







How Thermal Desorption Works

Sampling

Thermal desorption is really a constellation of techniques that are used to extract and concentrate volatiles from a complex matrix prior to GC or GC/MS analysis. For gaseous samples such as air, one of the most convenient approaches is to draw a known volume through a thermal desorption tube that is packed with one or more adsorbents. Alternatively, air can be drawn into a clean evacuated canister. Other sample types (e.g., polymers, food, packaging, etc.) can be placed directly into a thermal desorption tube or larger container.

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	<p>Evacuated Summa canisters are used to collect gas samples such as air, process streams, stack gas, landfill gas, etc. Canisters required for most CFCs and C2 hydrocarbons.</p>
	<p>Stainless steel or glass thermal desorption tubes packed with one or more solid adsorbents. Air or other gas samples are passed through the tube trapping all but the most volatile compounds. Samples also may be collected by passive diffusion.</p>
	<p>Small samples such as polymers, pastes, packaging materials, etc. are placed directly into stainless steel or glass thermal desorption tubes.</p>
<div data-bbox="113 1281 495 1554" style="border: 1px solid black; border-radius: 15px; padding: 10px;"> <p>Bulk Samples Building materials Integrated circuit wafers Disk drive parts Packaging Food Anything large</p> </div> 	<p>Big items can be placed inside a large vessel to get a representative sample. In some cases, it is important not to destroy the sample during analysis so a large vessel is required.</p>

Desorption and Sample Introduction

When heated, volatiles are released from the trapping material or from the sample itself and are swept by a flow of inert gas into a secondary trap. When canisters are used, the sample is drawn from the canister through this trap. Depending upon the instrumentation, the trap may be packed or unpacked and is often cooled below room temperature.

Finally, the secondary trap is heated rapidly while a stream of carrier gas sweeps the desorbed volatiles into the GC for separation and analysis.

