

Air measurement using passive samplers

Sampling with tube-type

Instructions

Introduction

Measurement using passive samplers involves both sampling at the designated site and subsequent analysis of the samplers in a laboratory. During the sampling phase, the passive sampler accumulates pollutants from the air throughout the entire exposure period. The sampler is then analysed in the laboratory to determine the amount of pollutants collected. This document provides instructions for **the sampling procedure specifically for tube-type passive samplers**, including those for NO₂ (SP01), NO_x (SP12), and NO_x-Set (SP12-S).

Set up the measuring site

For ambient air measurements, passive samplers are placed inside a **protective shelter** to mitigate the effects of weather conditions. Each shelter can accommodate up to six tube-type passive samplers. We advise positioning the shelters at the predetermined measurement sites **at a height of 2 to 2.5 meters**, ensuring unobstructed airflow. Suitable installation options include street lamps or custom-built wooden posts. The protective shelter can be affixed using cable ties, string, or wire. It's essential to choose a measurement location that minimizes the risk of vandalism.



Sampling

Ensure that the passive samplers remain open throughout the entire exposure period.

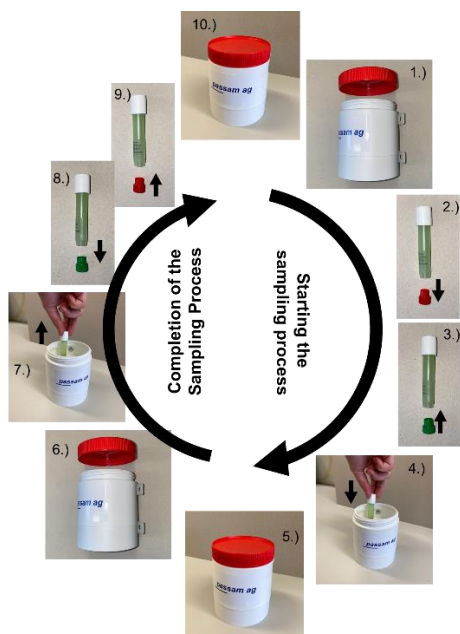
Starting the sampling process:

- 1) Open the protective shelter (red lid)
- 2) Remove the red cap from the passive sampler. Store it in a safe location.
- 3) Attach the protective filter (green cap) *
- 4) Place the passive sampler inside the protective shelter
- 5) Close the protective shelter (red lid)

Completion of the sampling process:

- 6) Open the protective shelter (red lid)
- 7) Take out the passive sampler from protective shelter
- 8) Detach the protective filter (green cap) from the passive sampler*
- 9) Seal the passive sampler using the stored red cap
- 10) Close the protective shelter (red lid)

* In exceptional circumstances, the use of protective filters may be omitted. When this happens, the tubes should stay open during sampling



Protocol – Documentation of sampling

Recording the details of your sampling is mandatory when using a passive sampler for measurements.

Please use our **Excel template** for documenting the sampling process. This template is available for download on our website, or we can send it to you upon request. The template contains the following sections:

Customer Information: In this section, input details related to the measurement campaign.

Sampler Type: The next section allows you to select the specific type of passive sampler from a drop-down menu.

Sampler type:	NO2 tube (SP01)
Protective filter:	NO2 tube (SP01) NOX tube (SP12) NOX tube Set (SP12-S) NO2 badge (SP15) NO2/SO2 badge (SP19) SO2 badge (SP10) O3 badge (SP20)
measuring site:	

Protective Filter Usage: Indicate whether a protective filter (marked with a green cap) was used during sampling. This information is crucial for accurately calculating pollutant concentrations.

Main Data Recording: In this part of the template, you'll record all data pertinent to the sampling process.

- First Column: Input a unique name for the measurement location.
- Second Column: Identify the passive sampler using its label and associate it with the measurement location. This identifier will consist of your customer code followed by a consecutive number, both of which can be found on the sampler's label.
- Exposure: Record both the start and end dates, along with the corresponding times, of the sampling period.

measuring site	passive sampler label	exposure				Temp [°C]	P [hPa]	optional information comments
		start date	start time	end date	end time			
main station	ABC-123	02.05.2021	10:35	17.05.2021	09:20			

Additional Fields:

- Comments: Here, you may include notes, remarks, or any special events that occurred during the exposure period. This section is optional.
- Temp and P: These fields allow for the recording of the average air temperature (Temp) and pressure (P) during the sampling period. While inputting this information is optional, it can potentially be used to adjust pollutant concentration calculations. However, should you consider this correction, **it's essential to contact us prior to taking any action**. We will discuss the potential effects and implications of such a correction before proceeding with any adjustments.

Shelf life and storage of the passive samplers

Please be aware of the specific storage conditions and shelf life both before and after sampling for each passive sampler. This information is provided on the product data sheet for the respective passive sampler. Additionally, the shelf life prior to sampling (or the **expiry date**) is indicated on the sampler's label. Always store passive samplers in a **sealable plastic bag** and **avoid extreme heat**, such as can occur in a heated car in summer.

Return instructions

Please send back the passive samplers and the sampling protocol as follows:

Passive samplers: passam AG, Schellenstrasse 44, 8708 Männedorf, Switzerland.

Sampling protocol: Email the Excel file to passam@passam.ch

