

ACTI-VOC™



The pocket-sized sampling pump for thermal desorption



Positioning statement

ACTI-VOC is a pocket-sized low-flow pump specifically designed for sampling VOCs onto thermal desorption (TD) tubes.

Being lightweight, powerful and easy-to-use, ACTI-VOC is ideal for personal monitoring and for a wide range of other air and gas sampling applications.

ACTI-VOC is particularly well-suited to TD applications because it automatically compensates for different impedances, ensuring constant flow rates whatever the sorbent packing.

ACTI-VOC kit

ACTI-VOC is supplied as complete kit for the TD user, containing:

- ACTI-VOC pump
- Tubing and adaptors providing push-fit connection to TD tubes
- CapLok™ tool to simplify tube capping
- Tool for flow adjustment
- Mains charger
- Adaptor for bag sampling
- Convenient carry-case, housing up to 10 tubes



Product highlights

- Optimised for sampling onto TD tubes
- Constant-flow sampling from 20–200 mL/min
- Constant-pressure sampling from 1–350 mL/min
- Simple screw-operated flow adjustment makes ACTI-VOC easy to calibrate
- Intrinsically safe (ATEX-approved) for use in workplace atmospheres
- Long battery life ensures stable performance for well over 8 hours
- Pocket-sized, lightweight and easy to use
- Cost-effective

Tube compatibility

The following types of tubes are easily attached to ACTI-VOC using the push-fit adaptor (supplied as part of the ACTI-VOC kit):

- Industry-standard TD sorbent tubes (3½" long × ¼" o.d.), including Markes' SafeLok™ tubes for the prevention of diffusive ingress while sampling
- Any other ¼" o.d. tube
- Any 6 mm o.d. tube (including standard DAAMS tubes)

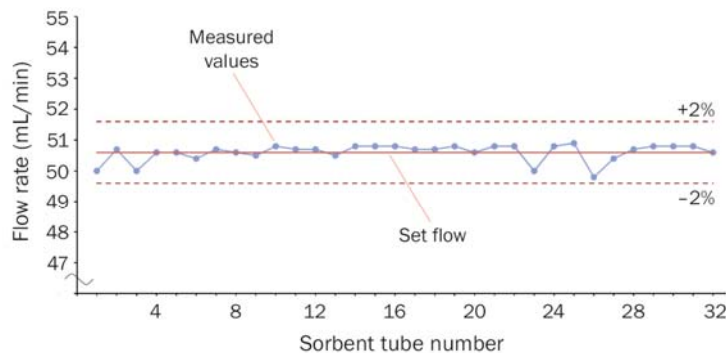
Key feature, advantage & benefit analysis

Feature	Advantage	Benefit
Constant flow from 20 to 200 mL/min	Outstandingly consistent flows from tube to tube	High-quality results, with no need to re-calibrate every tube
Pocket-sized and lightweight	Convenient to use and easy to carry around	Ideal for personal monitoring
Intrinsically safe (ATEX-approved)	Suitable for personal monitoring in explosive atmospheres	Peace of mind for sampling in hazardous situations
Runs for at least 8 hours on a single charge	Sufficient for sampling over long periods	Peace of mind for extended sampling
Powerful – maintains constant flow up to 25" water back-pressure	Suitable for a wide range of sorbent combinations	Suitable for sampling the widest possible range of analytes (C ₃ to C ₄₀)
Maintains charge in operation with MTS-32™	Draws power from the MTS-32 battery	Samples for much longer periods
Compatible with a wide range of sampling accessories (VOC-Mole™, FLEC cell, small chamber, etc.)	Suitable for numerous sampling situations	One pump serves all your VOC sampling requirements

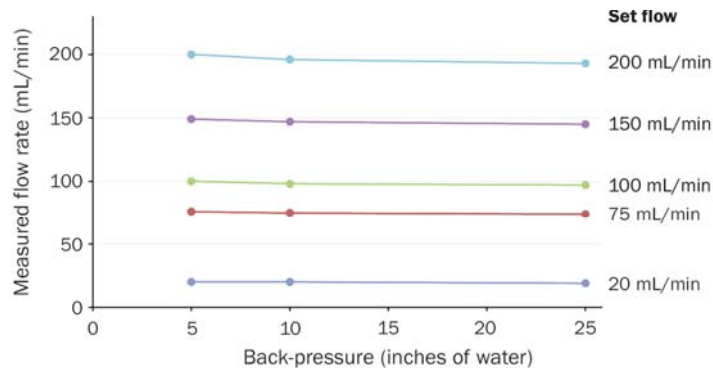
Field Performance

ACTI-VOC is the only constant-flow, personal monitoring pump with the strength and versatility to accommodate thermal desorption tubes. Its exceptional stability and performance across the full impedance range of thermal desorption tubes is shown in the attached flyer.

Whether your customers use standard Tenax® tubes or three-bed SafeLok™ tubes, ACTI-VOC will be the perfect pump for them.



ACTI-VOC shows consistent flow rates for a sequence of 32 sorbent tubes installed in Markes' MTS-32 multiple tube sampler.



ACTI-VOC shows consistent flow rates across different back-pressures, making it suitable for tubes with a variety of sorbent combinations.

Target market

ACTI-VOC is ideal for any user of thermal desorption who needs to carry out pumped ('active') monitoring of volatile organic chemicals onto TD tubes (or DNPH tubes for formaldehyde sampling*).

Target applications

- Personal monitoring – exposure to chemicals in the workplace
- Environmental monitoring
- Air quality monitoring – indoors and in vehicles
- Screening of contaminated land – e.g. sampling soil gas using Markes' VOC-Mole™

* Requires adaptor or flexible tubing.

Frequently asked questions

What are the benefits of pumped sampling?

Pumped sampling enables the use of tubes packed with multiple sorbent beds, which allows analytes over a wide volatility range to be sampled simultaneously. It also enables the use of Markes innovative SafeLok technology, which allows safe monitoring of chemicals that are very dangerous, and enhanced analysis of trace-level compounds.

Do I need to recalibrate when sampling on different tubes?

No – ACTI-VOC automatically compensates for different impedances, so once the flow rate has been set, the pump will provide repeatable flows to within 5% from tube to tube (even with different sorbents). [Note that some standard methods demand the calibration of each tube pump assembly individually.]

Is ACTI-VOC compatible with high-impedance tubes?

Yes – ACTI-VOC is powerful and outstandingly consistent, with flow rates of up to 200 mL/min through high-impedance tubes, e.g. those packed with three sorbent beds (up to 25" water back-pressure).

Do I need to buy a separate calibration device?

If you don't already have a calibrator, then you will need to purchase one. Markes recommends the digital flowmeter (part number C-FLMTR).

What advantages does ACTI-VOC offer over the FLEC pump?

- ACTI-VOC is about half the price of the FLEC pump and comes as a complete kit.
- ACTI-VOC offers the additional advantage over the FLEC pump of being ATEX-approved for use in workplace atmospheres.
- ACTI-VOC is more portable for personal and field monitoring than the FLEC pump.
- The FLEC pump uses a single-point internal calibration over a relatively small flow range. In contrast, ACTI-VOC uses an external flowmeter to set and calibrate the flow over a much wider flow range.

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The pocket-sized sampling pump for thermal desorption

ACTI-VOC is a robust low-flow pump for sampling vapour-phase organic compounds (VOCs) onto sorbent tubes for subsequent analysis by thermal desorption (TD).

Being lightweight, easy-to-use and intrinsically safe, ACTI-VOC is ideal for personal monitoring and a wide range of other air and gas sampling applications.

Unlike other personal monitoring pumps on the market, ACTI-VOC is optimised for sampling onto TD tubes, and automatically compensates for different impedances, ensuring constant flow rates whatever the sorbent packing.



Product highlights

- Optimised for sampling onto TD tubes.
- Constant-flow sampling from 20–200 mL/min.
- Constant-pressure sampling from 1–350 mL/min.
- Simple screw-operated flow adjustment makes ACTI-VOC easy to calibrate.
- Intrinsically safe (ATEX-approved).
- Long battery life ensures stable performance for over 8 hours.
- Pocket-sized, lightweight and easy to use.

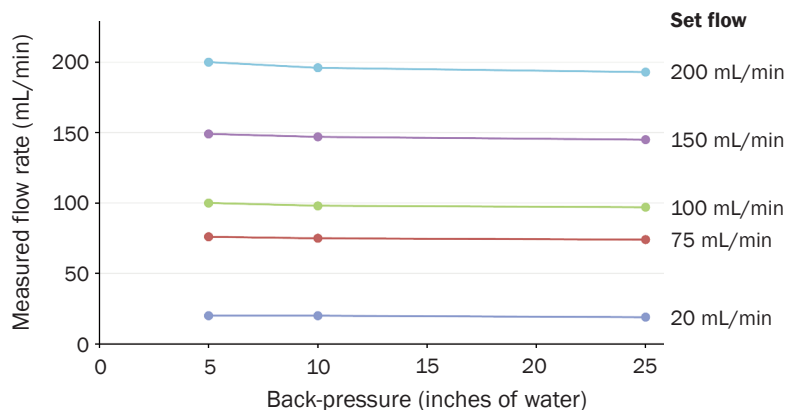
The power of pumped sampling

Pumping of air onto sorbent tubes is one of the most versatile methods for sampling VOCs. Precise volumes of air from 20 mL to several hundred litres can be drawn through the tubes, allowing analytes over a wide concentration range to be sampled and analysed – reliably and quantitatively.

Using ACTI-VOC in combination with multi-sorbent tubes also allows the full power and versatility of TD to be realised. The vapour fraction of analytes ranging in volatility from C₃ to n-C₄₀ can all be sampled and then analysed simultaneously.

Dependable performance

ACTI-VOC provides outstandingly consistent flow-rates across a wide range of flows and TD tube types.



ACTI-VOC shows consistent flow rates across different back-pressures, making it suitable for tubes with a variety of sorbent combinations.

ACTI-VOC – The perfect pump for thermal desorption from the TD experts at Markes

No need to calibrate every tube

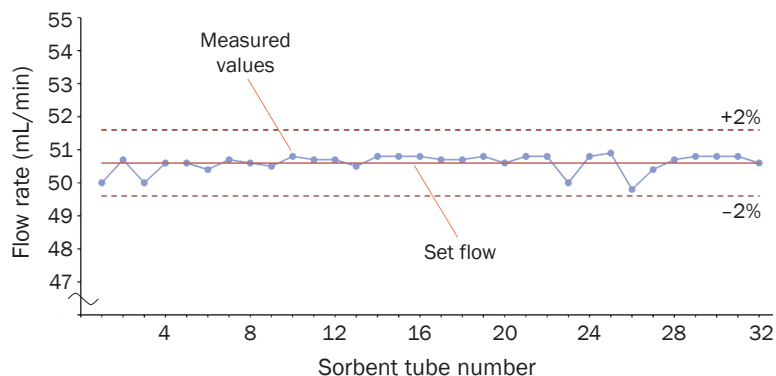
ACTI-VOC shows exceptional repeatability, meaning that you don't have to calibrate the pump for every tube. As well as saving time and effort, this makes it ideal for use in Markes' MTS-32™ multiple tube sampler.

Tubes, bags and more...

ACTI-VOC is compatible with sampling into *any* thermal desorption tube, up to a maximum flow of 350 mL/min.

ACTI-VOC can also be used to sample air or gas into Tedlar® bags, and works perfectly with Markes' SafeLok™ tubes. These tubes harness Markes' patented diffusion-locking technology to prevent diffusive ingress, both when sampling at low flow rates, and during tube storage or transport. SafeLok tubes improve both routine and trace-level air monitoring applications.

To order ACTI-VOC, talk to our technical specialists by calling us on +44 (0)1443 230935, or email enquiries@markes.com.



ACTI-VOC shows consistent flow rates for a sequence of 32 sorbent tubes installed in Markes' MTS-32 multiple tube sampler.

Each ACTI-VOC kit contains:

- Tubing and adaptors providing push-fit connections to TD tubes, guaranteeing constant-flow operation
- CapLok™ tool to simplify tube capping
- Tool for flow adjustment
- Mains charger
- Adaptor for bag sampling
- Convenient carry-case.



Markes supplies a wide range of stainless steel and glass tubes for pumped sampling, with innovations such as SafeLok technology, and barcoding and RFID tagging for easy tube tracking. Our TD experts are also happy to advise on all your VOC sampling and analytical queries.

Technical specification

Part number

C-LFP-01 (C-LFP-05 for a pack of five kits)

Flow range

- Constant-flow mode: 20–200 mL/min
- Constant-pressure mode: 1–350 mL/min

Note: External pump flow calibration requires a digital flowmeter or primary standard low-flow calibrator.

Flow control

±5% of set point or ±3 mL/min, whichever is greater

Operating conditions

- Temperature: –20°C to 45°C
- Relative humidity: 0–85%

Electrical rating

- Battery: Rechargeable NiMH
- Run time: 8 hour minimum
- Charging time: 14–18 h
- Output: 4.8 V, 720 mA h

Sorbent tube compatibility

- Industry-standard tubes (3½" × ¼" o.d.)
- Any 6 mm o.d. tube (including standard DAAMS tubes)

Dimensions

- Width: 6.4 cm (2.50")
- Height: 3.5 cm (1.38")
- Length: 11.8 cm (4.63")

Weight

340 g (12 oz)

Additional features

- Digital clock indicating elapsed sampling time
- Flow fault indication
- LED battery check
- Belt clip
- Dual filtration system
- External flow adjust
- Automatic instant-fault shutdown

