ANALYT MESSTECHNIK



INSTRUCTIONS FOR USE

SKC Hydrogen Cyanide Passive Sampler

Loading the soda lime sorbent in the field, sampling, recovering the sorbent and preparing the sample for the laboratory with the SKC passive sampler 590-400 for hydrogen cyanide (HCN) to OSHA Method 1015.

AMTC-IN-0043

About this document

These instructions cover the SKC Hydrogen Cyanide (HCN) Passive Sampler 590-400. It takes you through loading the soda lime sorbent into the sampler in the field, taking the sample, returning the sorbent to its vial and sending it to the laboratory. A short chapter for the laboratory gives the sample preparation.

Read Safety (p. 4) and Product and supplied items (p. 5) first. Then follow Before use (p. 6) and Procedure (p. 8) step by step, and After use and sample handling (p. 9) for recovering the sorbent and sending the samples. Pass Analysis (p. 10) on to your laboratory with the samples. The sampler is specified in OSHA Method 1015; the method sets the analytical conditions, interferences and calculations, and these instructions do not replace it.

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.

Note
Information that helps understanding; never a hazard.

Document information

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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 sampler. Its safety messages are repeated in the steps where they apply.

Intended use

The SKC Hydrogen Cyanide (HCN) Passive Sampler 590-400 measures a person's exposure to hydrogen cyanide in air, from 0.44 to 20 ppm, over 15 minutes or 8 hours, as specified in OSHA Method 1015. Each sampler is for single use only: do not reuse it.

Handling the sorbent

Wear gloves for every step that touches the sampler or the sorbent vial, from loading the sorbent to returning it to the vial after sampling.

⚠ CAUTION

The soda lime sorbent is very caustic. It can harm your skin on contact. Wear gloves whenever you handle the sampler or the sorbent vial, and keep the sorbent off your skin.

⚠ CAUTION

The soda lime sorbent is very caustic. It can harm your skin on contact. Keep your gloves on while you return the sorbent to the vial.

NOTICE

Do not reuse the sampler. The HCN Passive Sampler is designed for single use only. A reused sampler may not collect the sample reliably, so the result is then invalid.

CHAPTER 2

Product and supplied items

The SKC Hydrogen Cyanide (HCN) Passive Sampler measures a person's exposure to hydrogen cyanide. It is clipped to the collar and is specified in OSHA Method 1015.

Hydrogen cyanide diffuses through the holes in the front of the housing and is taken up by 600 mg of soda lime at a rate of 28.4 mL/min. The sorbent comes in its own sealed glass vial. You pour it into the empty housing in the field just before sampling and pour it back into the vial straight after sampling, as the method requires. The laboratory extracts the sorbent with water and analyses it by ion chromatography with an electrochemical detector. Each sampler is for single use only.

Parts of the sampler

The front of the housing, with the holes, carries the diffusion barrier and is closed by the cover. The back, without holes, carries the vial adapter, closed by a plug.

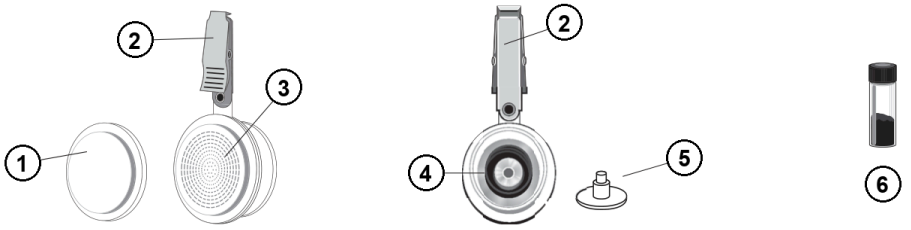


Figure 2-1. The sampler, front view (left) and back view (centre), and the sorbent vial. (1) Cover. (2) Collar clip. (3) Diffusion barrier. (4) Vial adapter. (5) Plug. (6) Vial with 600 mg soda lime sorbent.

CHAPTER 3

Before use

The sampler and its sorbent vial come together in a resealable aluminised pouch. Keep the pouch: the vial and its cap go back into it while you sample, and the finished sample travels in it to the laboratory. The numbers in brackets refer to Figure 2-1 (p. 5).

Before you start

- Wear gloves for every step that touches the sampler or the vial.
- Load and unload the sorbent in a clean area, free of hydrogen cyanide and of hydrogen sulfide, which interferes with the sample.
- Have a pen ready for the pouch label and the label on the housing.

Prepare the sampler

NOTICE

Do not reuse the sampler. The HCN Passive Sampler is designed for single use only. A reused sampler may not collect the sample reliably, so the result is then invalid.

1. Take the sampler housing and the sorbent vial out of the aluminised pouch.
2. Write the sample ID and any other information you need on the lines of the pouch label and on the label of the housing. OSHA Method 1015 also asks you to record the temperature and the uncorrected atmospheric pressure at the sampling site.



Figure 3-1. Taking the sampler housing and the sorbent vial out of the pouch.



Figure 3-2. Writing the sample ID on the pouch label.

Load the sorbent

Do this immediately before sampling, or at the latest on the day of use, in the clean area.

> **⚠ CAUTION**
>
> The soda lime sorbent is very caustic. It can harm your skin on contact. Wear gloves whenever you handle the sampler or the sorbent vial, and keep the sorbent off your skin.

1. On the back of the housing, the side without holes, remove the plug (5) from the vial adapter (4).
2. Take the cap off the sorbent vial (6).
3. Straight away, screw the open end of the vial into the vial adapter, turning it anticlockwise, until it is secure (detail A).
4. Turn the whole assembly over until the sorbent runs from the vial into the sampler.
5. Tap the vial lightly, then unscrew it and remove it from the adapter.
6. Put the plug back on the vial adapter immediately.
7. Keep the empty vial and its cap in the aluminised pouch. You need them again after sampling.

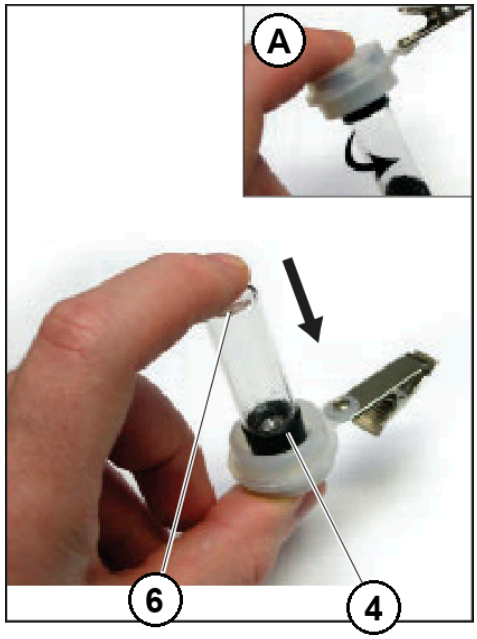


Figure 3-3. Loading: the sorbent runs from the vial (6) through the vial adapter (4) into the sampler. Detail A: screwing the vial into the adapter.

CHAPTER 4

Procedure

Take the sample

1. Write the start time on the label of the housing.

> **Note**
> **Sampling starts when the cover comes off.** Remove the cover only when you are ready to sample, and seal the sampler tightly with it to stop sampling.

2. Immediately before sampling, take the cover (1) off the front of the housing, the side with the holes.
3. Keep the cover; you need it to close the sampler again.

> **Note**
> **Keep the front clear.** Do not let clothing cover the sampler, and make sure nothing obstructs its front during the whole sampling period.

4. Clip the sampler to the worker's collar, near the breathing zone, with the holes facing outwards.
5. Unclip the sampler at once when the sampling time is over.
6. Press the cover firmly back on.
7. Write the stop time on the pouch label and on the label of the housing.

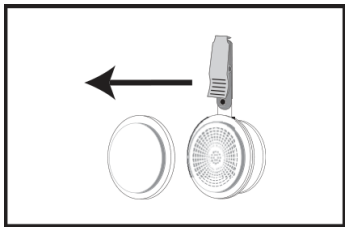


Figure 4-1. Taking the cover off the front of the housing starts sampling.

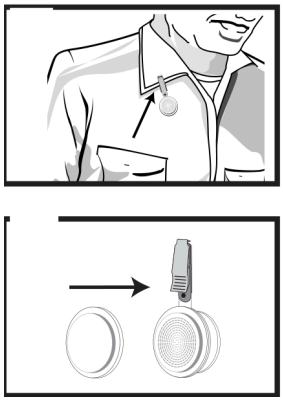


Figure 4-2. Top: the sampler clipped to the collar, the holes facing outwards. Bottom: sealing the sampler with the cover.

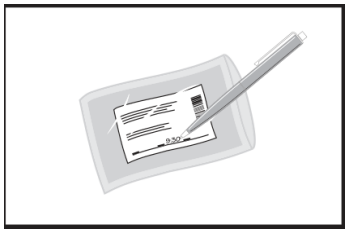


Figure 4-3. Writing the stop time on the pouch label.

CHAPTER 5

After use and sample handling

Recover the sorbent

⚠ CAUTION

The soda lime sorbent is very caustic. It can harm your skin on contact. Keep your gloves on while you return the sorbent to the vial.

Do this immediately after sampling, in the clean area.

1. Carefully remove the plug (5) from the vial adapter (4) on the back of the housing.
2. Straight away, screw the open end of the empty sorbent vial (6) into the adapter, turning it clockwise, until it is secure (detail A).
3. Turn the whole assembly over until the sorbent runs from the sampler into the vial. Tap the sampler lightly.
4. Check that all the sorbent is back in the vial.
5. Unscrew the vial from the adapter and screw the cap onto the vial immediately.

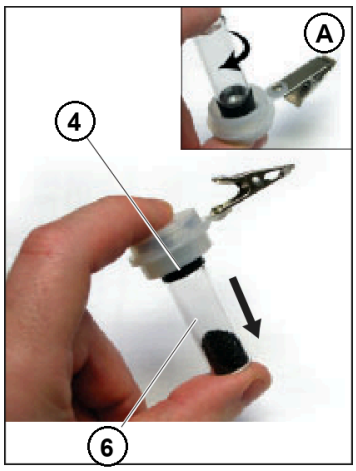


Figure 5-1. Recovery: the sorbent runs from the sampler through the vial adapter (4) back into the vial (6). Detail A: screwing the vial into the adapter.

Send the samples

1. Mark the sample vial as needed and seal it in the aluminised pouch. Check that the pouch label carries all the required information.

   Note
   Cap the vials tightly. Check every sorbent vial before you pack it.

2. Pack the samples together with one unused sorbent vial as a blank in a padded envelope.
3. Send them to a laboratory for analysis, with the temperature and the uncorrected atmospheric pressure at the sampling site.

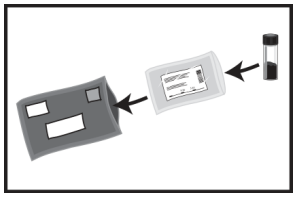


Figure 5-2. The sorbent vial goes into the pouch, and the pouch into a padded envelope.

Sample storage

Storage studies covered 3 weeks at 68 °F (20 °C) in a clean environment. OSHA Method 1015 nevertheless recommends sending samples to the laboratory as soon as possible. If a delay cannot be avoided, keep them in a refrigerator as a precaution.

Analysis

The sampler is fully validated in OSHA Method 1015, which gives the analytical conditions, the interferences and the calculation of the result. The preparation below is the part specific to this sampler. Pass it on to your laboratory with the samples.

Preparing the sample

1. Take the sorbent vial out of the aluminised pouch. Mark the sample identification on the vial if needed, and remove the cap.
2. Add 3.5 mL of deionised (DI) water of 18.0 MΩ·cm to the vial.
3. Rotate the vial in a mechanical rotator at about 40 rpm for 60 minutes.
4. Take the vial out of the rotator and let it settle for 15 minutes.
5. Filter 2 mL of the sample and transfer the filtrate to a 2 mL glass autosampler vial. Seal the vial with a PTFE cap.

Method of analysis

The samples are analysed by ion chromatography with an electrochemical detector.

> **Note**
> **Hydrogen sulfide present?** Where hydrogen cyanide was sampled in the presence of hydrogen sulfide, the sample may also need to be analysed for thiocyanate.

Reference

Simmons, M.: OSHA Method 1015, Hydrogen Cyanide. OSHA Salt Lake Technical Center, November 2010.

Disposal

Dispose of used samplers and their packaging under local regulations.

CHAPTER 6

Specifications

Sorbent	soda lime, 600 mg, supplied in a glass vial
Housing material	nylon
Diameter	1.4 in (3.5 cm)
Length including clip	2.5 in (6.3 cm)
Measuring range	0.44–20 ppm
Sampling rate	28.4 mL/min, relative standard deviation 4.40 %
Sampling time	validated for 15 minutes and 8 hours
Analysis	solvent extraction; ion chromatography (IC) with electrochemical detector (ELCM)
Sample storage	3 weeks at 68 °F (20 °C) in storage studies; see Sample storage (p. 10)

CHAPTER 7

Ordering information

Order from Analyt-MTC with the order codes.

Ordering information

Description	Pack	Order code
Hydrogen Cyanide Passive Sampler: empty sampler housing and sealed glass vial of 600 mg soda lime sorbent*	5	590-400
Stand for indoor sampling	1	690-302
Shelter for outdoor sampling	1	690-303

* For single use only. Do not reuse the samplers.

CHAPTER 8

Service and contacts

Contact and support

ANALYT-MTC Messtechnik GmbH

German Headquarters

Klosterrunsstraße 18, 79379 Müllheim
Germany

+49 7631 5545

info@analyt-mtc.de

French Subsidiary

175 Avenue d'Alsace, 68000 Colmar
France

+33 3 89 41 47 78

info@analyt-mtc.fr

www.analyt-mtc.com

Before you call

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

- the catalogue number of the sampler, 590-400;
- the sampling time you need (15 minutes or 8 hours).

Contact Analyt-MTC for samplers, technical questions and warranty matters concerning your SKC Hydrogen Cyanide Passive Sampler. Warranty is handled under Analyt-MTC's terms of sale. Analyt-MTC's contact details are in this chapter and on the back cover.

ANALYT-MTC Messtechnik GmbH

Sales, service and calibration

German Headquarters
Klosterrunsstraße 18, 79379 Müllheim
Germany
+49 7631 5545
info@analyt-mtc.de

French Subsidiary
175 Avenue d'Alsace, 68000 Colmar
France
+33 3 89 41 47 78
info@analyt-mtc.fr

www.analyt-mtc.com

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