Customer Support Note

Disclaimer: It is vital that this Customer Support Note is read carefully before proceeding and that any instructions contained within the document are followed closely. Markes International will not accept responsibility for any damage done to instrumentation or personnel if any instructions within this document are not followed exactly. Any ongoing warranty or contract may be voided if failure to follow these instructions results in damage to the instrumentation. If anything is unclear, you must clarify the details with a Markes representative before proceeding.

Note 010 – Cleaning DiffLok Caps

DiffLok caps use Markes patented diffusion-limiting technology to preserve sample integrity by preventing analyte loss and artefact ingress. They are used on both ends of the sorbent tubes during desorption in an autosampler and can become contaminated over time and use. Therefore it is important to inspect the DiffLok caps occasionally and clean them if required.

Figure 1: DiffLok caps

1. DiffLok Cap Inspection

- Is the protective gauze still present and intact?
    - If the gauze is missing or damaged then we recommend that the cap is replaced. Please contact enquiries@markes.com
- Are there particles of sorbent visible on the protective gauze or o-ring?
    - These particles can cause leaks to occur and lead to carryover of heavier compounds as the caps aren't heated to temperatures as high as the sorbent tubes.
    - Smaller particles of sorbent may also have entered the narrow 'diffusion-locking' section of the caps. If this is the case attempt to clean the caps first, if this is unsuccessful then the caps will need to be replaced (see Figure 2)

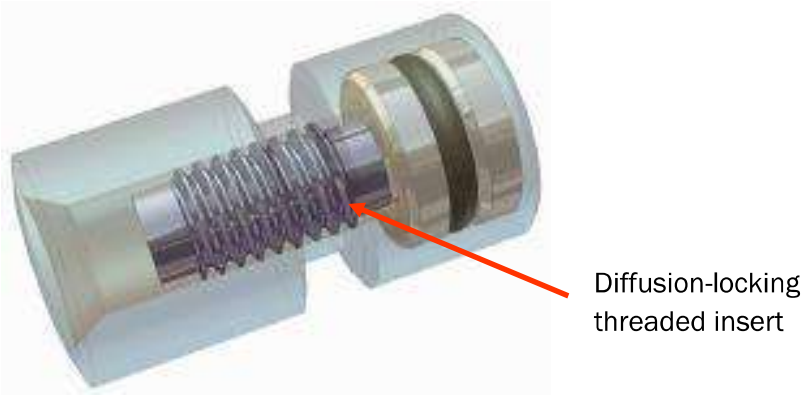

Figure 2: Cross sectional diagram of DiffLok cap

2. DiffLok Cap Contamination Test

- Affix the cap to an empty or blank tube and run a thermal cycle – consider the maximum temperature of the sorbent tube, if the tube is empty use 330˚C.
- Use the tube conditioning mode in the TD software to run the tube. Select flows of 50ml/min and a desorption time of 1 hour
- Once this has been completed run the tube using your regular analytical method to see if the caps themselves are clean
- If contamination is seen in the results, follow the cap cleaning procedure below

3. DiffLok Cap Cleaning Procedure

- Remove the size 010 o-ring using the o-ring removal tool supplied with the instrument as shown in the images below:

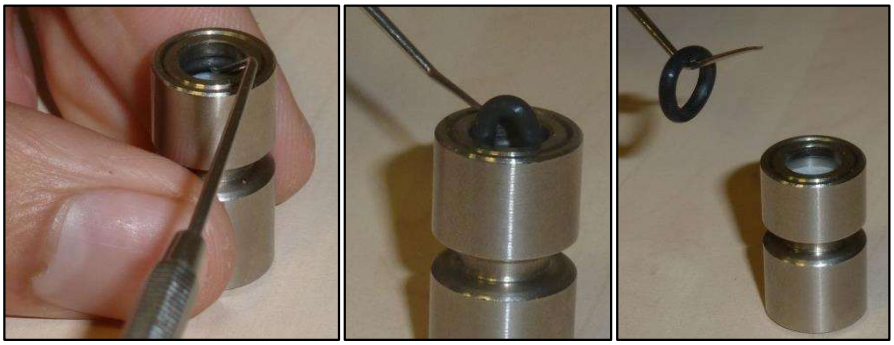

Figure 3: How to remove o-ring from DiffLok cap

- Solids can be removed with a soft nylon bristle brush, using light pressure.

Do not steam clean inert coated surfaces; this can damage the layer.

Once the o-ring has been removed:

- Place the cap in the VAC oven at 150˚C for 10 minutes
- Cool the oven to 40˚C and remove the cap once it has cooled

- Fit new size 010 o-rings in the DiffLok caps using the o-ring insertion tool supplied with the instrument
- If a VAC oven is not available the best conditioning process would be to perform on a TD instrument (with an empty tube) to ensure an active flow.

On completion of this procedure, repeat the steps listed in point 2 to test for contamination.

If the caps still show some contamination then they will need to be replaced. Please contact enquiries@markes.com for a quote.

For all technical support queries, please contact Markes International.
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