ANALYT MESSTECHNIK



INSTRUCTIONS FOR USE

SKC IOM Multi-Dust Sampler

Parts, cassette loading, flow setting, weighing and transport for inhalable, respirable and multi-dust sampling with the SKC IOM sampler, models 225-70A, 225-76A and 225-79A.

AMTC-IN-0021

About this document

These instructions cover the SKC IOM Multi-Dust Sampler for personal dust sampling with gravimetric analysis. It applies to three models:

Order code	Sampler body	Re-usable cassette
225-70A	Conductive plastic	Plastic
225-76A	Stainless steel	Stainless steel
225-79A	Conductive plastic	Stainless steel

Read Safety (p. 4) and Product and supplied items (p. 5) first. Then follow Before use (p. 7) before each sample, Procedure (p. 9) for the final checks and the flow check after sampling, and After use and sample handling (p. 10) for the weighing and the transport. These instructions describe the sampler; the sample pump, the flowmeter and the sampling method you work to have their own instructions.

Keep these instructions for the lifetime of the product. The current revision is on the product page at analyt-mtc.com.

How these instructions mark information

NOTICE

Practices not related to personal injury — damage to the product, the process or the sample.

Note
Information that helps understanding; never a hazard.

Document information

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Revision history

Rev.	Date	Change
2	October 2026	Quality programme: new document type, number and identity pages.
1	October 2026	First issue.

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CHAPTER 1

Safety

Read this chapter before you use the sampler. It states what the sampler is intended for and brings together the safety messages of these instructions.

Intended use

The IOM sampler collects airborne dust to the inhalable convention of EN 481:1993, for gravimetric analysis to HSE method MDHS 14/4. With a foam insert it collects the respirable fraction instead, or both fractions in one multi-dust sample. Use it with a sample pump at its design flow rate, with filters of 25 mm diameter only and a new foam insert for every sample (see Product and supplied items (p. 5)).

Safety messages

The message in these instructions protects the sample. It is repeated at the step it concerns, in Before use (p. 7).

NOTICE

Handle filters with care. Contamination on a filter spoils the sample. Wear powder-free gloves and pick up filters with tweezers, so that nothing contaminates them before the sample.

NOTICE

Fit a new foam insert for every sample. The inserts are single use, and a reused insert can contaminate the sample, so the result is then invalid.

CHAPTER 2

Product and supplied items

The IOM sampler collects airborne dust to the inhalable convention of EN 481:1993. It is the sampler of HSE method MDHS 14/4, *General methods for sampling and gravimetric analysis of respirable, thoracic and inhalable aerosols*.

At its design flow rate of **2.0 L/min** the sampler collects 50 % of particles of 100 µm (its cut point). Add a particle-size-selective foam insert to the cassette inlet and the sampler collects the respirable fraction to EN 481:1993 instead: for MDHS 14/4 it is a validated alternative to the cyclone. With the foam insert you can also take a **multi-dust** sample, which gives the inhalable and the respirable fraction from one sample. The respirable and multi-dust use is described in Health and Safety Laboratory (UK) report IR/EXM/99/06.

The filter sits in a two-part, re-usable cassette, and the filter and cassette are weighed together. You handle the filter less, and dust that settles on the walls of the cassette inlet counts as part of the sample. The plastic sampler bodies are made of conductive plastic: electrical charge drains to the surrounding air, so static does not disturb the collection of the dust. A cassette sealing cap and a cassette transport clip come with the sampler; they keep the sample clean on the way to the laboratory.

Note
Before you sample. Obtain HSE method MDHS 14/4 and read it before the first sample. Use filters of 25 mm diameter only.

NOTICE

Fit a new foam insert for every sample. The inserts are single use, and a reused insert can contaminate the sample, so the result is then invalid.

Parts

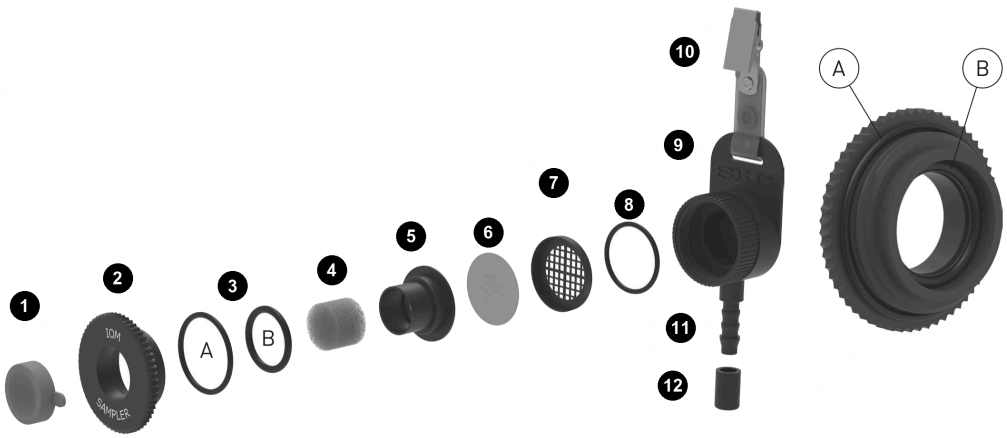


Figure 2-1. The IOM sampler, exploded. Right: rear view of the front plate (2) with the positions of O-rings A and B.

No.	Part	No.	Part
1	Cassette sealing cap	7	Cassette filter support grid
2	Front plate	8	O-ring (sampler body)
3	O-rings A and B (front plate)	9	Sampler body
4	Foam insert (respirable and multi-dust only)	10	Spring clip
5	Cassette front	11	Outlet hose nipple
6	Filter, 25 mm	12	Dust cap

CHAPTER 3

Before use

Preparation follows MDHS 14/4 for gravimetric analysis. You load the cassette twice: first with a filter (and foam insert) that serves only to set the flow rate and is then thrown away, then with a second, pre-weighed filter (and foam insert) for the actual sample.

Before you start

- Take **two filters** from the same box or batch.
- For respirable or multi-dust sampling, also take **two foam inserts** from the same box or batch.
- Have the sample pump, a length of flexible tubing, a flowmeter with a valid calibration (for example a chek-mate electronic flowmeter or a rotameter) and a calidaptor, Cat. No. 391-01, at hand.

NOTICE

Handle filters with care. Contamination on a filter spoils the sample. Wear powder-free gloves and pick up filters with tweezers, so that nothing contaminates them before the sample.

Load the cassette

1. Clean the sampler parts of any contamination with a detergent solution. Let them dry completely.
2. Lay the filter for setting the flow rate (6) in the cassette support grid (7).
3. Fit the cassette front (5) onto the support grid and push gently until the two halves snap together.
4. Respirable or multi-dust sampling only: press one foam insert (4) evenly into the inlet of the cassette front, until its front face sits just below the rim of the cassette front.

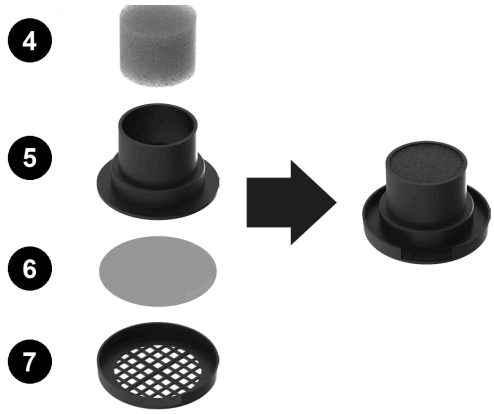


Figure 3-1. Loading the cassette: foam insert (4), cassette front (5), filter (6), support grid (7). Right: the loaded cassette with the foam insert just below the rim.

Fit the cassette into the sampler

1. Check that all the O-rings are present and correctly fitted in the front plate and the sampler body (Figure 2-1 (p. 5)).
2. Fit the cassette into the sampler body.
3. Screw the front plate into the sampler body and tighten it securely, so that all the O-rings seal.

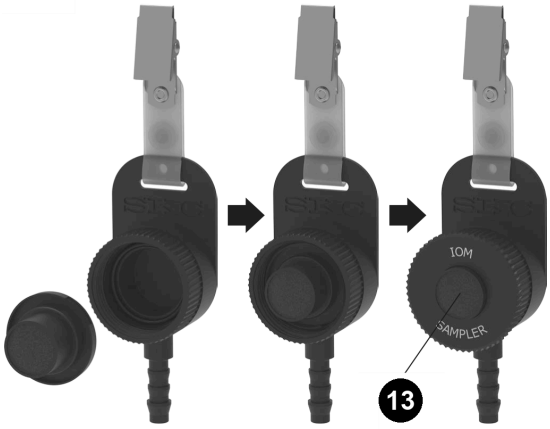


Figure 3-2. Cassette into the body, then the front plate on. (13) Sampler inlet.

Set the flow rate

1. Connect the outlet hose nipple of the sampler (11) to the inlet hose nipple of the sample pump with the flexible tubing.
2. Connect the flowmeter to the sampler inlet (13) with the calidaptor 391-01, as described in the instructions supplied with the calidaptor.
3. Set the flow rate of the pump to **2.0 L/min**.
4. Disconnect the sampler from the flowmeter and the calidaptor.
5. Take the cassette out of the sampler body, separate its two halves, and throw away the filter (and the foam insert).

Pre-weigh

Check that the cassette parts are clean. What you weigh depends on the fraction you sample.

Inhalable sampling

1. Lay the sample filter on the cassette support grid.
2. Fit the cassette front and press firmly until the halves snap together.
3. Weigh the complete cassette with the filter.

Respirable and multi-dust sampling

1. Lay the sample filter on the cassette support grid.
2. Weigh the support grid with the filter only.
3. Fit the cassette front and press firmly until the halves snap together.
4. Press the second foam insert evenly into the inlet of the cassette front, until its front face sits just below the rim.
5. Multi-dust sampling only: weigh the complete cassette with filter and foam insert.

CHAPTER 4

Procedure

Final checks

1. Fit the pre-weighed cassette into the sampler and secure it with the front plate, so that all the O-rings seal.
2. Check the flow rate once more with the flowmeter.
3. If needed, adjust the flow rate.
4. Write down the flowmeter reading.
5. Switch the pump off.
6. Fit the cassette sealing cap (1) on the sampler, so that the cassette stays clean until the sample starts.

The sampler is now ready.

Start the sample

1. Remove the cassette sealing cap (1) when you start the sample.

After sampling: check the flow rate

1. Move away from the sampling location.
2. Check the flow rate quickly with the flowmeter.
3. Write down the flowmeter reading.
4. Take the cassette carefully out of the sampler body.

CHAPTER 5

After use and sample handling

Post-weigh

Inhalable sampling

1. Weigh the complete cassette with the filter.

Respirable and multi-dust sampling

1. Multi-dust sampling only: weigh the complete cassette with filter and foam insert.
2. Separate the two halves of the cassette carefully.
3. Weigh the support grid with the filter only.

Reading the result

Sampling	Fraction	Weight gain (post-weight minus pre-weight) of
Inhalable	Inhalable	the complete cassette with the filter
Multi-dust	Inhalable	the complete cassette with filter and foam insert
Respirable or multi-dust	Respirable	the support grid with the filter

Transport to the laboratory

When the sample goes to a laboratory for further analysis, pack it so that no dust gets in and none is lost:

1. Re-assemble the cassette carefully.
2. Fit the cassette sealing cap.
3. Fit the capped cassette into the transport clip.

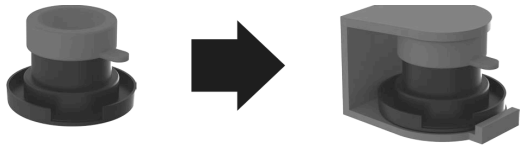


Figure 5-1. Capped cassette, then in the transport clip.

Disposal

Dispose of the sampler under local regulations; separate metal, glass and plastic parts for recycling where possible.

CHAPTER 6

Ordering information

Order from Analyt-MTC with the order codes.

For foam inserts, spare parts and technical support, contact Analyt-MTC (see Service and contacts (p. 12)).

Ordering and service

Item	Order code
IOM sampler, plastic, with re-usable plastic cassette	225-70A
IOM sampler, stainless steel, with re-usable stainless steel cassette	225-76A
IOM sampler, plastic, with re-usable stainless steel cassette	225-79A
Respirable foam insert, pack of 10	225-772
Respirable foam insert, pack of 50	225-772-50
Calidaptor, calibration adaptor for the IOM sampler	391-01

CHAPTER 7

Service and contacts

The SKC IOM Multi-Dust Sampler is made by SKC. Analyt-MTC is your contact for it: technical support, foam inserts and spare parts.

Contact and support

ANALYT-MTC Messtechnik GmbH

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www.analyt-mtc.com

Before you call

Have the following at hand so that Analyt-MTC can help you quickly:

- the catalogue number of your sampler (225-70A, 225-76A or 225-79A);
- whether you sample inhalable, respirable or both fractions;
- the sample pump and the method you work to.

ANALYT-MTC Messtechnik GmbH

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