,. The optional adhesive filter is designed to absorb larger volumes of chemical and adhesive fumes. The adhesive filters are made with a combination of activated carbon and activated alumina impregnated with potassium permanganate. They are designed to remove fumes that are generated by glues, chemical solvents and adhesives.

### 3. Is there any way to estimate the life of the adhesive filter in my application?

Estimating the life of an adhesive filter is very difficult. Quantifying the amount of chemical fumes absorbed by a system is not an easy task and will be different for every unit. The removal capacity of the adhesives filter for some commonly encountered chemicals is shown below to help provide an estimate of the filters life.

<u>Chemical</u>	<u>Removal Capacity</u>
Acetone	11.9%
Ammonia	<3%
Ethyl cyanoacrylate	21.0%
Formaldehyde	2.0%
n-Heptane	10.0%
Isopropyl Alcohol	21.0%
Methyl-2-cyanoacrylate	20.0%
Methyl Ethyl Ketone (MEK)	21.0%
Toluene	10.0%
Xylene	10.0%

The percentages above indicate the weight of a contaminant that can be removed per pound of media in the filter. For example, there is approximately seven pounds of media in the adhesive filter for the Arm-Evac 105, 200, and 250 so it could safely absorb 0.83 lbs of Acetone. A very rough guide line for the general purpose filter would be approximately 12 rolls of leaded solder, or roughly 3-12 months depending on usage rates.

#### **4. Can PACE fume extraction systems be used in a cleanroom environment?**

A cleanroom filter is available for the Arm-Evac 105, 200, and 250 systems. This filter is ideal for fine particulate and gas removal in designated cleanroom environments.

#### **5. Are the accessories for these systems static safe?**

PACE offers a wide variety of accessory options with the Arm-Evac fume extraction systems. The majority of these accessories are ESD safe. Static safe accessory options include metal flex arms, articulated arms, plenums, scoops and suction hoods.

#### **6. How do I know when to change the standard combination filter in my Arm-Evac 200/250 system?**

The life of the combination filter can be correlated to the number of rolls of solder that are used with the fume extraction system. Typically the combination filter will last up to 12 – 15, one-pound rolls of solder that are used with the system. The variation is due to the fact that soldering occurs at varying temperatures. At higher soldering temperatures more fumes are produced, thus shortening the life of the filter. The filters typically last from three to twelve months.

#### **7. Is there any way to extend the life of my filter?**

The pre-filters should be changed out every one to three weeks. Doing this will help extend the life of the main filter. The Arm-Evac 105, 200, and 250 has an optional extended life filter that can extend the life of your filter up to four times longer than the standard combo filter. The extended life pre-filter is made of a cotton/polyprop fiber with an extended wire mesh and has a surface area of 1.25 square feet. The extended life pre-filter must be used with the extended life filter.

#### **8. Are benchtop fume exhausters available?**

The Arm-Evac 50 is a unique, portable, cost effective, bench-top fume extractor that provides a wide area fume extraction or highly efficient source capture at two points (using the optional arm attachment). The Arm-Evac 50 has a wide variety of filter options available.

#### **9. If I have multiple stations can I turn off the airflow to a single station when fume extraction is not needed?**

The airflow to an individual station can be controlled depending on which PACE accessory arms are being used with the system. The 2-inch metal flex arms and the articulated arms come with an adjustable airflow controller that allows an operator to turn off the airflow to a single station. An airflow controller does not come standard with 1.75-inch metal flex arm, but can be added on as an option.

Being able to turn off the airflow to an individual station when it is not in use will improve the overall airflow performance of the remaining stations.

**10. Why do fumes generated in electronic soldering operations need to be extracted?**

One of the dangers in electronic assembly is exposure to solder flux fumes. When heated, flux produces airborne pollutants which pose a potential health hazard to workers. The hazards that are produced by heating flux include formaldehyde, hydrochloric acid, benzene, toluene, styrene, phenol, chlorophenol and isopropyl alcohol.

In addition to the gaseous components of heated flux, a significant amount of particulates are created ranging in size from 0.01 micron to 1.0 micron. Flux fumes closely parallel the particle inhalation range of tobacco smoke. These microscopic particles are readily inhalable and can easily reach the lower respiratory system. These inhaled particles tend to be retained for long periods of time in the lower respiratory tract, promoting adverse chronic pulmonary conditions.

**11. What is the expected motor life for the fume extraction systems?**

All PACE fume extraction systems are equipped with heavy-duty brushless motors that are specified to last for 20,000 hours. If the systems are turned on for eight hours a day, five days a week the motor will last up to ten years.

**12. Can I add more than one fume extraction arm per inlet port?**

You can connect two arms to one port by using part number 8882-0692. The kit contains an 8' section of 3" diameter flex hose, a 3' section of 3" diameter flex hose with a 3-2" reducer, and a "Y" connector. If the arm requires a 3" diameter hose, the adapter can be removed to facilitate the installation. Be sure to check the unit specifications so as to not exceed the total number of arms and the maximum ducting length.

**13. Can the fume extraction systems such as the Arm-Evac 200 and 250 be used if resting on its side?**

The fume extraction systems are to be operated in the upright position only. They rely on gravity for proper internal sealing of the filter.

**15. What is the shelf life of the fume extraction filters?**

Generally, if the filter remains as received from PACE (i.e. in a sealed bag) it should keep for approx 2 years. The filter does contain organic compounds that will start to degrade and lose its effectiveness.