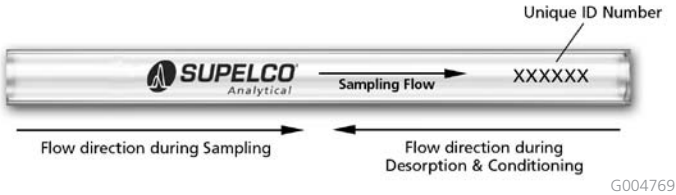
This Data Sheet Contains Important Information About The Product.

Glass Thermal Desorption Tubes
¼" (6.35 mm) O.D. x 3.5" (89 mm) Long



These tubes are designed to function with the following brands of thermal desorption instruments: DANI, Markes, and Shimadzu. Each tube is etched with a unique number for sample identification.

Single Bed Tubes

Sampling Tube	Adsorbents (mesh size)	Cat. No.
Tenax®-TA	Tenax TA 60/80	28715-U

Multibed Tubes

Sampling Tube	Adsorbents (mesh size)	Cat. No.
Tenax-TA & Carboxen™-1018	Tenax TA 60/80 Carboxen-1018 60/80	28718-U

Custom Packing _____

Tube Storage

These reusable sampling tubes contain high purity adsorbents that have been thermally conditioned and are ready-to-use. However, if the tubes have been in storage for an extended period of time, re-conditioning prior to use is recommended. To prevent contamination do not remove the storage caps before use. After sampling, reinstall the storage caps and store at a reduced temperature (4 °C) if they're not analyzed immediately.

Conditioning

To condition the tubes, use the thermal desorber if it has a conditioning option, or use a tube conditioner. Position the tubes so the gas enters the sampling outlet and exits through the sampling inlet (opposite of the arrow on the tubes). Heat the tubes to approximately 10-15 °C above the desired desorption temperature. Do not exceed the maximum temperature for the least stable adsorbent in the tube listed in Table 1. During heating use high-purity, moisture-free, helium, or nitrogen at a flow rate of 30-100 mL/min. Conditioning the tubes for 30 minutes to 1-hour is usually sufficient for most applications.

Reconditioning

After analysis, the tubes should be re-conditioned for future use. Follow the steps listed above. Re-seal the conditioned tubes in the storage caps provided.

Sample Collection

Collect the sample in the direction of the arrow on the tube. Typical sampling rates are 10 to 100 mL/min. Typical sample volume range from 0.25 to 10 Liters.

Desorption

Desorb the tube in the opposite direction of the sample collection flow. A desorption time of 5 to 10 minutes is sufficient for most applications. See Table 1 for the recommended desorption temperature. Rapid heating of the adsorbent tube is preferred to heating the tube at slow rate.

Storage Caps

The brass Swagelok® storage caps seal with a replaceable PTFE ferrule. To prevent damage to the tubes, do not over-tighten the storage caps. Caps should be tighten by hand, and then tighten ½ to ¾ turn using a wrench. Caps and ferrules can be re-conditioned by placing them in a convection oven at a maximum temperature of 100 °C for 1 to 3 hours.

29024-U Replacement ferrules 1/4" PTFE Ferrules pk/10

Optional Storage Containers

The TDS³™, **T**hermal **D**esorption **T**ube **S**torage and **S**ampling **S**ystem is an alternative to the brass storage caps. The TDS³ system eliminates internal dead volume, minimizes the risk of contamination from outside sources, and protects the tube from damage. The storage caps seal with a replaceable PTFE-faced septa, eliminating the need for extensive cleaning or thermal conditioning of the container between uses. Optional sampling caps are available to convert the storage container into a device for taking samples, connecting tubes in series, and attaching the tube to a sampling pump.

25097-U TDS³ Storage Container for 89 mm tubes
25073 Replacement Septa, pk. 50
25069 Sample Cap Set w/washers for TDS³

Empty Tubes

Empty tubes are available for packing other adsorbents, or sample prep applications.

28174-U Empty Glass Tubes (pk. 10)
23393-U Tension Springs (pk. 100)
20384 Glass Wool (non-treated 50 grams)

Table 1

Sample Tube	Approximate Sampling Range	Conditioning Temperature	Desorption Temperature Range	Maximum Temperature
Tenax TA	n-C7 to n-C26	320 °C	200 to 300 °C	350 °C
Carboxen-1018	n-C2 to n-C5	350 °C	200 to 330 °C	400 °C