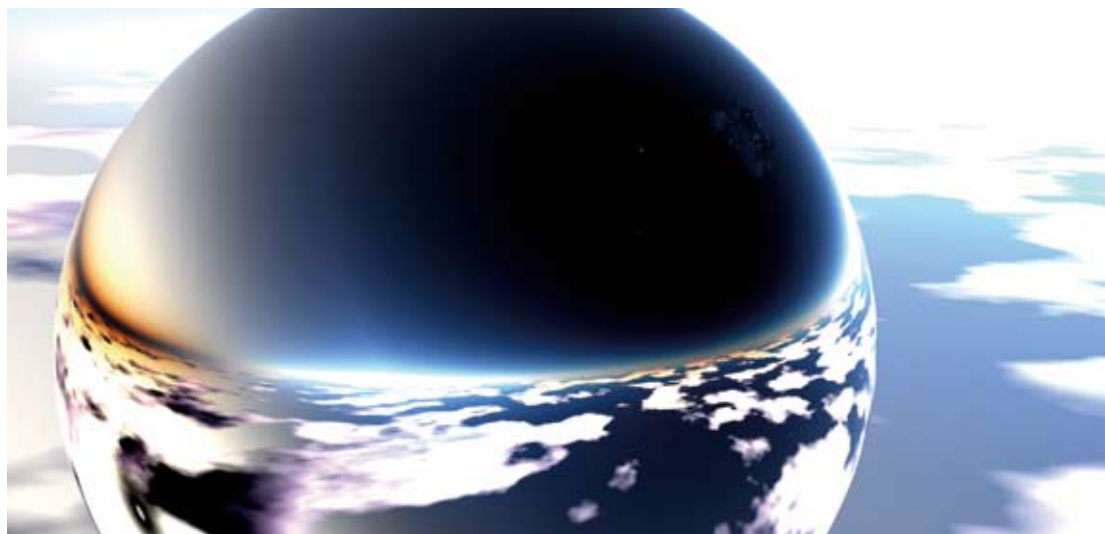


## Carbon Adsorbent Kits from Supelco ..... A cost-effective tool for the selection of the right adsorbent

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### Carbon Adsorbent Research

Supelco's commitment to carbon adsorbent research and product development spans more than two decades. With the aim being the understanding of how the physical and chemical properties of the adsorbents affect performance characteristics, our efforts have been broad in scope, ranging from purification process development to research focusing on the thermodynamic and kinetic properties of both existing and novel adsorbents. The knowledge gained from this fundamental research has led to innovative new carbons and subsequent advances in the performance of many important tools for chromatography, from GC columns to sample preparation products.

Today, Supelco offers nearly 90 different carbons that represent ranges in chemical selectivity and physical properties to match the nearly limitless analytical applications with which carbons have become associated. Ranging in particle size from 1 to 1000 microns and surface area from 1 to 1500 m<sup>2</sup>/g, Supelco carbon adsorbents are found in packed and capillary GC columns (including PLOT columns), Supelco SPME (solid phase microextraction) fibers, Supelclean™ SPE tubes, Supelco Dioxin Prep System carbon tubes, chemical desorption (ORBO™) tubes and thermal desorption (TDU) tubes, and others. We also supply these materials in bulk quantities for customer-specific devices and applications.

### Carbon Adsorbent Sampler Kits

The large choice in carbon chemistries and physical properties poses a new challenge: choosing the right one for a new application, especially considering they are often used in combination. The goal in selecting the right carbon adsorbent is to find a system (one or a combination of carbons or other adsorbents), that can retain a specific analyte or group of analytes for a specific sample volume during the adsorption process, and release the analyte(s) efficiently during the desorption process.

In order to facilitate the process of choosing the right adsorbent system in an economical fashion, we introduced the Supelco Carbon Adsorbent Sampler Kits. Each kit contains small quantities of several related Supelco carbon adsorbents. Once the ideal carbon has been identified, Supelco is ready to work with you to supply larger quantities to meet your specific requirements.

### Two Innovative Customer-Specific Carbon Applications

The unique and valuable characteristics of Supelco carbons warranted their inclusion in experiments investigating the analysis for organic material on the 1995 Galileo Mission to Jupiter and the 2005 Cassini-Huygens Missions to Titan, Saturn's largest moon. One of the carbons, a Carboxen™ carbon molecular sieve, is used in the enrichment cell of an Ion and Neutral Mass

Spectrometer (INMS) onboard the Cassini orbiter. Gaseous components in Saturn's atmosphere, including elements, isotopes and molecules, are collected, concentrated and separated by the Carboxen. The other Carboxen, a graphitized polymeric carbon, is onboard the Huygens probe that landed on Titan. During its two and one-half hour descent and for ninety minutes after it landed on the surface, the probe transmitted data to the Cassini orbiter. This Carboxen is also contained in an enrichment cell, this time in a GC-MS instrument, where it is used for collecting, concentrating and separating light hydrocarbons, such as methane and acetylene. Scientists believe that the Titan atmosphere is composed of hydrocarbons and data provided by this instrument will further their understanding. Supelco carbons will make their next venture into space with the 2007 Mars Mission.

In another example, Dr. Michael Davis and colleagues at Oklahoma State University have employed Supelco carbons to monitor biomarkers in exhaled breath from sled dogs for depletion of muscle glycogen during cold weather distance races. Data from this experiment is slated for publication and will be cited in a future issue of Analytix.

#### Technical Service: A Valuable Resource

If you need assistance in choosing the right kit for your application, simply contact our Technical Service Department at [techservice@sial.com](mailto:techservice@sial.com) for expert answers to your adsorbent questions.

#### Related Information

For more information, request the following literature:

["Carbon Adsorbent Kits" \(T406044\)](#)

... a thorough description of the kits and the properties of the adsorbents they contain.

["A Tool for Selecting an Adsorbent for Thermal Desorption Applications" \(T402025\)](#)

... presents adsorption/desorption data on 43 common air pollutants on 24 different adsorbents.

["Characterization of Adsorbents for Sample Preparation Process" \(T402026\)](#)

... describes the past, present and future of carbon adsorbent research at Supelco.



Figure 1 ..... Carbon Molecular Sieve Kit

#### Product List ..... Supelco Carbon Adsorbent Sampler Kits

Cat. No.	Brand	Description	Components	Package Size
13027-U	Supelco	Graphitized Carbon Black Kit (20/40)	20/40 Carbotrap B 20/40 Carbotrap C 20/40 Carbotrap F 20/40 Carbotrap X 20/40 Carbotrap Y	5g 5g 5g 5g 5g
13026-U	Supelco	Graphitized Carbon Black Kit (60/80)	60/80 Carbopack B 60/80 Carbopack C 60/80 Carbopack F 60/80 Carbopack X 60/80 Carbopack Y 60/80 Carbopack Z	5g 5g 5g 5g 5g 5g
13028-U	Supelco	Carbon Molecular Sieve Kit	60/80 Carbosieve G 60/80 Carbosieve S-III 20/45 Carboxen 569 60/80 Carboxen 1000 40/60 Carboxen 1003 80/120 Carboxen 1012 60/80 Carboxen 1016 60/80 Carboxen 1018 60/80 Carboxen 1021	5g 5g 5g 5g 5g 5g 5g 5g 5g