ANALYT MESSTECHNIK



INSTRUCTIONS FOR USE

SKC VOC Chek 575-007 Passive Sampler for Methanol

Storage, sampling with the secondary diffusion barrier and laboratory analysis for the SKC VOC Chek 575-007 passive sampler for methanol.

AMTC-IN-0046

About this document

These instructions explain how to use the SKC VOC Chek 575-007 passive sampler to measure personal exposure to methanol. It covers storing the sampler, taking a sample with the secondary diffusion barrier fitted, and what the laboratory does with it: desorption and the calculation of the concentration.

Read Safety (p. 5) first. Next, read Product and supplied items (p. 6) for its data, Before use (p. 7) for correct storage, then follow Procedure (p. 8) step by step. After use and sample handling (p. 9) is written for the laboratory; pass it on with your samples. Part numbers are in Ordering information (p. 11).

A passive sampler needs no pump and no flow calibration: the vapour reaches the sorbent by diffusion, at a sampling rate fixed by the sampler and the compound. What you must record is the sampling time, and the temperature and pressure at the sampling site.

The other samplers of the 575 Series, 575-001, 575-002, 575-005 and 575-006, have their own operating instructions, document AMTC-IN-0039; ask Analyt-MTC for a copy.

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

⚠ CAUTION

A hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

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

Document information

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Manufacturer	SKC Inc.

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

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Contents

1 **Safety** 5
- Intended use 5
- Protecting the sample 5

2 **Product and supplied items** 6
- Sampler data 6

3 **Before use** 7
- Storage and shelf life 7
- Before you start 7

4 **Procedure** 8
- Take the sample 8

5 **After use and sample handling** 9
- Desorption 9
- Calculating the concentration 9
- Disposal 10
- Further reading 10

6 **Ordering information** 11
- Ordering information 11

7 **Service and contacts** 12

CHAPTER 1

Safety

Read this chapter before you use the sampler. Its safety messages are repeated where they apply in the chapters that follow.

Intended use

The SKC VOC Chek 575-007 passive sampler measures personal exposure to methanol, from 20 to 400 ppm, over sampling times of 15 minutes to 8 hours. Sample with the green secondary diffusion barrier pressed onto the front, and have the sample analysed by the validated method. Do not store samplers with food, neither unused samplers nor samplers after sampling.

Protecting the sample

NOTICE

Removing the plastic plug on the back of the sampler voids the sample. Never remove it. Only the cap on the front comes off.

NOTICE

Deviation from the method. The 575 samplers are validated for specific compounds according to specific methods. A desorption solvent other than the one the method states, or any other change to the method, can give inaccurate results. Use the validated method and its desorption solvent.

⚠ CAUTION

Do not store samplers with food. Samplers stored next to food can contaminate it, and eating contaminated food can harm you. This applies to unused samplers and to samplers after sampling.

CHAPTER 2

Product and supplied items

The 575-007 is a small nylon badge with a clip, filled with 500 mg of Anasorb 747. It is the 575 Series sampler for methanol, and the only one supplied with a green secondary diffusion barrier, which you press onto the front of the sampler for the sampling period.

Sampler data

Compound	methanol
Sorbent	Anasorb 747, 500 mg
Supplied with	green secondary diffusion barrier, one per sampler
Concentration range	20–400 ppm
Sampling rate	1.20 mL/min
Sampling time	validated for occupational exposure samples of 15 min–8 h
Analysis	solvent desorption with carbon disulfide (CS_2) and dimethylformamide (DMF), 50:50; gas chromatography with flame ionisation detector (GC/FID)
Housing	nylon; 1.4 in (3.5 cm) diameter, 2.5 in (6.3 cm) long with the clip, 0.6 in (1.5 cm) deep
Shelf life	limited; see the expiry date on the packaging

Recommended sampling times are listed in the SKC 575 Series sampler guide; ask Analyt-MTC for a copy.

CHAPTER 3

Before use

Storage and shelf life

Check the expiry date on the packaging before you use a sampler. A sampler stored below 4 °C must reach the ambient temperature before you start sampling.

⚠ CAUTION

Do not store samplers with food. Samplers stored next to food can contaminate it, and eating contaminated food can harm you. This applies to unused samplers and to samplers after sampling.

	Storage
Before use	At ambient temperature or below 4 °C (39.2 °F). Below 4 °C is recommended: it keeps the background low.
After sampling	At ambient temperature for up to one week, or below 4 °C (39.2 °F) for up to 3 weeks.

Before you start

- Check the expiry date on the packaging.
- Let a sampler stored below 4 °C reach the ambient temperature.
- Have a pen, a watch, a thermometer, a barometer and the blanks your method requires.

NOTICE

Removing the plastic plug on the back of the sampler voids the sample. Never remove it. Only the cap on the front comes off.

CHAPTER 4

Procedure

The sampler is worn on the worker's clothing in the breathing zone for the sampling period. The front of the sampler, under the cap, is perforated with small holes through which the vapour diffuses to the sorbent. For methanol, the green secondary diffusion barrier is pressed onto this front in place of the cap while you sample. The back is closed with a plastic plug that stays in place until the laboratory opens the sampler.

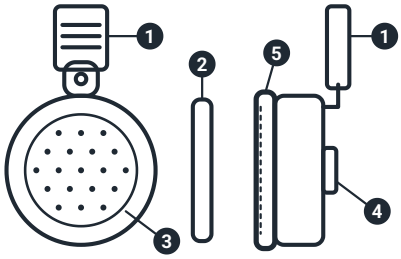


Figure 4-1. Front view with the cap removed (left) and side view during sampling (right). (1) Clip. (2) Cap, set aside while you sample. (3) Diffusion holes. (4) Plastic plug: never remove. (5) Green secondary diffusion barrier, pressed onto the front.

Take the sample

1. Take the sampler and the green secondary diffusion barrier out of the sealed pouch. **Keep the pouch:** it protects the sampler on the way to the laboratory.
2. On the pouch label, write the date, the start time and the sampler ID number printed on the sampler.
3. Take the cap off the front and put it aside safely. Press the green barrier onto the front; leave the plug on the back in place. Clip the sampler to the worker's clothing in the breathing zone, with the front facing out. **Keep the front free:** nothing may cover it, no rain, spray or splashing chemicals may reach it, and dirty fingers or gloves must not touch the sampler.
4. At the end of the sampling period, unclip the sampler from the clothing. Take the green barrier off and put the cap back on the front.
5. Write the stop time on the label of the pouch. Measure the ambient temperature and the atmospheric pressure and write them down: the laboratory needs them to calculate the concentration (see Calculating the concentration (p. 9)).
6. Pack the sampler in its pouch with care and send it to an accredited laboratory, with the blanks and the sampling information: ID, date, start and stop times, temperature and pressure. Until it ships, store it as Storage and shelf life (p. 7) describes.



Figure 4-2. Step 1: taking the sampler and the green secondary diffusion barrier out of the pouch.



Figure 4-3. Step 2: writing the date, the start time and the sampler ID on the pouch label.

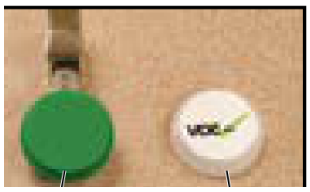


Figure 4-4. Step 3: the cap comes off the front of the sampler and the green secondary diffusion barrier goes on; the plug on the back stays.

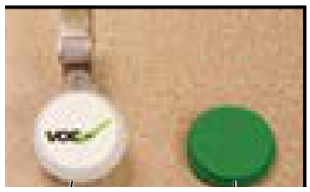


Figure 4-5. Step 4: at the end of sampling the barrier comes off and the cap goes back on the front.



Figure 4-6. Step 5: writing the stop time on the pouch label.



Figure 4-7. Step 6: the sampler in its pouch goes to the laboratory.

CHAPTER 5

After use and sample handling

This chapter is for the laboratory. The sorbent is desorbed with solvent and analysed by GC/FID; the concentration in air follows from the mass found, the sampling rate and the sampling time.

NOTICE

Deviation from the method. The 575 samplers are validated for specific compounds according to specific methods. A desorption solvent other than the one the method states, or any other change to the method, can give inaccurate results. Use the validated method and its desorption solvent.

Desorption

1. Take the small plug out of the back of the sampler. Lift out the foam disc with tweezers.
2. Transfer the sorbent into a vial. Tap the sampler lightly so that every sorbent particle leaves it.
3. Add 2 mL of CS_2:DMF, 50:50, to the vial.
4. Close the vial with a PTFE-lined cap.

Determine the desorption efficiency with the desorption efficiency tubes 575-049: each single-section tube holds the same sorbent, in the same amount, as the 575-007 sampler (see Ordering information (p. 11)).

Calculating the concentration

The concentration of the compound in air, in ppm, is:

$$C = \frac{SW \times 24.45 \times 10^6}{DE \times MW \times SR \times MIN \times PT}$$

C	concentration of the compound, ppm
SW	sample weight found by analysis, mg
DE	desorption efficiency, as a decimal (98 % = 0.98)
MW	molecular weight of the compound
SR	sampling rate, mL/min (1.20 mL/min for methanol)
MIN	sampling time, min
PT	pressure and temperature correction

The equation holds for 25 °C (298 K) and standard atmospheric pressure, 760 mmHg. At any other site temperature or pressure, apply the correction factor

$$PT = (T_1 / T_2)^{1.5} \times (P_2 / P_1)$$

with T_1 the temperature at the sampling site in kelvin, T_2 = 298 K, P_1 the pressure at the sampling site and P_2 = 760 mmHg. Give both pressures in the same unit.

Worked example

The arithmetic, shown with toluene (for methanol, SR = 1.20 mL/min): sampled at 38 °C and 695 mmHg, so PT = 1.166. The analysis found 3.03 mg; with DE = 0.99, MW = 92.14, SR = 14.5 mL/min and a sampling time of 480 min:

$$C = \frac{3.03 \times 24.45 \times 10^{6}}{0.99 \times 92.14 \times 14.5 \times 480 \times 1.166} = 100 \text{ ppm}$$

Disposal

Dispose of used samplers and their packaging under local regulations.

Further reading

- Cassinelli, M. E., Hull, R. D., Crable, J. V., Teass, A. W.: NIOSH protocol for the evaluation of passive monitors. In: Berlin, A., Brown, R. H., Saunders, K. J. (eds.): *Diffusive Sampling: An Alternative to Workplace Air Monitoring*. Royal Society of Chemistry, London, 1987, pp. 190–202.
- Guild, L. V., Myrmel, K. H., Myers, G., Dietrich, D. F.: Bi-level passive monitor validation: a reliable way of assuring sampling accuracy for a larger number of related chemical hazards. *Applied Occupational and Environmental Hygiene* 7 (5), May 1992, pp. 310–317.

SKC publishes validation reports for the 575 samplers; ask Analyt-MTC for a copy.

CHAPTER 6

Ordering information

Order from Analyt-MTC with the order codes.

Ordering information

Passive sampler for	Sorbent, amount	Pack	Order code
METHANOL SAMPLER			
Methanol	Anasorb 747, 500 mg, with a secondary diffusion barrier for each sampler	5	575-007
OTHER 575 SERIES SAMPLERS [A]			
Organic vapours	Anasorb CSC, 350 mg	5	575-001
		25	575-001A
		100	575-001B
		500	575-001C
Organic vapours	Anasorb 747, 500 mg	5	575-002
		25	575-002A
		100	575-002B
		500	575-002C
Ethylene oxide	Anasorb 747 treated with hydrobromic acid, 500 mg	5	575-005
		25	575-005A
Styrene	Anasorb 747 treated with tert-butyl catechol, 500 mg	5	575-006
DESORPTION EFFICIENCY TUBES, FOR THE LABORATORY			
for 575-001 samplers		10	575-048
for 575-007 and 575-002 samplers		10	575-049
for 575-005 samplers		10	575-051

Desorption efficiency tubes for 575-006 samplers: ask Analyt-MTC. (a) These samplers have their own operating instructions (AMTC-IN-0039). Desorption efficiency tubes: each single-section tube holds the same sorbent, in the same amount, as the matching sampler.

CHAPTER 7

Service and contacts

Contact and support

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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 the sampler, 575-007;
- the method you work to;
- the expected concentration and sampling time.

Contact Analyt-MTC to order samplers and desorption efficiency tubes, for the SKC 575 Series sampler guide, and for help with your sampling plan. Warranty matters and returns are handled under Analyt-MTC's terms of sale. The Analyt-MTC contact details are in this chapter and on the back cover.

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