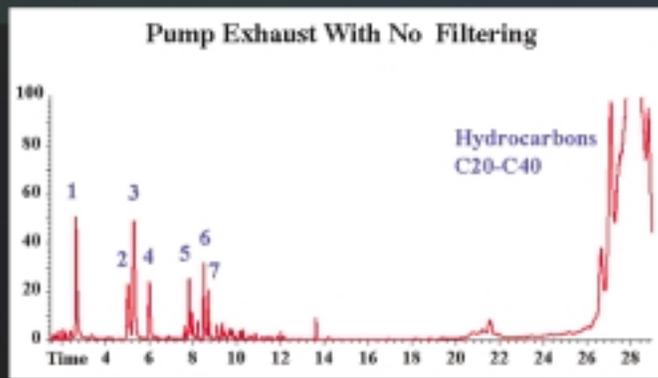
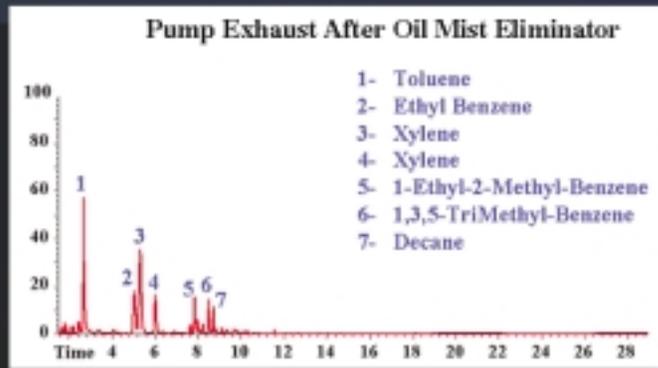
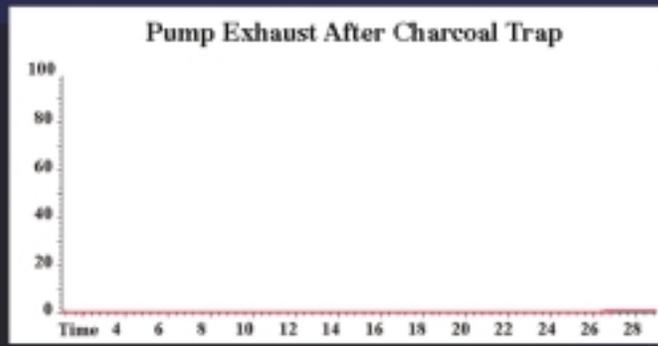


# VACUUM PUMP FILTER KITS

*A TWO-STAGE FILTER SYSTEM TO PREVENT VACUUM PUMP EXHAUST FROM CONTAMINATING INDOOR AIR*



Scientific Instrument Services, Inc.

# Complete Two-Stage Vacuum Pump Exhaust Filter Kits

## Features

### Two Stage Vacuum Pump Exhaust System

- Purifies Vacuum Pump Exhaust Gases
- Provides for a Safe Laboratory Environment

### Stage 1 - Oil Mist Eliminator

- Eliminates Pump Oil Fumes
- Returns Used Oil to Vacuum Pump

### Stage 2 - Charcoal Filter

- Traps Organic Chemicals
- Traps Particles & Bacteria to 0.5 microns

Vacuum pumps are widely used for mass spectrometers and other vacuum equipment and can be a major source of indoor air contamination. It is recommended that vacuum pumps be vented outside the room or to a laboratory exhaust hood. However this is not always practical.

Air contamination by vacuum pumps originates from pump oils and oil contamination. The residual organic chemicals from scientific instruments are trapped in the vacuum pump oil. Eventually these organics are exhausted from the pump into the laboratory air. These chemicals can present a serious environmental health problem in the laboratory.

The Two Stage Vacuum Pump Exhaust Filter System has proven to be effective for removing volatile and semi-volatile organics from the exhaust of vacuum pumps and helping to maintain a safe environment. Several reports on the two stage vacuum pump exhaust filter systems are available from SIS in the references listed below (1,2 & 3).

Without any exhaust filters, organic contaminants from the pump oil and hydrocarbons from the pump oil are exhausted out of the vacuum pump (*Figure 1 - top chromatogram*).

During initial pump down or when using the gas ballast valve, oil vapors exhaust from the vacuum pump. The oil mist eliminator (Stage 1) traps the hydrocarbons in this exhaust (*Figure 1 - middle chromatogram*).

The charcoal trap (Stage 2) adsorbs and traps the volatile and semi-volatile organics from the pump exhaust and prevents these organics from entering the laboratory environment (*Figure 1 - bottom chromatogram*).



Oil Mist Eliminator

It is recommended that both filters be used in series. The oil mist eliminator traps the large volume of heavy oils which would otherwise quickly saturate the charcoal trap during initial pump down or when using the gas ballast valve to purge the pump oil. When both filters are used in series on a vacuum pump exhaust port, the exhaust from the final stage of filtering has been shown to be cleaner than the normal laboratory air.



Charcoal Trap

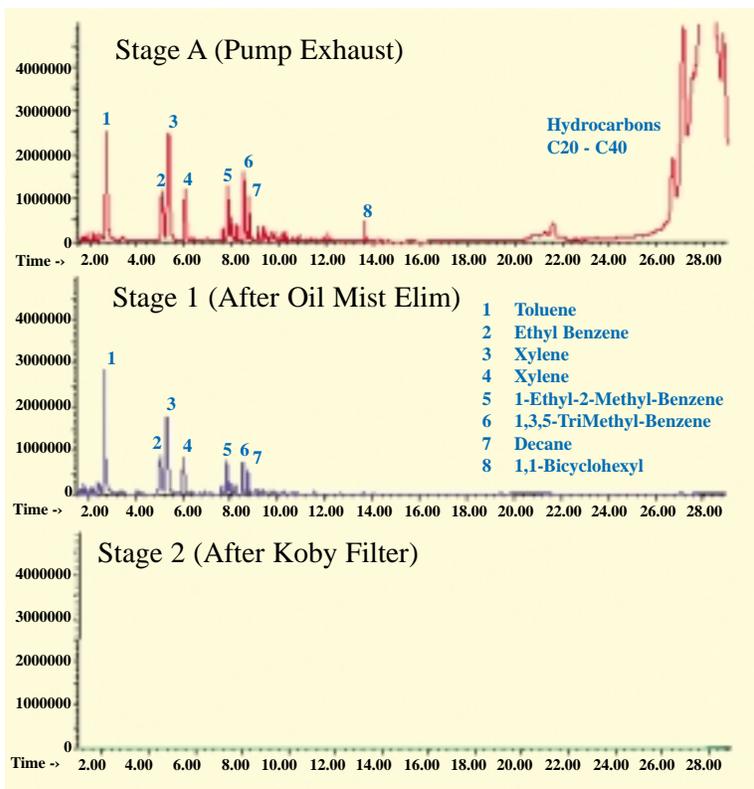


Figure 1 - Efficiency of Vacuum Pump Exhaust Filters

### Complete Vacuum Filter Studies On the Web

- (1) Vacuum Pump Exhaust Filters, Part I  
- Two Stage Vacuum Pump Exhaust Filter System,  
<http://www.sisweb.com/referenc/applnote/app-82.htm>
- (2) Vacuum Pump Exhaust Filters, Part II  
- Oil Mist Eliminators,  
<http://www.sisweb.com/referenc/applnote/app-83.htm>
- (3) Vacuum Pump Exhaust Filters, Part III  
- Charcoal Exhaust Traps,  
<http://www.sisweb.com/referenc/applnote/app-84.htm>

# Complete Two-Stage Vacuum Pump Exhaust Filter Kits

## Alcatel Pump Filter Kit

For all Models of Alcatel Vacuum Pumps with NW25 flange.



The Alcatel Vacuum Pump Kit (Kit FK101) contains the Alcatel Oil Mist Eliminator, Koby Filter and the fittings shown below. This kit is all you need to install the complete two stage exhaust filter to your Alcatel vacuum pump. It can also be used with any other manufacturers pumps that have an NW25 flange type fitting on the exhaust port.

### Kit Part # FK101



## Edward Large Filter Kit

For Edwards Models E1M5/8, E2M3/5/8 and RV3/5/8 pumps



The Pump Filter Kit for the Edwards Pump includes the Edwards EMF10 Oil Mist Eliminator, Koby Charcoal Trap and all fittings needed to attach this two filter system on the larger Edwards vacuum pumps. This kit is to be used with Edwards models E1M5/8, E2M2/3/5/8 and the RV3/5/8 vacuum pumps. It can also be used with any other manufacturers pumps that have an NW25 flange type fitting on the exhaust port.

### Kit Part # FK201



## Edwards Smaller Filter Kit

For Edwards models E2M0.7, E2M1 and E2M1.5 pumps



The Pump Filter Kit for the Edwards Pump includes the Oil Mist Eliminator, Koby Charcoal Trap and all the fittings needed to attach this two filter system on the Edwards series of vacuum pumps. This kit is to be used with Edwards models E2M0.7, E2M1 and E2M1.5 vacuum pumps. It can also be used with any other manufacturers pumps that have an NW10 flange type fitting on the exhaust port.

### Kit Part # FK251



# Koby Charcoal Vacuum Pump Exhaust Filters

Removes Contaminants from Vacuum Pump Exhausts

## Features

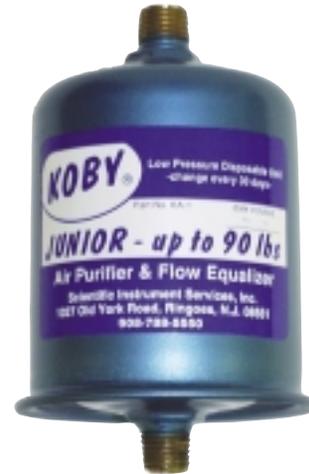
- Purifies Exhaust Gases from Vacuum Pumps
- Helps Maintain Safe Working Environment
- Adsorbs Organic Vapors and Small Particles
- High Efficiency Filtration
- Minimal Pressure Drop
- Maintenance Free - Completely Disposable
- Pressure Safe to 90 PSI
- 1/4" NPT Brass Male Fittings

**K**oby Air Purifiers are installed on exhaust ports of roughing pumps to adsorb contaminants such as oil aerosols, oil vapors, certain other hydrocarbon vapors, and trace moisture. They also trap all foreign solid particles and bacteria down to 0.5 microns in size.

The carbon used in the manufacture of Koby Air Purifiers has a large internal and external surface area with an affinity for adsorbing organic contaminants. Each gram of carbon has a surface area of approximately 1500 sq. meters, making Koby Air Purifiers particularly efficient for most air purification and gas phase applications.

Actual Adsorption capacity can be as high as 80% of carbon weight depending on the specific compound being removed. Generally (but not always), adsorption capacity of activated carbon increases with molecular weight, boiling point, and concentration of contaminants. Compounds with low molecular weights, and or highly polar compounds will not be sufficiently adsorbed at low concentrations.

Koby Air Purifiers do not have a visual change element and must be replaced periodically to insure efficient adsorption and filtration of compressed air impurities. For best performance, filters should be replaced after 30 days of use or sooner, when air sampling indicates outward air quality has reached an unacceptable level.



**Part # KA-1**

**Koby Charcoal Pump Exhaust Filter**



The Koby air purifier is normally used in conjunction with an oil mist eliminator. However, the Koby air purifiers can be mounted directly on top of the exhaust port on the vacuum pump as shown above. In other systems where space is limited, it is more convenient to attach a hose to the pump exhaust port and then adapt the Koby air purifier to fit the vacuum hose. (See SIS Catalog or Web site for additional details)

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**Vacuum Pump Filters and Accessories Are Available From:**

**Scientific Instrument Services, Inc.**  
**1027 Old York Road**  
**Ringoes, N.J. 08551**

**Phone: (908) 788-5550, Fax (908) 806-6631, E-mail: <http://www.sisweb.com/contact>**

**Additional Details and Ordering Information Can be Found on Our Web Site At: <http://www.sisweb.com>**

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