

# $\mu$ -CTE™ Chamber Calibration Tool



## Instruction for use

**PRODUCT REFERENCE:**

$\mu$ -CTE Chamber Calibration Tool

M-CHCT-250



## 1. Introduction

The  $\mu$ -CTE chamber calibration tool (part no. M-CHCT-250) enables the performance and reproducibility of the individual sampling chambers of the micro-chamber/thermal extractor™ ( $\mu$ -CTE™) to be compared, both on one system and between systems.

## 2. Components

The tool is designed for use with the  $\mu$ -CTE-250™ (part nos. M-CTE250I and M-CTE250TI). It comprises three components:

- Four PTFE sample blocks, each with three wells.
- One block lifting handle.
- Four inert-coated blanking screws.



*The components of the  $\mu$ -CTE chamber calibration tool.*

The following tool is also required, but not supplied with the  $\mu$ -CTE chamber calibration tool.

- A crosshead screwdriver, to insert and remove the inert-coated blanking screws.

## 3. Preparation

### 3.1 Cleaning

Shortly before use, the components of the calibration tool must be cleaned and dried.

Recommended procedure:

- [1] Wipe down the PTFE sample block(s), blanking screw(s) and lifting handle with methanol and a lint-free cloth.
- [2] Leave to air-dry.

If the tool is not being used immediately, store in a clean environment.

### 3.2 Conditioning

Once cleaned, the sample block(s) should be conditioned, as follows:

- [1] Remove one of the sampling pots from the  $\mu$ -CTE.
- [2] Lower the sample block into the sampling pot and place it back in the  $\mu$ -CTE.

**NOTES** The blocks are designed to be a tight fit, and a little force may be required to seat them in a sampling pot. After the first use, this should be significantly easier.

- [3] Insert the blanking screw into the middle hole of the sample block.
- [4] Tighten the blanking screw using a crosshead screwdriver, then close the corresponding lid of the  $\mu$ -CTE.
- [5] Condition the calibration tool for 30 min at 150°C, followed by cooling for 45 min. The flow of carrier gas should be clean (e.g. oxygen-free nitrogen or helium of 5N grade, ideally with a hydrocarbon filter in the gas line), and set to 100 mL/min.

**NOTES** The maximum operating temperature of the PTFE sample blocks is 210°C.

- [6] Allow the system to cool to ambient temperature.

### 3.3 Equilibration

After conditioning, the calibration tool should be equilibrated for 1 hour under the conditions (flow rate, temperature, relative humidity etc.) intended for real samples.

## 4. Injection of standard

After equilibration, the standard should be injected, as follows:

- [1] Attach sorbent tube(s) to the chamber outlet(s).
- [2] Using a syringe (or pipette), inject the standard mix into each of the three sample block wells. A typical volume is a few  $\mu$ L.

**NOTES** When adding the standard, ensure that the tip of the syringe (or pipette) touches the base of the well, and that no standard is left on the syringe needle.

- [3] Close each chamber lid before moving to the next.
- [4] Carry out the sampling and TD-GC-MS procedures in the same way as for real samples.



Step [2]: Standard injection.

## 5. Tool removal and storage

After the sampling procedure is complete, the calibration tool should be removed and stored, as follows:

- [1] Allow the system to cool to room temperature.
- [2] Remove the blanking screw and insert the block lifting handle.
- [3] Gently pull the block out.
- [4] Clean the tool components.
- [5] Store the tool components in a clean, dry environment.



*Step [3]: Removal of sample block.*

**CAUTION** Do not handle the block while it is still hot.

## 6. Contact details

For technical support, please contact your supplier in the first instance. If they are unable to resolve your query, please contact Markes International's service department:

**E:** support@markes.com  
**T:** +44 (0)1443 230935  
**W:** www.markes.com

For an instructional product video, please visit:  
[chem.markes.com/Calibration](http://chem.markes.com/Calibration)



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