SKC UMEx 200 Passive Sampler

Single-use diffusive sampler for sulphur dioxide and nitrogen dioxide, at work and in ambient air

The UMEx 200 collects sulphur dioxide (SO_2) and nitrogen dioxide (NO_2) on tape treated with triethanolamine (TEA), the chemistry of active OSHA Method ID-182. It needs no pump. On a worker it samples for up to 8 hours, in an area for up to 24 hours. A laboratory analyses both gases on the same sampler.



15.2 mL/min	17.3 mL/min	15 min–24 h	10.9 g
Sampling rate, SO_2	Sampling rate, NO_2	Validated sampling time	Weight

Performance

Sampling medium	Tape treated with triethanolamine (TEA); same chemistry as active OSHA Method ID-182
Validation	SO_2 and NO_2 from 15 min to 24 h NO_2 validation range extended below the threshold limit value as a time-weighted average (TLV-TWA) 24-hour ambient sampling of NO_2 and SO_2, to complement the US EPA reference methods
Analysis	Solvent extraction and ion chromatography (IC) with conductivity detection; NO_2 and SO_2 on the same sampler
Interferences	None identified

Operating conditions

Temperature	No effect on the sampling rate SO_2: from 20 to 25 °C NO_2: from 22 to 40 °C
Humidity	No effect from 20 to 80 % relative humidity (RH)
Wind velocity	No effect from 5 to 100 cm/s
Storage	Before use: ambient temperature After use: ambient temperature or below 39.2 °F (4 °C); analyse within 3 weeks
Shelf life	Limited; check the expiry date on the package

Mechanical

Body	No glass and no liquid chemicals in the sampler
Cover	Yellow sliding cover with on (sampling) and off positions
Mounting	Collar clip for the breathing zone; stand or outdoor shelter for area sampling
Packaging	Individual aluminised pouch, also used to send the sampler to the laboratory
Size and weight	3.4 × 1.1 × 0.35 in (8.6 × 2.8 × 0.89 cm), 0.38 oz (10.9 g)
Use	Single use only; do not reuse

Sampling

Start	Take the sampler out of its pouch, record the sampling data and slide the cover to on
Place	Wear it for up to 8 hours, or place it in an area for up to 24 hours
Stop	Slide the cover to off, put the sampler back in its pouch at once and seal the pouch
Send	Send it to an accredited laboratory for analysis

Where SO_2 and NO_2 occur

SO_2 in industry	Intermediate in sulphuric acid manufacture; bleaching agent; disinfectant; fumigant Solvent; refrigerant; food preservative Reagent in the manufacture of magnesium, sodium sulphite and other chemicals
NO_2	Agricultural silos; arc or gas welding, especially in confined spaces Electroplating plants; food and textile bleaching; jewellery manufacturing Nitric acid, nitrogen fertiliser and nitro-explosive production; pickling plants
Other sources	Copper smelting; processing or burning coal or fuel oils Manufacture of paper and fertilisers

Sulphur dioxide and nitrogen dioxide data

Value	SO_2	NO_2
Sampling rate, mL/min	15.2	17.3
Relative standard deviation of the rate, %	16.5	11.5
Validated range (15 min–24 h), ppm	0.4–8	0.051–8.5
Lower detection limit, 15 min	1.8 ppm	200 ppb
Lower detection limit, 8 h, ppb	52	6.3
Lower detection limit, 24 h, ppb	17.4	2
Accuracy	±30 %	±27 %

Samplers

Order code	Description
500-200	UMEx 200 for SO_2 and/or NO_2, 10 per pack
500-200A	UMEx 200 for SO_2 and/or NO_2, 25 per pack

Order from Analyt-MTC with the order codes. The samplers have a limited shelf life.

Accessories

Stand for area sampling	690-302
Shelter for outdoor sampling	690-303

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