

ANTECH 7100/7032-LVSH

LARGE VOLUME STATIC HEADSPACE GC AUTOSAMPLER

Headspace analysis is a common technique for measuring the volatile content of solids and liquids. Static headspace GC inlet systems can provide a clean, quantitative means for characterizing the volatile fraction of a sample. However, classical static headspace using 1 cc loop injection can only detect high PPB and PPM levels, which are often times well above odor thresholds. This significantly limits the ability to characterize materials when assessing product quality, product safety, or when searching for chemicals or markers outgassing from materials that could be used to more accurately determine the composition of solids or liquids being tested.

Large Volume Static Headspace

Over a decade of research has gone into the development of the 7100/7032LVSH gas chromatography inlet system that lowers detection limits by increasing the volume of headspace sampled during each analysis. The 7100/7032LVSH concentrates up to 300cc of headspace to just a few microliters before injection



Liquid Sample Loaded on LVSH Sample Platform

into a GC. Liquid or solid samples are loaded into 25ml vials which are placed in 375ml glass enclosures. After an optional purging of the chamber and a short sample equilibration period, the 7100 preconcentrator pulls 10 to 300cc from the chamber into a cold trapping system designed for maximum recovery of a wide range of compounds, including hydrogen sulfide and



21-Position 7032

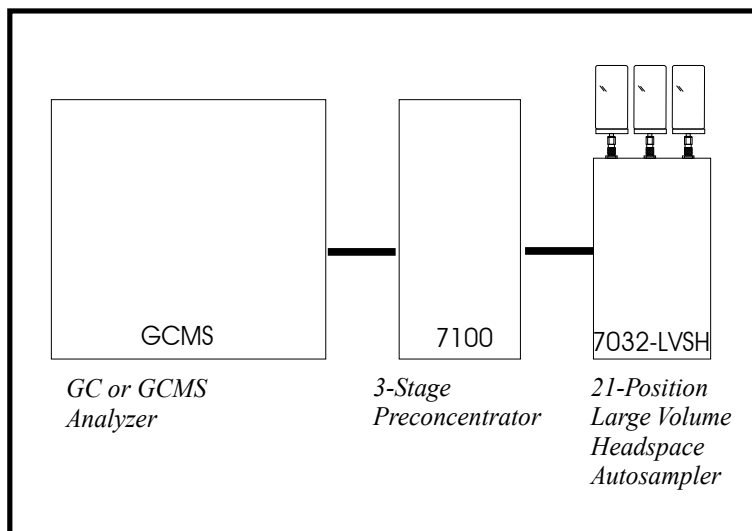
mercaptans. Excess water and CO₂ are eliminated using a unique 2-stage separation process, followed by final sample focusing down to a few microliters prior to GC injection. Detection limits using full scan GCMS are in the part-per-trillion range, allowing most headspace components to be detected at or below their odor threshold.

Out-Gassing and Kinetic Studies

Performing measurements with the 7100/7032 LVSH volatiles inlet can provide information on out-gassing rates from materials. Actual start times for each analysis can be entered into the sample sequence table to quantify changing VOC concentrations. Due to the larger volume, it becomes less necessary to artificially increase the headspace concentration by elevating temperatures, thereby leaving the sample in a more natural state. This can be very important when higher temperatures can denature the sample or otherwise change the VOC distribution (food, natural products, etc.).

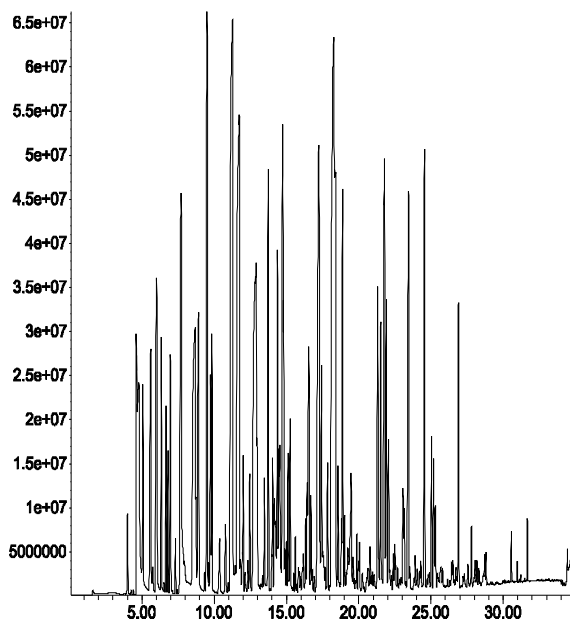
LVSH Sample Chambers

The sample equilibration chambers consist of silanized glass enclosures that seal against an electropolished 304 stainless steel sample platform using a Teflon coated silicone gasket. For the analysis of more reactive compounds, the stainless steel platforms are available coated with Silonite™, a 400-600 angstrom layer of densely deposited fused silica. Silonite prevents the interaction of sulfur, nitrogen, and oxygen containing compounds with the nickel/chromium oxide on the surface of electropolished stainless steel. The miniature quick connect fitting on the stainless steel platform allows fast connection and removal of samples from the autosampler. A sample can be maintained in the equilibration chamber for weeks without contamination from room air, even with repeated attachment and removal from the autosampler.



Applications

Odor Analysis	Soil
Food / Food Spoilage	Debris testing for Accelerants
Fragrance	Sludge/Waste Characterization
Flavor Analysis	Microbial VOC Analysis
Materials Outgas Testing	Product Quality Assurance
Product Liability Testing	Biological / Clinical Testing



LVSH GCMS Analysis of Yuban Coffee - 100cc

Part Number	Description
7101	3-Stage Cryogenic Preconcentrator
7032-LVSH	21 Position Autosampler for Operation with 7100 or 7000 Preconcentrator
39-72224	375cc Glass Enclosure (pkg 12)
39-74000	Electropolished Sample Platform
39-74010	Silonite™ Coated Sample Platform
39-72300	Teflon Coated Silicone Sealing Gaskets
39-72255	25 ml Disposable Sample Vials (144/pkg)
09-70100	7032-LVSH Sample Heater

For more information, please contact us:

ExpotechUSA

10700 Rockley Road
Houston, Texas 77099
USA

281-496-0900 [voice]

281-496-0400 [fax]

E-mail: sales@expotechusa.com

Website: www.ExpotechUSA.com