User Guide

Agilent

Trusted Answers

Agilent Thermal Desorption (TD) Tubes

Product Overview

Thermal desorption sorbent tubes are widely used time-integrated sampling devices designed to collect and concentrate volatile and semivolatile organic compounds (VOCs and SVOCs) through either active sampling (using a pump) or passive diffusive sampling. These tubes are packed with one or more sorbent beds, carefully selected to trap a range of analytes based on their volatility and chemical properties.

Agilent thermal desorption (TD) tubes are available with Agilent's proprietary UltiMetal inert coating, which prevents surface adsorption and minimizes compound degradation prior to analysis.

Compatibility

Agilent thermal desorption tubes, measuring 3.5" × 0.25" (od), are industry-standard and fully compatible with leading TD systems, including the Markes TD100-xr and UNITY-xr platforms, as well as competing models from PerkinElmer, Shimadzu, DANI, CDS, and Gerstel.

Lifetime

Sorbent tubes may withstand up to 100 thermal cycles, including both desorption and conditioning, before replacement. Actual lifespan can vary depending on the sampling environment, analyte characteristics, and storage conditions. Regular performance checks are recommended to ensure tube integrity and analytical reliability.

Conditioning

To maintain optimal performance, tubes should be reconditioned between sampling intervals using the standard procedure outlined below. Use a clean carrier gas such as oxygen-free nitrogen or 5.0-grade helium at a flow rate of 50 to 100 mL/min. For tubes that are heavily contaminated or have been left uncapped for a week or more, follow the enhanced reconditioning protocol.

To minimize artifacts and extend sorbent life, Agilent recommends desorbing at a temperature below the tube's maximum operating limit. Conditioning should be performed at a temperature higher than the method desorption temperature, while remaining within the specified maximum operating range.

Agilent Thermal Desorption (TD) Tubes Conditioning Instructions

Product Number	Type	Temperature		Reconditioning Instructions	
		Desorption	Maximum	Standard	Enhanced
5190-1100 5190-1110	Empty	--	--	--	--
Single Sorbent Thermal Desorption (TD) Tubes, Porous Polymers					
5190-1102 5190-1112	Tenax TA	280 to 300 °C	350 °C	30 minutes at 335 °C	Step 1: 2 hours at 320 °C Step 2: 30 minutes at 335 °C
Single Sorbent Thermal Desorption (TD) Tubes, Graphitized Carbon Blacks					
5190-1103 5190-5113	Carbograph 1TD	350 °C	400 °C	30 minutes at 380 °C	Step 1: 2 hours at 350 °C Step 2: 4 hours at 380 °C
5190-1104 5190-5114	Carbograph 5TD				
5190-1105 5190-1115	Carbopack X				
Multi Sorbent, Application-Specific Thermal Desorption (TD) Tubes					
5190-1132	Hydrophobic	280 to 300 °C	350 °C	30 minutes at 335 °C	Step 1: 2 hours at 320 °C Step 2: 4 hours at 335 °C
5190-1134	Material Emissions				
5190-1136	PAH				
5190-1137	PFAS				
5190-1131	Universal	280 to 300 °C	350 °C	Step 1: 15 minutes at 100 °C Step 2: 15 minutes at 200 °C Step 3: 15 minutes at 300 °C Step 4: 15 minutes at 335 °C	Step 1: 1 hour at 100 °C Step 2: 1 hour at 200 °C Step 3: 1 hour at 300 °C Step 4: 1 hour at 335 °C
5190-1135	Odor/Sulfur				
5190-1133	Air Toxics	350 °C	400 °C	Step 1: 15 minutes at 100 °C Step 2: 15 minutes at 200 °C Step 3: 15 minutes at 300 °C Step 4: 15 minutes at 380 °C	Step 1: 1 hour at 100 °C Step 2: 1 hour at 200 °C Step 3: 1 hour at 300 °C Step 4: 1 hour at 380 °C

For multisorbent tubes, the conditioning and operating temperature conditions are determined by the least thermally stable sorbent.

For efficient offline conditioning, Agilent recommends using a TC-20 multi-tube conditioner and dry-purge unit (G8133A) fitted with a large-capacity, universal trap (RMSH-2).

Storage

Tubes should be capped whenever they are not in use to prevent the ingress of contaminants. For short-term storage (less than one week) or immediate transfer to the analytical system, press-fit DiffLok caps (MKI-MTD-1169 on non-sampling end and MKI-MTD-1204 on the sampling end) are suitable. For longer-term storage or transport to and from the sampling site, brass compression fittings (C-CF020) are preferred.

Fittings and O-rings should be inspected routinely and replaced as needed to prevent cross-contamination and ensure that a suitable seal is maintained.

For trace-level analyses (low-ppb or ppt), running blank desorptions before sampling is recommended to confirm background levels.

For additional information, please contact Agilent Technical Support or your local sales representative.

Product Safety Data Sheets are available at Agilent.com

www.agilent.com

DE-010513

This information is subject to change without notice.

Printed in the USA, October 23, 2025
5994-8703EN

Agilent
Trusted Answers