FM 24816

TIPS ON THE USE OF ANY SORBENT TUBE

FLOW RATES

Tube Size	Maximum Flow Rate	Typical Flow Rate
6 x 70mm	500 ml/min	10-100 ml/min
6 x 110mm	500 ml/min	20-100 ml/min
8 x 110mm	1000 ml/min	20-200 ml/min

PREPARATION

1. When breaking the ends of a tube ready for use ensure a minimum hole diameter of 2mm or half the diameter of the tube body.
2. Never calibrate or fit tubes ready for use in an area where chemicals may be present.
3. Uptake of spurious chemicals can occur before a sample is taken if the above is not observed.
4. After breaking ends of the tube to be used and fitting into tube holder always cap the exposed (sampling) end until ready to take the sample. NOTE: only **lightly** press red end cap onto tube for temporary use. If the caps are pushed fully home they will require cutting off.
5. Make sure clothing is free from contamination when preparing tubes. A commonly overlooked cause of pre-sample uptake is a lab coat which has been contaminated on the front, sleeves and cuffs from previous operations.
6. Some tubes are specially treated for specific analytes, while others are more general. If in doubt about suitability please ask for advice **before** sampling.

SAMPLING

1. For occupational hygiene and environmental applications **always use a tube in a vertical position**. This prevents the possibility of channelling which can lead to under sampling.
2. The arrow printed on the glass tube indicates the air flow direction and should point toward the tube holder. If no arrow is present the smallest sorbent section should be nearest the tube holder.
3. After sampling, immediately cap both ends of tube with red plastic caps supplied. Press fully home to ensure good seal.
4. Tubes should be analysed at the earliest opportunity after sample has been taken.
5. Tubes can be used in series.
6. If high moisture is present use a trap tube before sorbent tube.
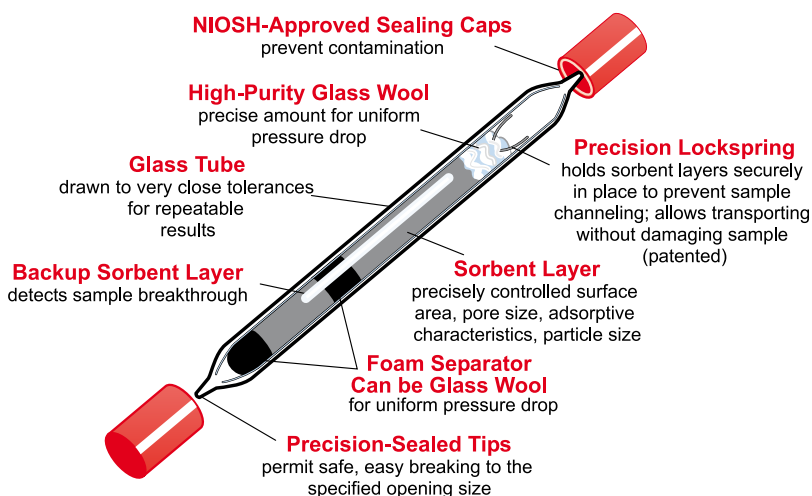7. High temperature/moisture can affect adsorption characteristics.

STORAGE

1. Never store used tubes in an area where there may be chemicals present, especially chemicals of the same type or family you have sampled for. **This also applies when the end caps are in place on a used tube.**
2. If storing for more than a few hours place tubes in a refrigerator at 0°C. Exposed tubes can be left in this situation for up to 1 week. Longer storage times are possible but depends on the analyte sampled. Please call for advice.
3. When storing always store a 'blank' in the same way. Analyse blank first to confirm no contamination has taken place during storage. A 'blank' is defined as a tube with ends broken off, but capped.
4. When sending tubes through the post to a laboratory it is better to enclose them in a container such as a CLEAN plastic bottle. ALWAYS include one tube from the same batch unbroken and a tube with both ends broken off, capped but not exposed as a sample.

ANALYSIS

1. Always analyse at the earliest opportunity if possible.
2. When analysing on a GCMS use only tubes with glass wool separators. With GCMS analysis all handling procedures must be tightly adhered to and blanks are essential.
3. Tubes normally have two sections. When analysing, test both sections independently. If the smaller (backup) section contains more than 25% of the amount of analyte that is present on the main section (larger) breakthrough has taken place and a result of greater than the sum of both sections is the only conclusion that can be taken. If the backup section has less than 25% of the main section the addition of the amounts on both sections gives a valid result in units e.g 10 microgramms.
4. Make sure ALL the sorbent is removed from the tube using a charcoal pick if necessary. Some man made sorbents have a tendency to stick to the inside of the glass tube.

NIOSH-Approved Sealing Caps
prevent contamination

High-Purity Glass Wool
precise amount for uniform
pressure drop

Glass Tube
drawn to very close tolerances
for repeatable
results

Precision Lockspring
holds sorbent layers securely
in place to prevent sample
channeling; allows transporting
without damaging sample
(patented)

Backup Sorbent Layer
detects sample breakthrough

Sorbent Layer
precisely controlled surface
area, pore size, adsorptive
characteristics, particle size

**Foam Separator
Can be Glass Wool**
for uniform pressure drop

Precision-Sealed Tips
permit safe, easy breaking to the
specified opening size

MINIMUM 2 MM DIAMETER HOLE
WHEN TUBE END BROKEN OFF