MARKES international

# TC-20 and TC-20 TAG

## Multi-tube conditioners for enhancing productivity of TD–GC laboratories


THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2015

# TC-20™ and TC-20 TAG™

**The TC-20 and TC-20 TAG are compact, stand-alone devices for the off-line simultaneous conditioning or dry-purging of up to 20 thermal desorption sorbent tubes.**

### The benefits of off-line sorbent tube conditioning:

- Enhance laboratory productivity by freeing up your TD–GC–MS system to run samples.
- Improve efficiency by processing multiple tubes simultaneously.
- Lower operating costs by allowing dry nitrogen to replace more expensive helium gas.
- Free up bench space thanks to their minimal footprint.

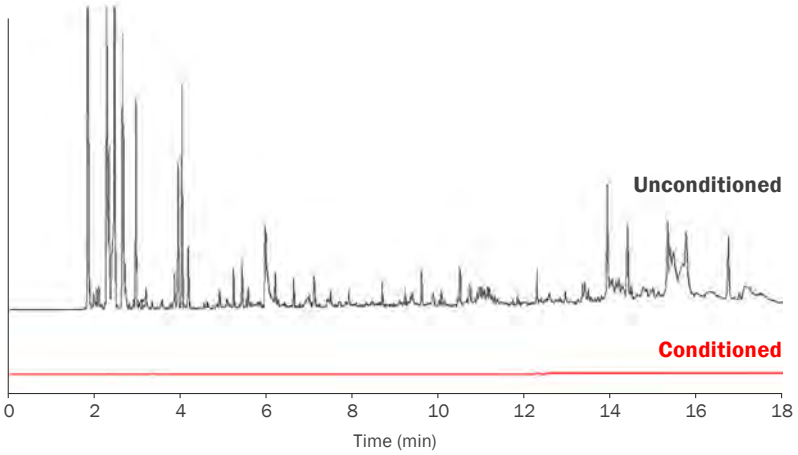
### Tube dry-purging

As well as tube conditioning, the TC-20 and TC-20 TAG also allow batches of up to 20 tubes to be simultaneously dry-purged. This process, which removes excess water collected onto tubes during sampling, is important when hydrophilic sorbents have been used, and helps extend detector and GC column lifetimes by avoiding the adverse effects of water in the analytical system.

### Tube cooling

A dedicated cooling rack on the TC-20 maintains the tubes under a continuous flow of inert gas. The TC-20 TAG also improves tube throughput, by allowing a second batch of 20 tubes to be conditioned while the first batch is cooling.

**The effectiveness of tube conditioning using the TC-20** is illustrated by this pair of GC–MS chromatograms showing the VOC profiles of a stainless steel sorbent tube packed with Tenax® TA, before and after conditioning for 2 hours at 320°C.





**The TC-20 uses a flow of clean nitrogen** to condition or dry-purge up to 20 industry-standard stainless steel, inert-coated or glass sorbent tubes at temperatures up to 400°C.

### The need for sorbent tube conditioning

Sorbent tubes require rigorous conditioning whenever they are:

- Freshly packed with sorbent.
- Stored without being properly capped using long-term storage caps.
- Heavily contaminated during sampling.
- Required for trace-level monitoring.

Advice on conditioning parameters can be found in Application Note 005, and is also supplied with all pre-packed tubes from Markes.

### What are TubeTAGs?

Markes' TubeTAGs are read/write radio-frequency identification tags that can remain in place when conditioning using the TC-20 TAG. They allow information to be associated with a tube for its whole lifetime, enhancing traceability and reducing transcription errors.

For more information, see the TubeTAG brochure.


The **TC-20 TAG** allows industry-standard single-bed tubes fitted with Markes' RFID TubeTAGs to be conditioned or dry-purged, avoiding the need to remove the tags beforehand.

## Major time and money savings for busy laboratories

### Laboratory with TC-20 or TC-20 TAG

Simultaneous conditioning of 20 tubes using TC-20 or TC-20 TAG (Using a 1-hour method) × 8 hours (Typical working day)

= **Up to 160 tubes conditioned**

+

40 minutes (average TD–GC–MS analysis time) × 24 hours

= **36 samples**

**TOTAL** 160 tubes conditioned + 36 samples analysed

**Laboratory revenue** 36 samples × $100 (average revenue per analysis)

= **$3600**

### Laboratory without TC-20 or TC-20 TAG

Conditioning of single tubes using TD–GC–MS (Using a 1-hour method) × 24 hours (Available time on automated TD–GC–MS system)

= **Up to 24 tubes conditioned**

+

*NO ANALYSIS*

= **0 samples**

**TOTAL** 24 tubes conditioned

**Laboratory revenue** 0 samples

= **$0**

## The conclusion?

Markes' tube conditioners save you time and money, by releasing your TD–GC–MS instrument to run more analytical samples and increasing your laboratory's revenue.

As a result, a **TC-20 or TC-20 TAG could pay for itself in as little as 3–4 weeks...** or even faster for laboratories with large sample throughputs.

# Markes International – The TD experts

## World-leading instruments and unmatched expertise in VOC and SVOC monitoring

Markes International has for 20 years been at the forefront of innovation for enhancing the measurement of trace-level VOCs and SVOCs by thermal desorption–gas chromatography. Our suite of instruments for thermal desorption sets the benchmark for quality and reliability:

**TD100-xr™**
High-throughput 100-tube automated thermal desorber.

**UNITY-xr™**
Single-tube thermal desorber featuring sample re-collection of all split flows.

**UNITY–Air Server-xr™**
Versatile on-line VOC monitoring system.

**ULTRA-xr™**
High-throughput 100-tube autosampler for UNITY-xr.

**CIA *Advantage*™**
Cryogen-free automated canister autosampler and pre-concentrator.

**TT24-7™**
Twin-trap instrument for near-real-time on-line monitoring.

**Micro-Chamber/Thermal Extractor™**
Unique sampling device for emissions of VOCs and SVOCs from products and materials.





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