



FEATURES

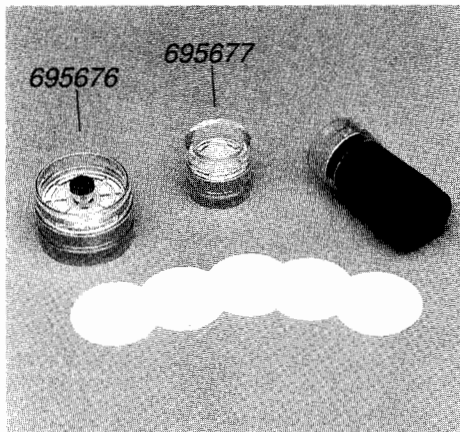
- A complete array of sampling pump accessories for a wide range of applications.
- Filter cassettes and filter media for dust, asbestos fibers and aerosol sampling.
- Cyclone assemblies for workplace respirable dust sampling.
- Impinger assemblies for collection and capture of dusts, gases or vapors.
- Sorbent tubes for collection of gas and air samples for laboratory analysis.
- Gas sampling bags for collection of gas and air samples for laboratory analysis.
- Calibration devices for helping to ensure reliable sampling results.

DESCRIPTION

MSA sampling pump accessories and air sampling equipment allow monitoring of many different contaminants in various applications. Sampling pump accessories can be used in personal and area sampling for a wide variety of airborne contaminants such as asbestos fibers, toxic gases, vapors, particulates, mists and fumes.

Accessories for MSA sampling pumps include filter cassettes, filter media, a cyclone assembly, preweighed filter cassettes, filter holder assemblies, impingers, the Gemini® Twin-Port Sampler, sorbent tubes and calibrators.

CASSETTE SAMPLING



Accessories for cassette sampling include filter holders, filter discs and filter cassettes.

Dust and aerosol concentrations in ambient air can be analyzed over long-term periods by using a sampling pump. The Escort Sampling Pump, for example, draws in air at a known rate, and passes it through a filter sampling medium held in a plastic cassette. Particles present in the air are trapped on the filter medium, and can be examined later in the laboratory to determine the particulate concentration.

For convenience, filter cassettes are available pre-loaded with a variety of filter discs. If desired, the component parts can be purchased separately and assembled by the user.

Filter cassettes are economical to use and available in several diameters, which can be selected according to the user's sampling application. Filter cassettes are available in two- and three-piece models, and can be used with a variety of filter media. Two-piece filter cassettes are typically used for closed-face applications, while three-piece cassettes are used in open-face and closed-face sampling configurations.

42 CFR Part 84 Sampling:

For oil mist sampling, use P/N 695676, 37 mm cassettes. After sampling, cassettes should be sent to a laboratory for analysis. See NIOSH Method 5026 for Oil Mist Sampling.

Filter Media

MSA offers a wide range of filter media for dust sampling. Filter cassettes and filters can be configured in a variety of ways to accommodate your sampling and analysis needs.

Mixed cellulose ester (MCE) filter discs are used in many sampling configurations. Composed of biologically-inert mixtures of cellulose acetate and cellulose nitrate, MCE filters are used for monitoring asbestos, arsenic, cotton dust, metals, pesticides and nuisance dusts.

PVC acrylic copolymer filters offer outstanding resistance to acids and alkalis. They also have excellent compatibility with alcohols and most esters. In addition, PVC filters have low moisture pickup, which helps in gravimetric analysis, and a smooth surface that permits particle counting. These filters are suited for direct analysis of silica and wood dust, as well as nuisance dusts.

Glass fiber filters, made of glass filaments, offer excellent wet strength required in liquid filtration methods. Glass fiber filters can be used for sampling oil mists and for other special applications.

Silver membrane filters, composed solely of metallic silver, are well-suited for use in the analysis of crystalline silica by X-ray diffraction techniques. Also used for the analysis of organics, silver membrane filters have major applications in air monitoring for carbon black, coal tar products, and coke oven emissions.

General-Purpose Filter Cassettes

All units below include 50 complete 3-piece preloaded filter cassettes with MCE filters

Part No.	Description
695677	with 25 mm, 0.8 μ pore size
695676	with 37 mm, 0.8 μ pore size

Filter Discs for Nuisance Dust Sampling

All filter discs listed below come in packs of 50, and are used with 37 mm cassettes.

459733	PVC, 0.5 μ pore size
459734	PVC, 0.8 μ pore size
625413	PVC, 5.0 μ pore size
463784	Glass Fiber

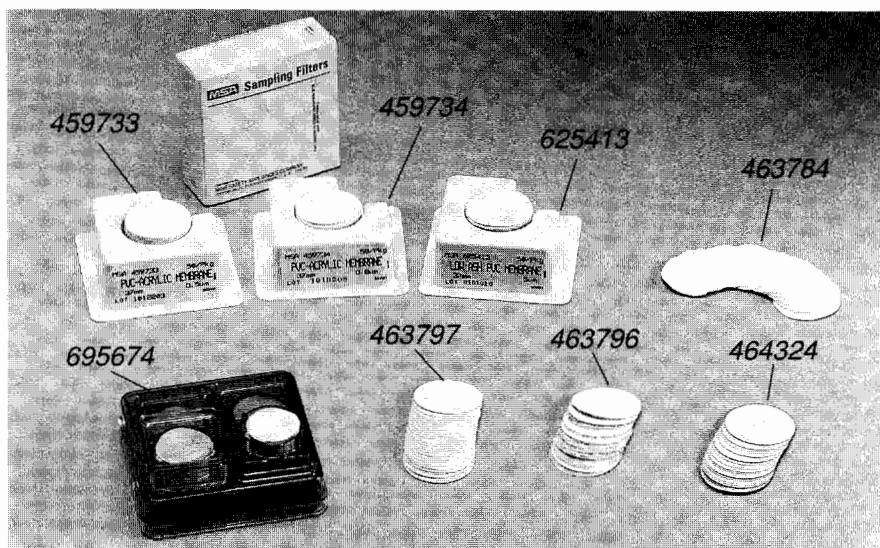
MCE Filter Discs for Asbestos and Nuisance Dust Sampling

695674	25 mm, 0.8 μ pore size; pack of 100
463797	37 mm, 0.8 μ pore size; pack of 50
463796	37 mm, 0.45 μ pore size; pack of 50

Silver Membrane Filters for Silica, Coke Oven Emissions and Carbon Black

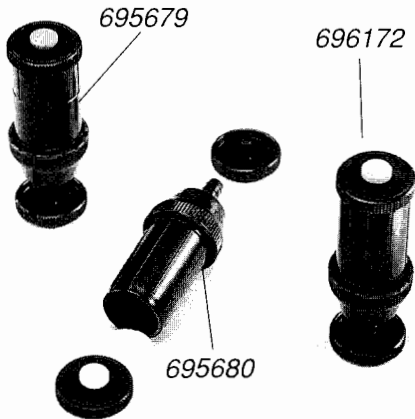
464324	Silver Membrane, 0.8 μ pore size
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25 mm cassettes are typically used for asbestos sampling. 37 mm cassettes are typically used for sampling lead, oil mist, cadmium, arsenic, etc..



Filter media

Asbestos Sampling



For asbestos sampling using the NIOSH 7400, OSHA Reference Method (O.R.M.) or similar analytical procedures, MSA offers filter cassettes with MCE filter discs.

Asbestos sampling discs, made of MCE, are available in 25 mm diameters. Discs are available in 0.8, 1.2, 0.45 and 5.0 pore sizes to accommodate your sampling needs.

MSA 25 mm cassette cases with a anti-static 50 mm cowl are used for personal sampling under the O.R.M. and NIOSH 7400 methods. MSA 25 mm filter holders with center ring are used in the "open face" mode for EPA-type area sampling.

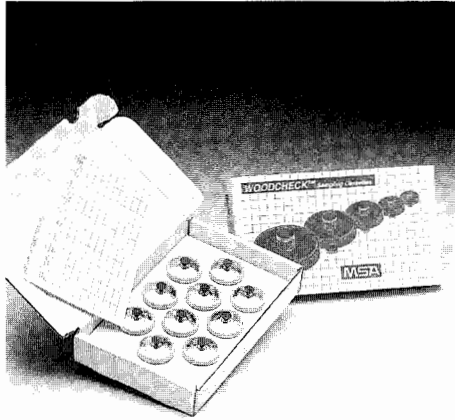
Asbestos Sampling Filter Cassettes

All units below include 50 complete filter cassettes preloaded with 25 mm MCE filters

Part No. Description

695679	with 0.8 μ pore size and 50 mm anti-static cowl
695680	with 1.2 μ pore size and 50 mm anti-static cowl
696172	with 0.45 μ pore and 5.0 μ pore size and 50 mm anti-static cowl

Wood Dust Sampling



Woodcheck™ Sampling Filter Cassettes are composed of a sealed outer filter cassette case, a 37 mm, 5 μ PVC filter and an anti-static aluminum shield.

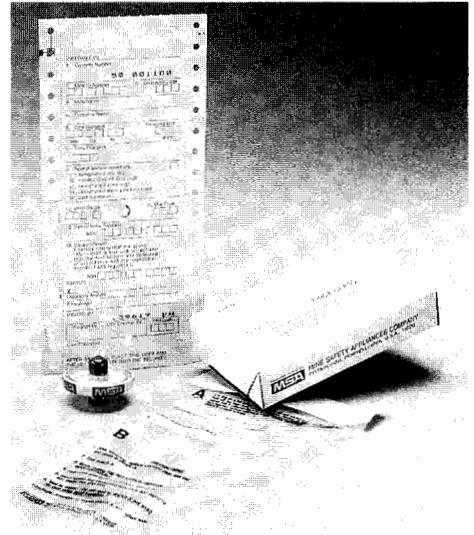
These filter cassettes are typically used in environments such as pulp or paper processing and in wood finishing plants where wood particles are suspended in the air.

Woodcheck Sampling Filter Cassettes

Part No. Description

804005	with ten 37 mm, 5.0 μ PVC filter cassettes, including anti-static aluminum shields
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MSA Prewheighed Filter Cassettes for Coal Dust Sampling



MSA preweighed filter cassettes consist of a sealed outer plastic capsule and an inner preweighed filter capsule. The filter capsule contains a 5-micron pore size polyvinyl chloride (PVC) filter, a backup filter and an aluminum support.

Each filter cassette is supplied with a mine data card, which has the weight of the filter capsule recorded to the nearest 0.1 mg, and a mailing carton addressed to MSHA (Mine Safety and Health Administration).

For mine atmosphere sampling, the filter cassette must be used with a Cyclone Assembly to collect the respirable dust fraction. After an 8-hour sample of the mine atmosphere is taken, the filter cassette is removed, closed with plastic caps, placed in the pre-addressed carton with the mine data card and mailed to MSHA for final weighing and analysis.

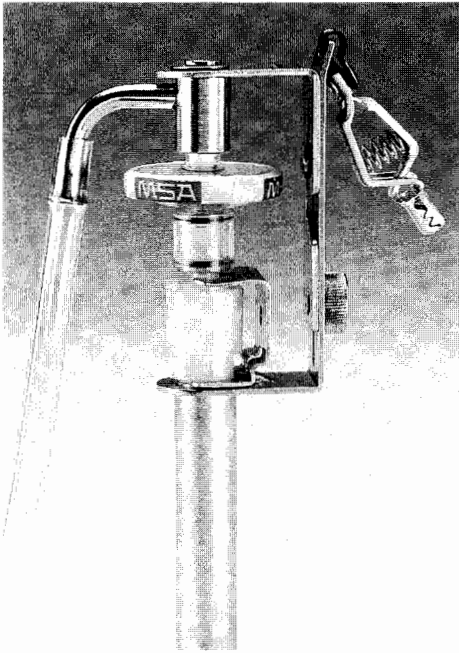
Non-mining users must perform their own analysis or send the cassettes to a laboratory other than MSHA.

Coal Dust & Silica Filter Cassette

Part No. Description

803462	Prewheighed filter cassette with 5 μ pore size PVC filter and Mine Data Card
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Respirable Dust Sampling with 10 mm Cyclone Assembly



Cyclone Assemblies separate respirable dust particles from non-respirable particles. Centrifugal force traps the larger, heavier particles in the cyclone but allows the lighter, smaller respirable particles to pass through to the filter. Cyclone Assemblies are typically used in applications when only the respirable fraction of the total dust is being sampled or measured.

The 10 mm diameter Cyclone Assembly is used with either MSA's preweighed filter cassette (for mining applications) or a filter retained in a filter cassette for industrial applications.

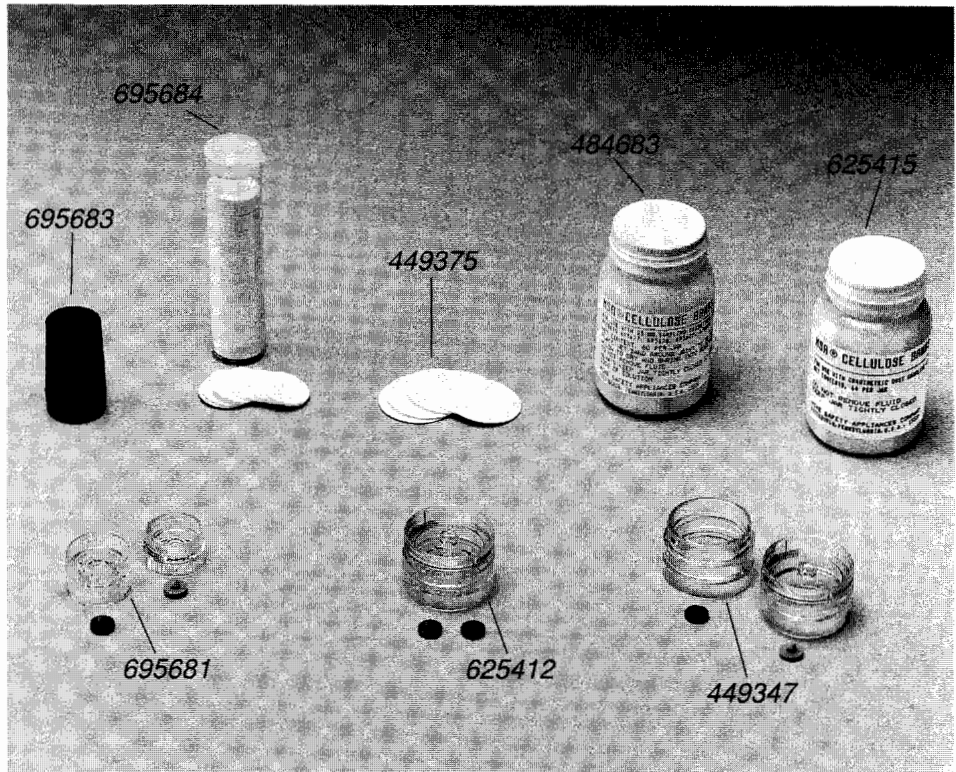
In operation, a sampling pump draws dust-laden air through the Cyclone Assembly at a pre-selected flow rate.

At the end of a sampling period, the weight of dust on the filter is established. From this measurement, the respirable dust concentration per cubic meter of air is determined.

MSA offers stainless steel or plastic couplers for use with Cyclone Assemblies.

Part No.	Description
456243	Cyclone Assembly

Accessories for Loading Empty Filter Cassette Cases and Miscellaneous Accessories:



MSA's complete accessory line allows users to load sampling cassette cases and select their own combinations of sampling media. Your MSA sales representative can help you select the accessories that best suit your application requirements.

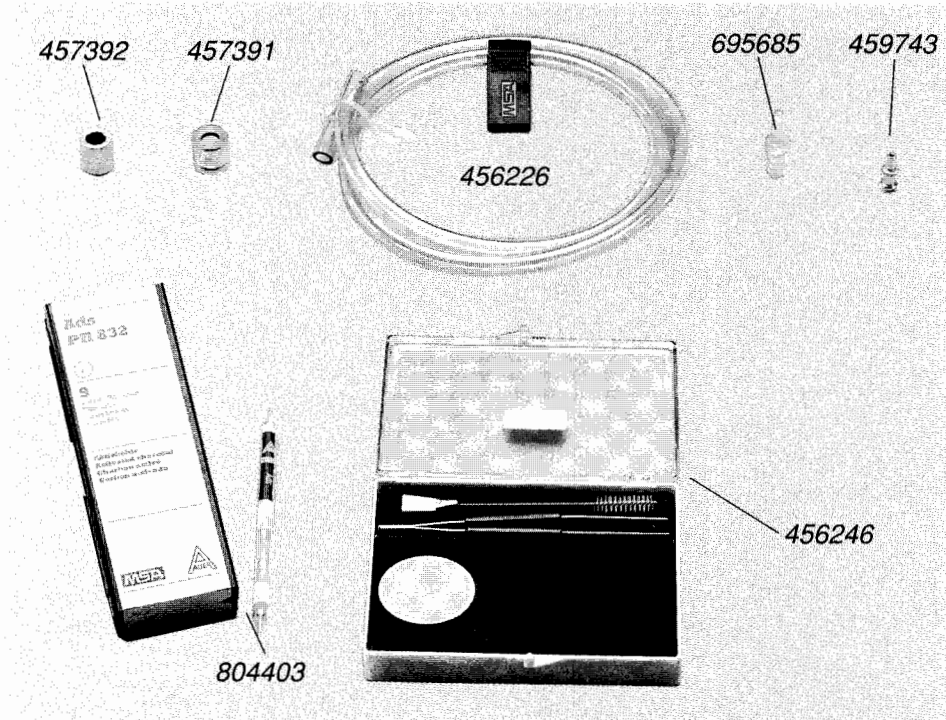
Filter Cassette Cases

Part No.	Description
695681	2piece, 25 mm, pack of 50
625412	2piece, 37 mm, pack of 12
449347	3piece, 37 mm, pack of 10

Other Accessories

695683	50 mm-long Cowl for 25 mm Filter Cassette Case; pack of 5
695684	25 mm Support Pad (felt backup disc); pack of 100
449375	37 mm Support Pad (felt backup disc); pack of 25
484683	25 mm Cellulose Bands; jar of 60
625415	37 mm Cellulose Bands; jar of 60

Miscellaneous Accessories



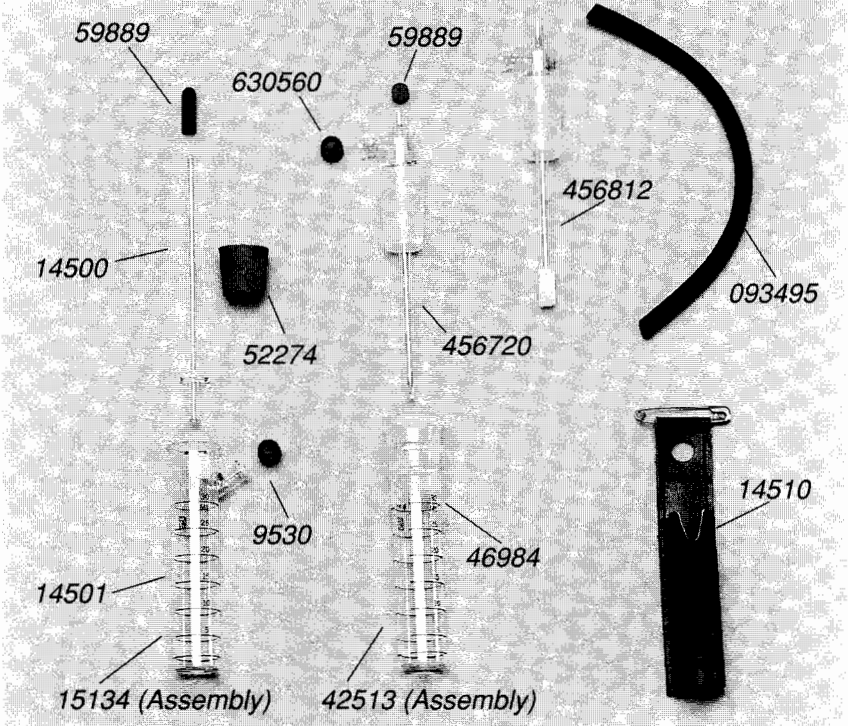
Part No.	Description
457392	37 mm Stainless Steel Coupler for 3-piece filter cassette case used with Cyclone Assembly
457391	Plastic Coupler for preweighed filter cassette sampling with Cyclone Assembly
456226	Sampling Line Assembly (used with all pumps and filter cassette cases)
695685	25 mm Filter Cassette Case Sampling Line Coupler; package of 10
459743	37 mm Filter Cassette Case Sampling Line Coupler; package of 3
804403	Charcoal Filter Tubes for use in in-line sampling to protect pumps from vapor damage
456246	Supplementary Parts Kit, including 3 stainless steel support screens, small brush, tweezers, and press/pry tool

Midget Impinger Flask Assemblies can be used with MSA sampling pumps for dust, gas and vapor sampling.

Impinger assemblies trap the dust, gas or vapor sample in a liquid which is later analyzed in a laboratory. With MSA sampling pumps, such as the Escort Pump or the Flow-Lite Pump models, a 0.1 cfm (2.8 lpm) sampling

rate of 12", H₂O vacuum, can be obtained. This rate can be maintained for more than eight hours with a fully charged heavy-duty battery.

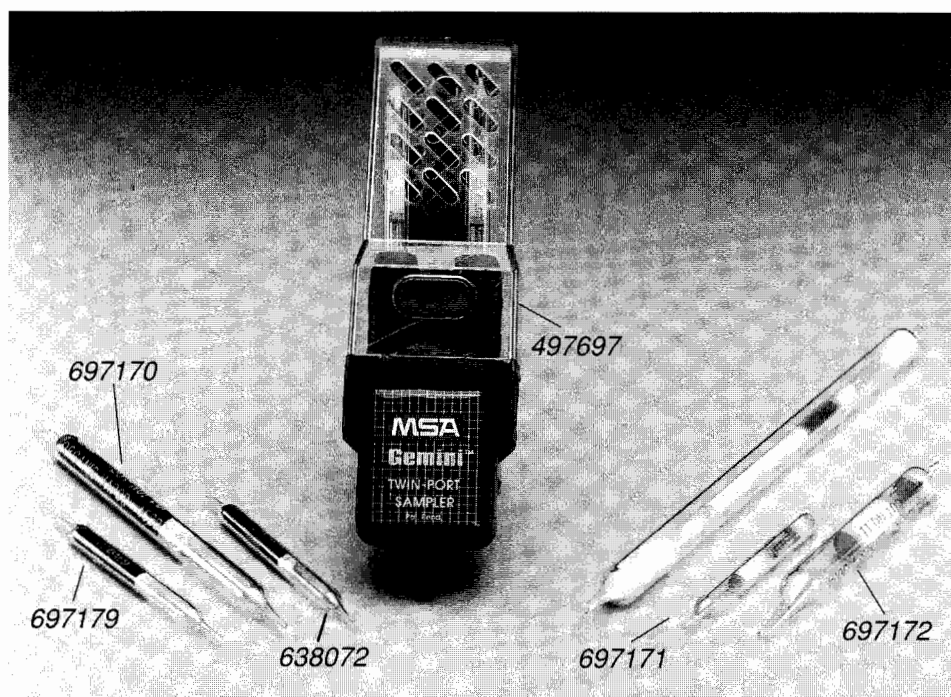
For sampling toluene diisocyanate (TDI), toluene diisocyanate urea, methylene di-para-phenylene polyphenylisocyanate (PMPPI) vapors, an all-glass impinger flask is used.



Part No.	Description
15134	Complete Impinger Assembly, includes:
14501	Flask
9530	Inlet Cap
14500	Nozzle
52274	Stopper
59889	Cap
42513	All-Glass Impinger Assembly, includes:
46984	Fritted-Glass Flask
630560	Inlet Cap
456720	Nozzle
59889	Cap
Optional Accessories	
456812	Bubbler for Fritted-Glass Flask
14510	Flask Holster
093495	Tubing for Flask

Impinger assemblies and accessories.

SORBENT TUBE SAMPLING



Charcoal Sampling Tubes, Gemini Twin-Port Sampler, Silica Gel Adsorption Tubes and Tenax/CMS Sampling Tube.

Sorbent tubes from MSA include charcoal tubes, silica gel tubes and Tenax*/CMS tubes. The tubes protect the sorbent material in hermetically sealed glass enclosures until needed for sampling.

They are used for long term sampling, and require the use of a sampling pump. These tubes absorb chemicals from the air drawn through them. When sampling is complete, the tubes are capped and sent to a lab for gas chromatography (GC) analysis. When analyzed, these tubes can provide the concentrations of mixtures of airborne chemicals.

Gemini® Twin-Port Sampler

For more efficient sampling with sorbent tubes, the Gemini Twin-Port Sampler enables industrial hygienists and HazMat technicians to collect two or more samples simultaneously from a single sampling pump.

The Gemini Twin-Port Sampler also provides low-flow control, allowing flow adjustment down to 1 mlpm (0.001 lpm).

The Gemini Sampler is compatible with MSA's line of Escort or Flow-Lite Pumps, or any other pump capable of

delivering a 1.5 liter-per-minute flow rate at 25 inches of water column of vacuum.

The sampler has two tube holders that accommodate a variety of sampling tubes. In operation, independent control valves govern the rate at which air enters each tube.

Sampling of either single or multiple contaminants can be done with the Gemini Twin-Port Sampler.

In situations where a single, known contaminant is present, the Gemini Sampler can provide sampling with two tubes of the same type at different flow rates. This helps to protect against invalid samples caused by "breakthrough," which occurs when a tube's sampling capacity is exceeded because the concentration of a contaminant is higher than expected.

In applications where two or more airborne contaminants must be collected at the same time, the Gemini Sampler can draw samples at independently controlled flow rates through tubes containing different sorbents.

Four-tube sampling can be done by coupling two Gemini devices together and then connecting the pair to a sampling pump. For area moni-

toring of multiple remote locations, several Gemini units can be connected together and then attached to a single, high-volume pump, such as the Quiet-Flow Area Sampler.

The Gemini Twin-Port Sampler is provided with two tube protectors, a hose for connecting the sampler to a pump, clips for connecting the sampler or connecting hose to a lapel or clothing, and a "Y" connector that joins two Gemini Samplers.

Part No.	Description
497697	Gemini Twin-Port Sampling Kit, including Gemini Sampler, tube protectors, Y-connector, clips and carrying case.

Charcoal Sampling Tubes

Charcoal Sampling Tubes allow efficient collection of organic and mercury vapors for laboratory analysis.

Each tube has two separate layers of charcoal: a sample section and a reference section.

The organic vapor sampling tube is used to sample any organic compound which is capable of being absorbed and desorbed from charcoal. Such compounds include benzene, carbon tetrachloride, chloroform, dioxane, ethylene dichloride, trichlorethylene and xylene.

A special charcoal sampling tube collects both elemental and chemically bound mercury vapors, plus particulates containing mercury.

Two sizes of charcoal tubes, 150 mg and 600 mg, are available.

Part No.	Description
697169	Charcoal Sampling Tubes for measuring organic vapor (150 mg); package of 50
697170	Charcoal Sampling Tubes for measuring organic vapor (600 mg); package of 50
638072	Charcoal Sampling Tubes for measuring mercury vapor (150 mg); package of 25

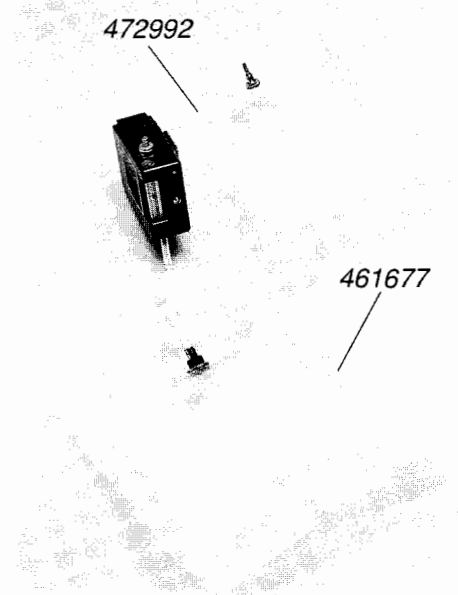
*Tenax is a trademark of AKZO Research Labs.

Silica Gel Adsorption Tubes

Silica Gel Adsorption Tubes are used to adsorb a variety of compounds, such as aromatic amines for laboratory analysis and are used for the collection of air-borne chemicals for laboratory analysis.

Part No.	Description
697171	Silica Gel Adsorption Tubes for measuring aromatic amines (195 mg); package of 50
697172	Silica Gel Adsorption Tubes for measuring aromatic amines (875 mg); package of 50

GAS SAMPLING BAGS



Gas Sampling Bags are used to collect field samples of gas or vapor contaminants for analysis in the laboratory. Used with a sampling pump, this method can be used for diluting and detecting concentrations of gases which exceed the measurement capabilities of standard detection equipment. Available in Teflon* and Tedlar, gas sampling bags can be used in a variety of atmospheres. Tedlar bags are less expensive, and are for use in hydrogen cyanide applications.

Part No.	Description
471677	Teflon Sample Bag Assembly
472992	Tedlar Sample Bag Assembly

*Teflon is a trademark of the DuPont Company.

CALIBRATION DEVICES



The calibration of a sampling pump is critical to the quality of samples taken. Calibration determines the flow rate of air through the pump is accurate, within specified limits, usually + 5 percent.

Traditional sampling pumps with integral rotameters should be calibrated with a "representative" pneumatic load on the actual sampling device to be used. The load should be placed between the pump and the calibration device.



The DigiCal Calibrator can be used to calibrate the secondary flow standard inside MSA's Escort EL[®] Sampling Pump.

A primary calibration device, the DigiCal™ Calibrator provides instantaneous calibration for instruments like the MSA Escort LC or the secondary flow standard inside the Escort ELF Sampling Pumps. Just press the plunger and the DigiCal Calibrator does the work. Its unique flow cell replaces conventional bubble tubes and makes calibration easier.

The DigiCal Calibrator achieves extreme accuracy by utilizing a computerized flow meter that provides instantaneous flow readouts on a digital display. Accurate measurements are possible within ± 0.5 percent at any altitude.

Part No.	Description
655101	DigiCal Calibrator
Secondary Calibration Devices	
490197	Flowmeter for use with Flow-Lite and Escort sampling pumps, 0.2 to 0.4 lpm
490198	Flowmeter for use with Flow-Lite Sampling Pump and Escort Sampling Pump with Gemini Twin-Port Sampler, 30 to 370 mlpm
492844	Flowmeter for use with Quite-Flow, Flow-Lite and Escort sampling pumps, 1 to 20 lpm

Secondary Calibration Devices

MSA Be Sure.
Choose MSA.

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.

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