

TC-20™

Multi-tube conditioner and dry-purge unit

The TC-20 is a compact, stand-alone device for the **simultaneous conditioning** of up to 20 industry-standard (3½" × ¼" o.d.) thermal desorption sorbent tubes.

The TC-20 is ideal for analysts who use thermal desorption-GC(MS), and wish to improve their laboratory's productivity by avoiding using valuable instrument time for conditioning sorbent tubes.

Although thermal desorption instruments can condition sorbent tubes prior to use, they can only do so sequentially. This means that conditioning multiple tubes can take up a significant amount of time that could otherwise be used for analytical work. As a dedicated sorbent tube conditioner, the TC-20 frees up your TD-GC(MS) instrument, and also enhances productivity by processing up to 20 tubes simultaneously. The TC-20 has the additional benefit of lowering operating costs by allowing helium gas to be replaced with less expensive dry nitrogen.



Product highlights

- Up to 20 tubes can be conditioned simultaneously. Using a TD-GC(MS) system to condition 20 tubes could take 50 hours, whereas it would take just 2½ hours using the TC-20.
- Uses nitrogen rather than expensive helium.
- Eliminates potential for analytical instrument contamination.
- Uses a high-capacity charcoal filter to collect tube effluent and prevent contamination of laboratory air.
- Purges excess water trapped during sampling – stops water interfering with the sample analysis.
- Each tube connection point is designed to ensure carrier gas flow through an attached tube, even if not all of the tube connection points are used.

Sorbent tube conditioning using the TC-20

Up to 20 sorbent tubes can be placed into the gas manifold block, which is lowered inside the oven unit and locked into position.

The temperature controller is settable up to 400°C in 1°C increments, and the timer can be set up to 99 hours and 59 minutes in 1-minute increments.

Dry-purging using the TC-20

The TC-20 can also be used to remove excess water from sorbent tubes – particularly important when hydrophilic sorbents have been used. Dry-purging eliminates the adverse effects water would otherwise have on the detector (mass spectrometer, electron capture or flame ionisation detectors). It also helps extend GC column lifetimes.

After sampling, tubes are inserted into a gas manifold block sampling end-first. Clean, dry carrier gas is then passed through the tubes in the sampling direction. The flow rate and time is controlled by the gauges at the front of the instrument.

When should sorbent tubes be conditioned?

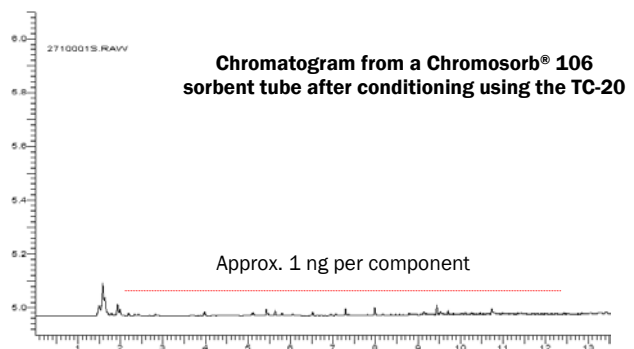
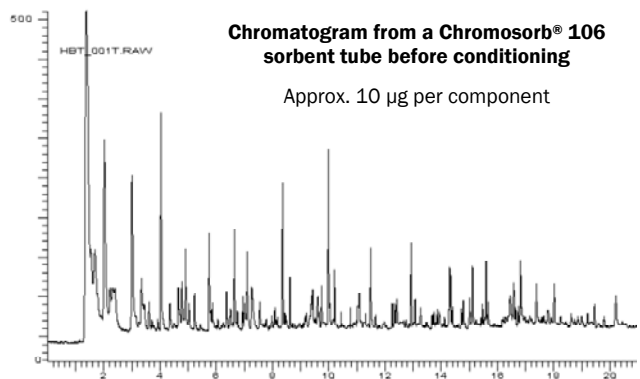
Sorbent tubes require conditioning whenever:

- freshly packed with sorbent
- stored for more than 48 hours without adequate storage caps
- heavily contaminated during a sampling procedure
- required for trace-level monitoring.

The rigour of the conditioning procedure will depend to a certain extent on the type of monitoring for which the tube will be used. For example, sorbent tubes used for monitoring occupational exposure (e.g. several hundred micrograms on-tube) will require less stringent cleaning than tubes used for trace-level monitoring of ambient air.

Typically, a laboratory will have a set of protocols that dictate the acceptable level of artefacts for a given application – for example, not allowing an individual artefact component to exceed 10% of any of the target analytes, or more than 10 ng toluene equivalents.

Although the precise conditions of temperature, carrier gas flow and time will vary depending on the nature of the work and the particular sorbent used, tubes should usually be conditioned for at least as long as their standard desorption time, using (where possible) higher temperatures and gas flows. Freshly packed tubes should be conditioned for much longer than this – typically at least 2 hours.



Technical specification

Sorbent tube capacity

20

Temperature range

50–400 °C in increments of 1 °C

Time range

1 min to 99 h 59 min

Carrier gas pressure range (He/N₂)

0–60 psi

Carrier gas purity

5N recommended

Dimensions and mass

- Height: 25 cm (9.8")
28.5 cm (11.2") (with gas manifold block)
- Width: 12 cm (4.7")
- Depth: 50 cm (19.7")
- Mass: 7.4 kg (16.3 lb)

Electrical ratings

- Voltage: 110 V / 230 V
- Frequency: 50 Hz / 60 Hz
- Maximum power: 270 W

Ambient environment operating conditions

- Temperature: 15–30 °C
- Humidity: 5–95% non-condensing

Safety standard compliance

- CE marked
- Designed and manufactured under a quality system registered to ISO 9001