ANALYT MESSTECHNIK



INSTRUCTIONS FOR USE

SKC Plastic Cyclone

Cassette loading, assembly, flow-rate setting at 3.0 L/min, post-weighing and transport for the SKC Plastic Cyclone respirable dust samplers 225-69 (25 mm) and 225-69-37 (37 mm).

AMTC-IN-0033

About this document

These instructions cover the SKC Plastic Cyclone, a respirable dust sampler in two versions: 225-69 with a reusable cassette for 25 mm filters, and 225-69-37 with a reusable cassette for 37 mm filters. Both are used in the same way.

Read Safety (p. 4) and Product and supplied items (p. 5) first, then follow Before use (p. 6), Procedure (p. 8) and After use and sample handling (p. 9) in order. The steps describe a basic gravimetric measurement to HSE MDHS 14/4, the method you should read before sampling. These instructions do not replace the method, which sets out the sampling time, the filters and the weighing.

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

Title	SKC Plastic Cyclone — Instructions for use
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Manufacturer	SKC Inc.

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 cyclone. It states what the cyclone is intended for and brings together the safety messages of these instructions.

Intended use

The SKC Plastic Cyclone, models 225-69 and 225-69-37, samples dust to the respirable convention of EN 481:1993 for gravimetric analysis, for example to HSE MDHS 14/4. Use it with a sample pump at its design flow rate (see Product and supplied items (p. 5)), with the spring clip attaching it to the worker's clothing.

Safety messages

The messages in these instructions protect the sample. Each is repeated at the step it concerns, in Before use (p. 6) and in After use and sample handling (p. 9).

NOTICE

A filter that is contaminated before sampling can compromise the sample. Wear powder-free gloves and handle filters with tweezers, so that nothing contaminates them.

NOTICE

An unsealed cassette is open at its inlet and outlet. On the way to the laboratory, contaminant can get in, or part of the sample can be lost. Push the sealing clip over the cassette before you send it.

CHAPTER 2

Product and supplied items

The SKC Plastic Cyclone samples dust to the respirable convention of EN 481:1993. Its design flow rate is **3.0 L/min**; at that flow rate the cut point, the particle size sampled with 50 % efficiency, is 4.0 µm.

Air enters at the air inlet on the sampler body (10). The larger particles fall into the grit pot (12) and are discarded; the respirable fraction is drawn up through the sampler insert (7) onto the filter in the cassette (5), and the air leaves through the air outlet (3) on the sampler top (2) to the pump (Figure 2-1 (p. 5)).

The filter sits on a metal support grid in a reusable plastic cassette. A sealing clip, supplied with the cassette, closes it for transport to the laboratory so that the sample is not contaminated on the way.

The cyclone is made of conductive plastic. It passes electrical charge off to the surrounding air, so static charge does not disturb the collection of the dust particles.

The spring clip (9) on the back of the sampler body attaches the cyclone to the worker's clothing.

Model	Cassette for
225-69	25 mm filters
225-69-37	37 mm filters



Figure 2-1. Plastic cyclone, exploded. (1) Retaining ring. (2) Sampler top. (3) Air outlet, to the pump. (4) Thin O-ring, in the underside of the sampler top. (5) Filter cassette. (6) Small O-ring, on the tube of the insert. (7) Sampler insert. (8) Large O-ring. (9) Spring clip. (10) Sampler body. (11) Air inlet. (12) Grit pot.

CHAPTER 3

Before use

What you need

- the SKC Plastic Cyclone, with its cassette, filter support grid, O-rings, grit pot and retaining ring;
- two filters of the cassette size, taken from the same box or batch;
- a sample pump, and a flowmeter, for example an SKC chek-mate flowmeter, or a rotameter;
- two lengths of flexible tubing: one from the cyclone to the pump, one from the flowmeter to the cyclone;
- powder-free gloves, tweezers, and a detergent solution for cleaning.

The numbers in brackets refer to Figure 2-1 (p. 5), unless a step names Figure 3-1 (p. 6).

Filters

Take two filters from the same box or batch. You use one to set the flow rate and then discard it. The other is pre-weighed and takes the sample.

NOTICE

A filter that is contaminated before sampling can compromise the sample. Wear powder-free gloves and handle filters with tweezers, so that nothing contaminates them.

Load the cassette

1. Clean the cyclone parts of any contamination with a detergent solution.
2. Let them dry fully.
3. Place the cassette top, the part labelled “TOP” (4 in Figure 3-1 (p. 6)), upside down on a flat surface.
4. Put the metal filter support grid (3) into the cassette top.
5. Lay the filter for setting the flow rate (2) on the grid.
6. Fit the cassette bottom (1) onto the top.

   Note
   The cassette closes stiffly. The stiff closure keeps the cassette from opening by accident and makes it leak-tight. Press gently on the edges of the bottom part and avoid undue pressure on the filter.

7. Close the cassette by pressing gently on the edges of the bottom part.

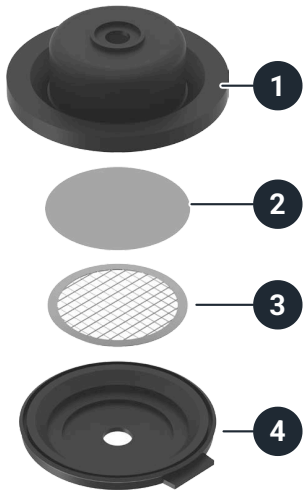


Figure 3-1. Cassette, shown as you load it. (1) Cassette bottom. (2) Filter. (3) Filter support grid. (4) Cassette top, upside down, with the side tab.

Fit the cassette into the cyclone

1. Check that the large O-ring (8) sits on the sampler body (10), under the sampler insert (7), and that the small O-ring (6) is over the short tube in the middle of the insert.
2. Put the cassette (5) into the sampler insert, cassette top upwards.
3. Check that the thin O-ring (4) is in the recess in the underside of the sampler top (2).
4. Place the sampler top on the cassette.
5. Fit the retaining ring (1) over the sampler top and screw it down firmly. This holds the cassette in place and seals its inlet and outlet.
6. Check that the grit pot (12) is pushed securely over the ridge around the bottom of the sampler body.

Set the flow rate

1. Connect the inlet hose nipple of the sample pump to the air outlet (3) with flexible tubing.
2. Connect the flowmeter to the air inlet (11) with the second length of tubing.
3. Start the pump and set the flow rate to **3.0 L/min**.
4. Write down the flow rate the flowmeter shows.
5. Disconnect both tubes from the cyclone and take the cassette out.
6. Hold the cassette upside down and prise the two halves apart with the side tab.
7. Take out the calibration filter and discard it.
8. Lay the pre-weighed sample filter on the support grid, close the cassette and fit it back into the cyclone.
9. Reconnect the pump and the flowmeter, quickly check the flow rate again and make any last adjustment.
10. Switch the pump off.

The cyclone is ready for sampling.

CHAPTER 4

Procedure

Take the sample

Position the cyclone and run the sample as your sampling method, for example MDHS 14/4, requires.

End the sample

The numbers in brackets refer to Figure 2-1 (p. 5).

1. **Away from the sampling location**, quickly check the flow rate.
2. Write the flow rate down.
3. Disconnect the tubing from the air inlet (11) and the air outlet (3).
4. Take the cassette carefully out of the cyclone.
5. Split the two halves of the cassette apart.

CHAPTER 5

After use and sample handling

Post-weigh the filter

1. Lift the filter carefully out of the cassette with tweezers.
2. Weigh the filter. The post-weight minus the pre-weight is the mass of the respirable sample.

Send the filter for further analysis

NOTICE

An unsealed cassette is open at its inlet and outlet. On the way to the laboratory, contaminant can get in, or part of the sample can be lost. Push the sealing clip over the cassette before you send it.

If the filter goes to a laboratory for further analysis, put it back in the cassette and close the cassette. Push the yellow U-shaped sealing clip over the cassette so that it covers the inlet and outlet holes (Figure 5-1 (p. 9)).

With the 25 mm cassette (225-69) you can also send the filter in an SKC filter transport cassette 225-67-10 instead, which takes 25 mm filters only. The cyclone cassette is then free to be used again straight away.

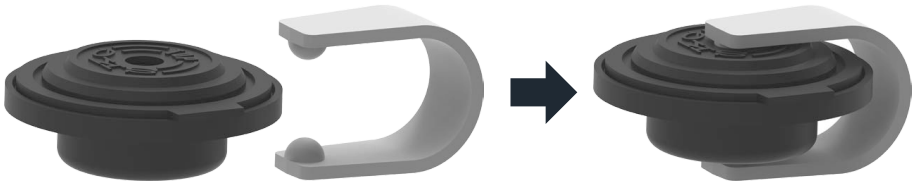


Figure 5-1. Sealing clip: pushed over the cassette, it closes the inlet and the outlet.

Disposal

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

Further reading

- HSE MDHS 14/4, General methods for sampling and gravimetric analysis of respirable, thoracic and inhalable aerosols.
- EN 481:1993, which defines the respirable convention.
- EN 13205, the standard the cyclone was tested to.
- SKC 224-G1, Step by Step Guide to Air Sampling.

CHAPTER 6

Specifications

Tested performance

The Health and Safety Laboratory (HSL), UK, tested the SKC Plastic Cyclone to EN 13205 against the respirable convention of EN 481, at a flow rate of 3.0 L/min, measuring three cyclones on 31 August 2018. The cyclone met the bias performance criterion: at least 85 % of all calculated biases lay within ±10 % of the respirable convention. HSL issued a certificate of conformity on 6 September 2018.

Measured 50 % cut-off size (D_{50}) at 3.0 L/min

Cyclone	D_{50}, µm
Cyclone 1	4.18
Cyclone 2	4.30
Cyclone 3	4.12
Mean	**4.20**
Standard deviation	0.09
Target	4.00

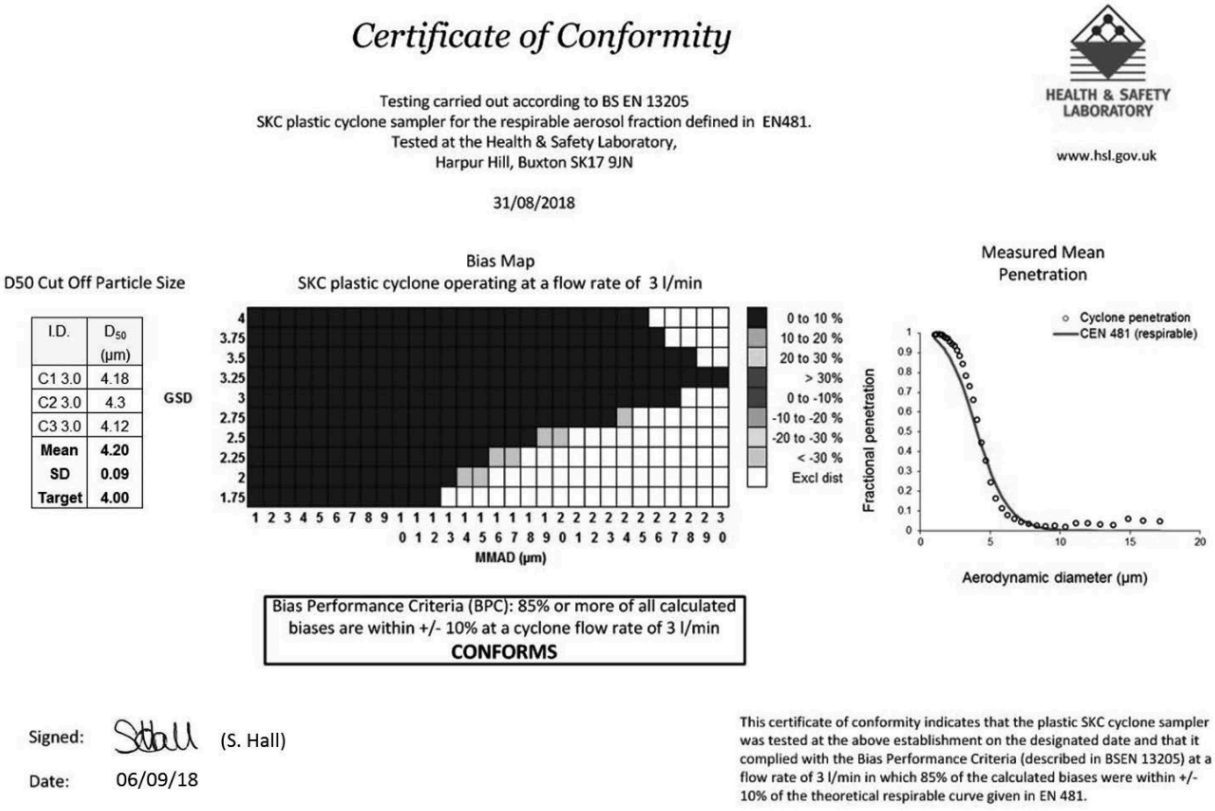


Figure 6-1. Certificate of conformity issued by the Health and Safety Laboratory on 6 September 2018: the D_{50} results, the bias map at 3 L/min and the measured mean penetration of the cyclone against the respirable convention of EN 481.

CHAPTER 7

Ordering information

Order from Analyt-MTC with the order codes.

Order numbers

Item	Pack	Order code
CYCLONES		
SKC Plastic Cyclone with 25 mm plastic cassette and grit pot	each	225-69
SKC Plastic Cyclone with 37 mm plastic cassette and grit pot	each	225-69-37
CASSETTES AND SPARE PARTS		
Cyclone cassette, 25 mm, for 225-69	each	225-62
Cyclone cassette, 25 mm, for 225-69	500	225-62-500
Cyclone cassette, 37 mm, for 225-69-37	each	225-62-37
Stainless steel filter support grids without tab, 25 mm, for 225-69	10	225-66
Stainless steel filter support grids without tab, 37 mm, for 225-69-37	10	225-66-37
Rubber grit pots	10	225-64
Set of 3 O-rings for the plastic cyclone	set	P22569
Filter transport cassette, conductive plastic, for 25 mm filters	10	225-67-10

CHAPTER 8

Service and contacts

Contact and support

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www.analyt-mtc.com

Before you call

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

- the part number of the cyclone (225-69 or 225-69-37) or of the part you need;
- the sample pump and flowmeter you use with it;
- the sampling method you are working to.

Contact Analyt-MTC for spare parts, technical questions and warranty matters concerning your SKC Plastic Cyclone. Warranty is handled under Analyt-MTC's terms of sale. Analyt-MTC's contact details are above and on the back cover.

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