

# Diffusive Sampler for Nitrogen dioxide

Enclosed: diffusive samplers for Nitrogen dioxide and protocols for noting monitoring site and exposure times. The samplers are marked with a passam code.

## Installation of monitoring site

The diffusion tubes are placed, with the open end in a shelter minimize the influence of strong wind. In the absence of other requirements samplers should be exposed at heights of 2 - 3 m above the ground in positions of unrestricted air movement. In order to avoid sampling in the NO<sub>2</sub> depleted boundary layer close to walls, preferred sites are free standing columns, lamp posts etc. The samplers should not be easily reached by unauthorized persons and be located in situations where loss through theft or vandalism are unlikely.



Mounting of NO<sub>2</sub> diffusive samplers

## Description of monitoring site

The concentration value is representative only for the immediate sampling site. To interpret ambient values it is important to have a precise description of the monitoring site, and if possible a photographic documentation.

## Monitoring

At the beginning of sampling the lower stopper is removed from the sampler allowing NO<sub>2</sub> to diffuse along the tube. The stopper is retained and replaced at the end of the sampling period.

At the end of sampling the stopper is replaced and the end of sampling period is noted on the protocol.

## Sampling record

The code together with the site identification are noted in the record. As well as the starting and the ending time.

Site Code	Code passam	Start Date	Time	End Date	Exposure time	hours	Remarks
Railway station	FTH1	12.6.01	12:00	19.6.01	12:00	168	dusty
Hospital	FTH4	12.6.01	12:10	19.6.01	12:10	168	
Main Street Nr. 124	FTH27	12.6.01	12:25	19.6.01	12:55	168.5	insects

**Note:** For proper identification of samplers and correct assignment to monitoring site passam code has to be noted on the record.

## Storage and mailing

Exposed as well as unexposed sampler should be stored, if possible, in a refrigerator; at least in a dark, cool place. Shelf life is 6 month before use and at least 4 month after exposure.

Please do not leave the samplers in a closed car that is exposed to direct sunlight or extreme temperatures.

The exposed sampler should be sent back regularly, at least every 8 weeks, to the laboratory for analysis.

## Calculation of results

The ambient concentration is calculated according to the following formula:

$$C_u = \frac{(m_d - m_b) \cdot 10^6}{SR \cdot t}$$

C <sub>u</sub> :	ambient concentration	[µg/m <sup>3</sup> ]
m <sub>d</sub> :	mass absorbed	[µg]
m <sub>b</sub> :	blank	[µg]
SR:	sampling rate	[ml/min]
t:	exposure time	[min]

Sampling rate used is 0.8536 ml/min at 9°C (=mean annual mean of Swiss midlands).

**passam ag**

Laboratory for Environmental Analysis

Schellenstrasse 44, CH-8708 Männedorf, phone 0041 44 920 46 44,

fax 0041 44 920 24 97

[www.passam.ch](http://www.passam.ch)

e-mail [passam@passam.ch](mailto:passam@passam.ch)