Product Sheet

passam ag

air quality monitoring

Passive Sampler for H_2S

Product Number SP18

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Working Principle

The passive sampler reliably and energy-independently detects hydrogen sulfide (H_2S) in the air. During the exposure period of 1 to 4 weeks, H_2S molecules diffuse into the housing onto the absorbing medium. An integrated protective filter minimizes influences such as wind, ensuring accurate measurement results.

After the sampling, the passive sampler is analysed spectrophotometrically in our Swiss laboratory, which is accredited according to ISO/IEC 17025. The analytical method has been validated in accordance with EN 13528 [1].

The sampler provides the average concentration of the contaminant over the entire measurement period. This value is calculated from the amount of pollutant absorbed, the exposure duration, and the known collection rate, reflecting the average H_2S exposure at the measurement site.

Only a protective shelter is required for the exposure at the measuring site. The simple installation allows for use even in remote locations. Each sampler is uniquely identifiable by lot number, ID, and expiration date.

Applications

Important *natural sources* of hydrogen sulfide include volcanic activity and the anaerobic decomposition of organic matter in wetlands, sediments, and water bodies. *Anthropogenic sources* mainly originate from the petrochemical industry, oil refineries, and pulp and paper production. H_2S is also released during wastewater treatment, waste management, and agricultural activities such as manure and slurry storage or biogas plants.

The odour threshold for the characteristic "rotten eggs" smell is very low, which means that even small amounts of H_2S can be perceived as a nuisance. Literature values range from 0.8 to 200 µg/m³ and vary significantly among individuals [2].

Application: Thanks to its cost-effectiveness, ease of use, and high flexibility, the passive sampler is particularly suitable for:

- Odor measurements in urban or industrial areas for air quality monitoring and source identification
- Workplace safety assessments and environmental monitoring
- Mapping the spatial distribution of H_2S for evaluating measures' effectiveness or serving as a basis for modelling

Specifications

sampler type & dimension	badge-type (Ø 3 cm, height 2.5 cm)
sampling time	1 – 4 weeks
sampling rate at 20°C	10.9 ml/min
upper working range	80 µg/m³
detection limit	0.1 µg/m³ at 4 weeks or 0.2 µg/m³ at 2 weeks exposure
expanded uncertainty	24.6 % at 20 µg/m³; indirect approach according to GUM
analysis time	Approximately 15 – 20 days
shelf life and storage conditions	12 months prior exposure 3 months after exposure in the fridge in a sealed black plastic bag
transport conditions	sealed plastic bag
environmental factors < 10%	wind: in the range of 0.5 – 2.2 m/s temperature: unknown relative humidity: unknown
cross sensitivites	none known
validation	within the accredited scope of ISO/IEC 17025 according to EN 13528[1]

References

[1] DIN EN 13528 1-3: Aussenluftqualität - Passivsammler zur Bestimmung der Konzentrationen von Gasen und Dämpfen; Anforderungen und Prüfverfahren, 2002.

[2] IPCS International Programme on Chemical Safety, Environmental Health Criteria 19; Zugriff 13.08.2025 https://www.inchem.org/documents/ehc/ehc/ehc019.htm