

This instruction sheet covers the following sampler models:

- 225-70A I.O.M. sampler in plastic with re-usable plastic cassette
- 225-76A I.O.M. sampler in stainless steel with re-usable stainless steel cassette
- 225-79A I.O.M. sampler in plastic with re-usable stainless steel cassette

Introduction

The I.O.M. sampler* is designed for dust (aerosol) sampling to the inhalable convention as defined in standard EN481:1993, using HSE method MDHS 14/4 "General methods for sampling and gravimetric analysis of respirable, thoracic and inhalable aerosols".

It is highly recommended to obtain and read the document MDHS 14/4, available from the HSE website www.hse.gov.uk, before carrying out any sampling using the I.O.M. sampler.

Design flow rate is 2.0 l/min, giving a 50% sampling efficiency (cut point) at 100µm (micron) particle size.

When used with a particle size selective foam insert the I.O.M. sampler is a validated alternative to the cyclone sampler for dust sampling to the respirable convention as defined in standard EN481:1993, using method MDHS 14/4. It is also possible to carry out multi-dust sampling to determine both the inhalable and respirable fractions from one sample using the I.O.M. sampler and foam insert. Refer also to report IR/EXM/99/06 produced by and available from the Health and Safety Laboratory (UK).

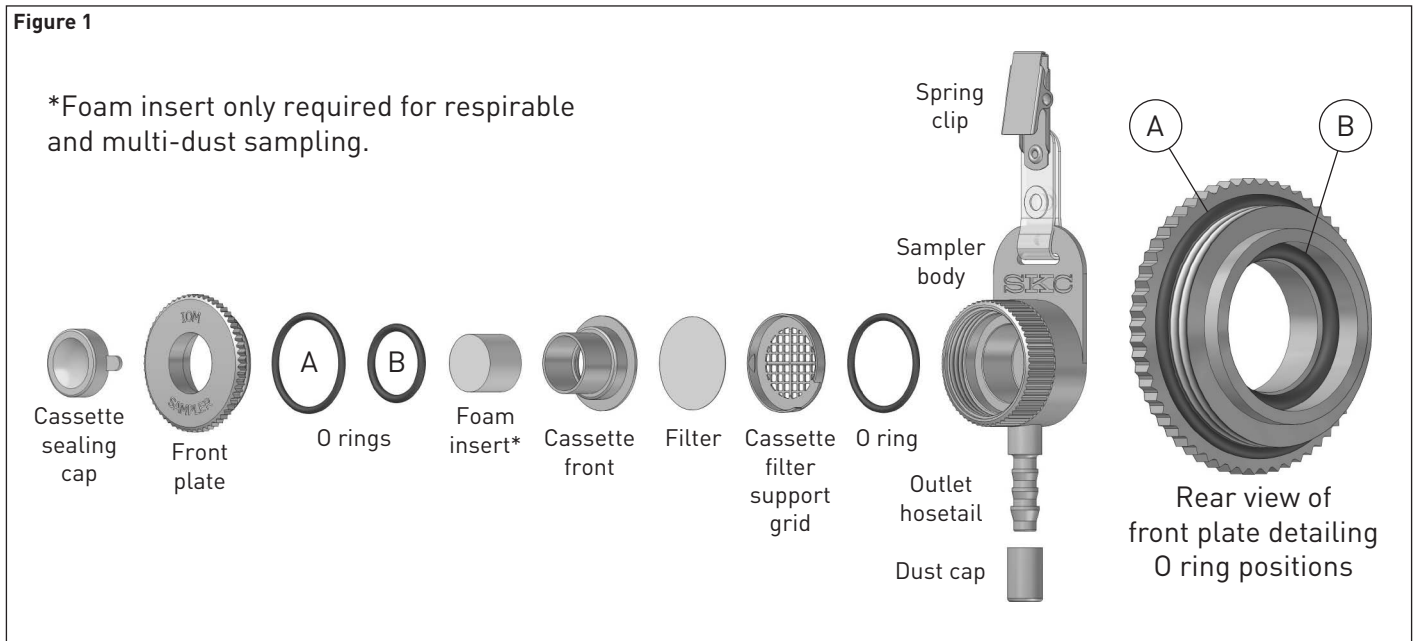
Note that the foam inserts are designed for single use only. A new foam insert must be used for each sample.

The SKC plastic I.O.M. sampler is manufactured from conductive plastic which dissipates electrical charges to the surrounding atmosphere and prevents static interference on the collection of the dust particles.

The filter is held within a two part, re-usable cassette, suitable for 25mm diameter filters only. The filter and cassette assembly are weighed as a single unit, reducing the amount of filter handling. Additionally, any dust that does adhere to the walls of the cassette inlet is also included in the sample.

The sampler is supplied complete with a cassette sealing cap and cassette transport clip to prevent contamination of the sample during transport for laboratory analysis.

For detailed instructions on air sampling in general and use of the I.O.M. sampler in particular refer to SKC's 224-G1 Step by Step Guide to Air Sampling.



Preparing the I.O.M. Sampler for Use

The following instructions give basic details on how to prepare for dust sampling by gravimetric analysis according to HSE method MDHS 14/4.

Select two filters from the same box or batch. If carrying out respirable or multi-dust sampling using foam inserts, also select two foam inserts from the same box or batch.

One filter (and foam insert) is used whilst calibrating the sample flow rate and is then discarded, and the second filter (and foam insert) is pre-weighed to carry out the actual sample.

It is recommended to wear powder free gloves and to use tweezers when handling filters in order to prevent contamination prior to taking the sample.

Loading the cassette

Refer to Figure 2 on page 2.

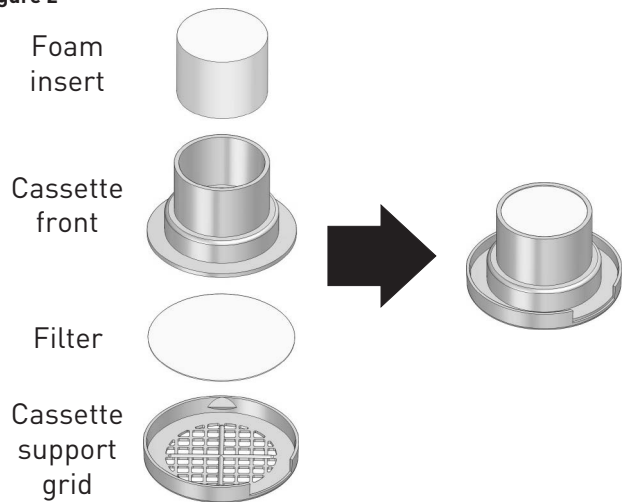
Ensure that the I.O.M. sampler components are cleaned of any contamination, using a detergent solution. Allow the components to dry fully before use.

Place the filter to be used for calibration into the cassette support grid. Fit the cassette front to the support grid, pushing gently until the two parts of the cassette snap together.

If carrying out respirable or multi-dust sampling, fit one of the two foam inserts into the inlet of the cassette front, pressing it in evenly until the front face of the foam insert sits just below the front rim of the cassette front as shown in Figure 2 on page 2.

*The I.O.M. sampler is manufactured under license from the Institute of Occupational Medicine, trade mark registered number 2043339E.

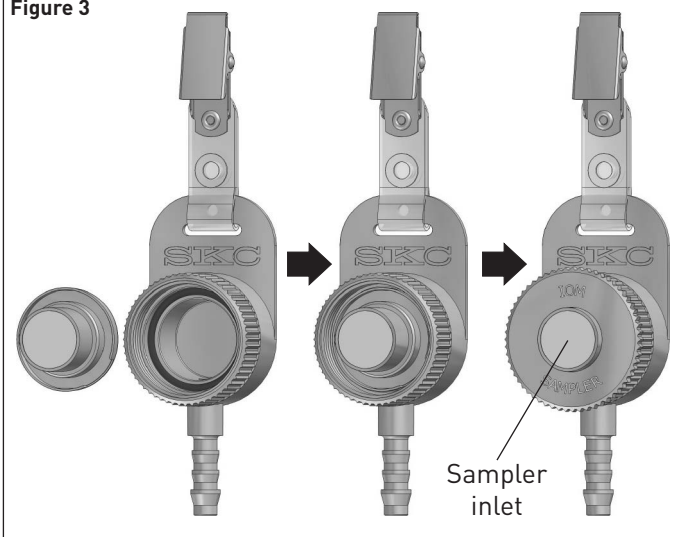
Figure 2



Fitting the cassette into the I.O.M. sampler

Ensure that the O ring seals are correctly fitted to the I.O.M. sampler. Fit the cassette into the sampler body. Screw the sampler front plate into the sampler body, tightening securely to achieve a good seal of all of the O rings.

Figure 3



Flow Calibration

Connect the inlet hosetail of the sample pump to the outlet hosetail of the I.O.M. sampler with a length of flexible tubing. Connect the flow calibration device (such as a chek-mate flowmeter or rotameter) to the sampler inlet (identified in Figure 3) using an SKC calibration adaptor (‘calidaptor’ - part number 391-01). Refer to the instructions supplied with the calidaptor for further details.

Calibrate the sample flow rate to 2.0 l/min.

Disconnect the I.O.M. sampler from the calibration device. Remove the cassette from the sampler body, separate the two parts of the cassette, and remove and discard the calibration filter (and foam insert).

Pre-Weighing the Filter

Ensure that the parts of the cassette are clean and free of any contamination.

For inhalable dust sampling -

- Place the remaining filter, to be used for the sample, onto the cassette support grid. Fit the cassette front to the support grid, pressing firmly until the two parts snap together.
- Pre-weigh the complete filter and cassette assembly.

For respirable and multi-dust sampling -

- Place the remaining filter, to be used for the sample, onto the cassette support grid.
- Pre-weigh the filter and support grid only.
- Fit the cassette front to the support grid, pressing firmly until the two parts snap together. Fit the remaining foam insert, to be used for the sample, into the inlet of the cassette front, pressing it in evenly until the front of the foam insert sits just below the front rim of the cassette front.
- If carrying out multi-dust sampling, pre-weigh the complete filter, foam and cassette assembly.

Final Checks

Fit the assembled, pre-weighed cassette into the I.O.M. sampler and secure with the sampler front plate, ensuring a good seal of all of the O rings.

Quickly re-check the sample flow rate and make any final adjustments. Switch the sample pump off.

Fit the cassette sealing cap to the sampler to prevent contamination of the cassette prior to starting the sample.

The I.O.M. sampler is now ready for sampling.

After Sampling

Away from the sample location quickly check the sample flow rate. Carefully remove the cassette from the sampler body.

Post Weighing the Filter

For inhalable dust sampling -

- Post-weigh the complete filter and cassette assembly.
- The difference between the pre and post weights of the complete filter and cassette assembly will give the inhalable sample.

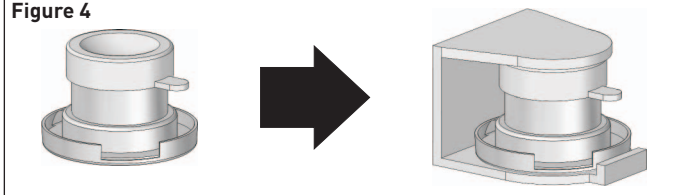
For respirable and multi-dust sampling -

- If carrying out multi-dust sampling, post-weigh the complete filter, foam and cassette assembly.
- Carefully separate the two parts of the cassette, and post weigh the cassette support grid and filter only.
- The difference between the pre and post weights of the complete filter, foam and cassette assembly will give the inhalable sample.
- The difference between the pre and post weights of the filter and cassette support grid only will give the respirable sample.

Transportation

If further analysis is required, prepare the sample for transportation to the laboratory by carefully re-assembling the cassette, fitting the cassette sealing cap, and fitting the cassette into the transport clip. This will prevent unwanted ingress or loss of contaminant during transport.

Figure 4



Foam Insert Ordering Information

Part Number	Description
225-772	Respirable foam insert (pack of 10)
225-772-50	Respirable foam insert (pack of 50)