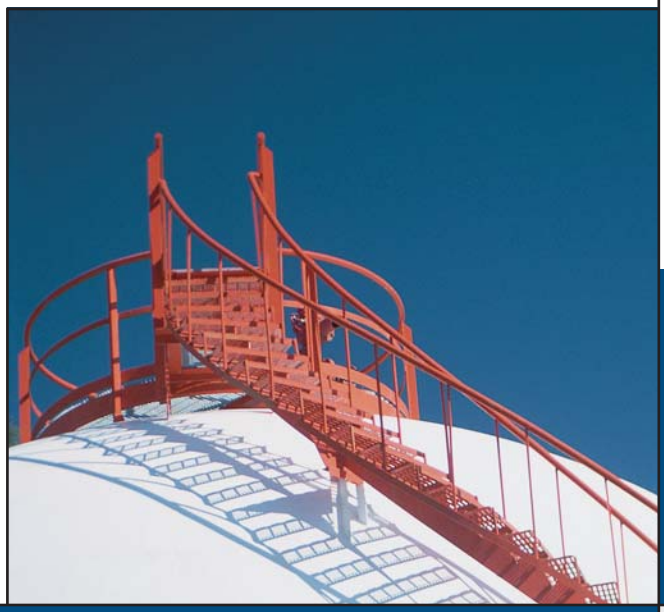
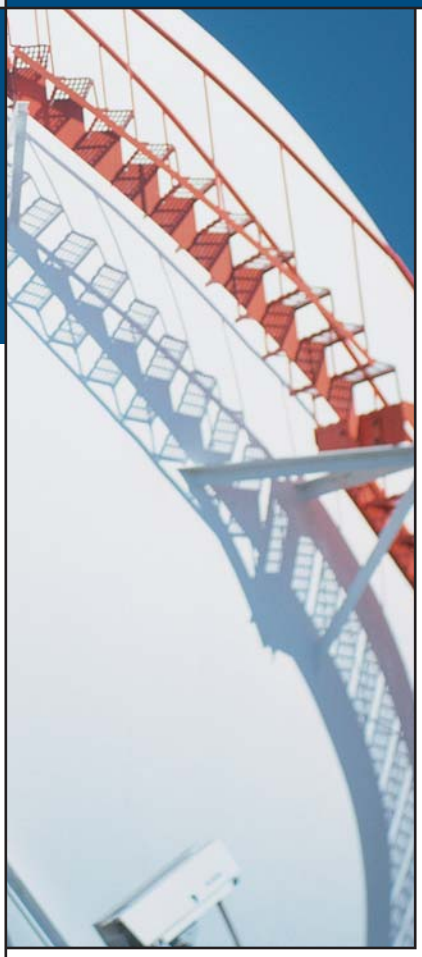
Monomer Analysis

Analysis by Gas Chromatography



Custom solutions for your analytical needs.



WASSON-ECE INSTRUMENTATION

Polymer Grade Monomer Analysis

Monomer Analysis

Impurities in feedstocks can adversely affect the quality of the final polymer, cause irreversible catalyst poisoning, and lead to costly plant downtime.

Our customers enjoy the benefits of the turn-key systems that we provide on Agilent's latest platform. The analyzers are completely developed including the installation of all valves, additional heated zones, and analytical columns. The analytical methods are tested using certified calibration blends. We then deliver, install, and provide training on the applications.

The instrument and analytical performance of our turn-key systems are guaranteed for one year.

Monomer Solutions by Application Number

Applications	Matrix: Ethylene	Matrix: Propylene	Impurities: Hydrocarbons	Impurities: Trace CO / CO2	Impurities: Oxygenates	Impurities: Sulfurs	Impurities: Perm. Gases w/ Hydrogen	Impurities: Arsine / Phosphine	Impurities: Ammonia
260	■		■	■					
261		■	■	■					
262	■	■	■	■					
253	■	■			■				
410	■	■					■		
660	■	■				■			
670	■	■							■
460		■			■	■		■	
460B	■	■			■	■		■	
462		■			■	■	■	■	
462B	■	■			■	■	■	■	

Calibration

The dynamic blender is a portable blending device that dilutes a sample or a certified gas standard with a matrix gas of choice. An inert flow path and heated bridge eliminate adsorption and condensation problems when blending gas standards that include sulfur, nitrogen, and other reactive compounds. The samples are fed directly to a gas chromatograph, eliminating the need to store multiple gas samples.

The dynamic blender may optionally contain a digital flow controller that allows the diluent gas to be controlled digitally. The final concentration is a function of the flow rates of the sample and the diluent gas.

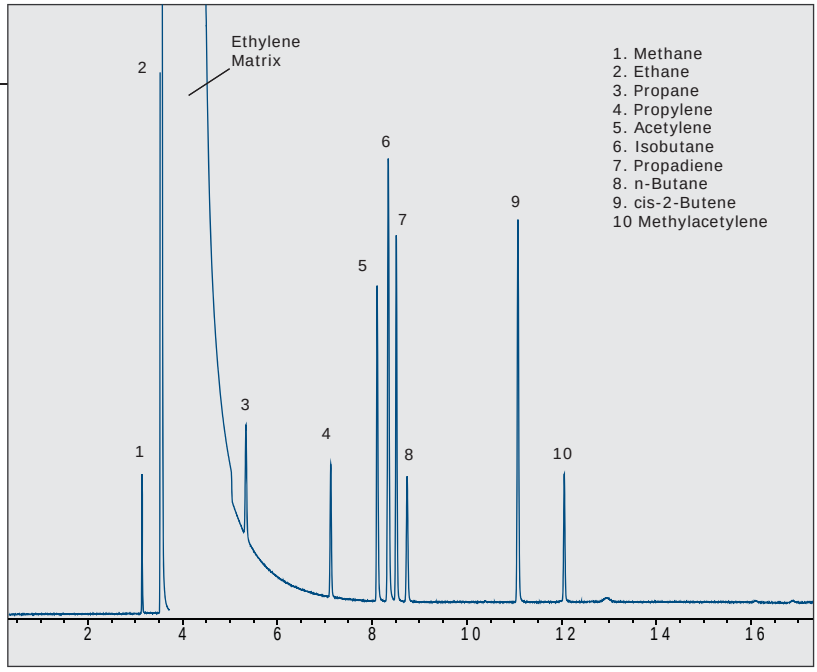
The Wasson-ECE Dynamic Blender provides reliable point-of-use calibration blends.

Gas chromatographic analysis often requires that samples or standards be diluted to low levels. Some analytes are quite expensive or difficult to purchase at low levels due to reactivity, adsorption, or large molecular weight. The Dynamic Blender allows one certified standard with concentrations at the upper limit of the desired calibration curve to be diluted to a lower level (up to 4 orders of magnitude lower) to create a full calibration curve from just one standard. There is no need to purchase several concentrations of the same mixture and no need to find storage in the laboratory for those cylinders. The Dynamic Blender provides an easy and cost effective solution for gas phase calibration needs.

Applications 26X
Monomer Analysis by FID

App 26X: Hydrocarbons

FID 1 detects trace hydrocarbon impurities in the monomer matrix. Separation is accomplished using a high resolution PLOT column with a proprietary phase.



The 26X Family of Analyses

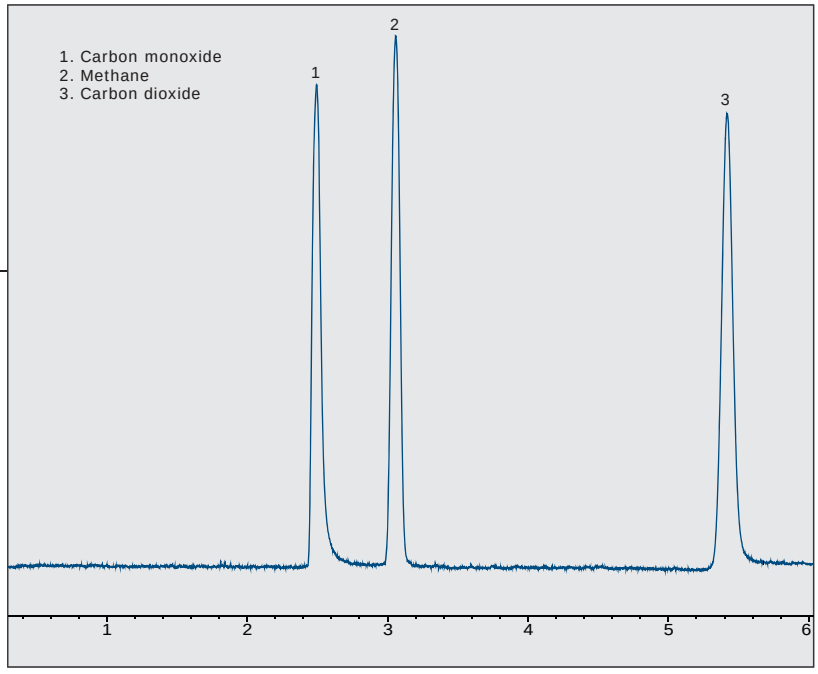
Application 260 - Impurities in Ethylene
Application 261 - Impurities in Propylene
Application 262 - Impurities in Ethylene and Propylene

Why Utilize the 26X Applications?

All components are analyzed in a single run. You can choose to analyze ethylene, propylene, or both on the same instrument, depending on your analytical requirements.

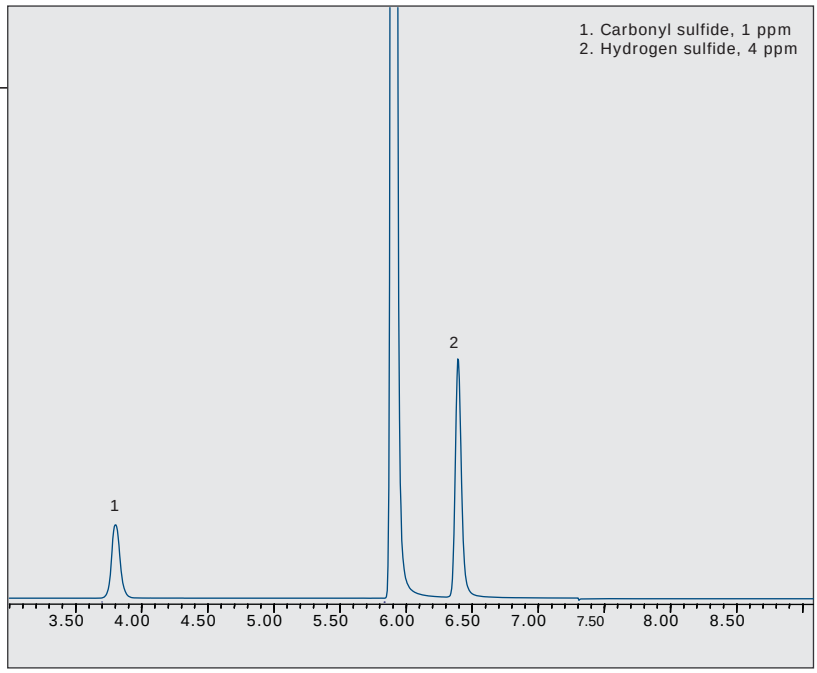
App 26X: FID/Methanizer

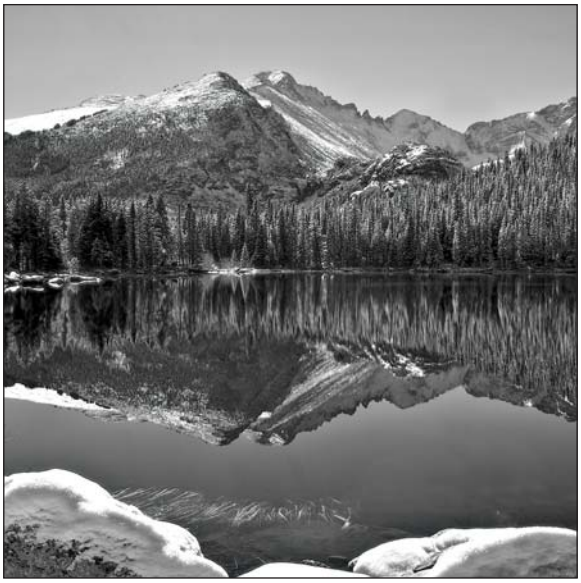
FID 2 detects trace carbon monoxide, methane, carbon dioxide, and acetylene (in propylene only) to a lower detection limit of 50 ppb. A methanizer is used for the analysis of carbon monoxide and carbon dioxide.



Light Sulfurs Analysis

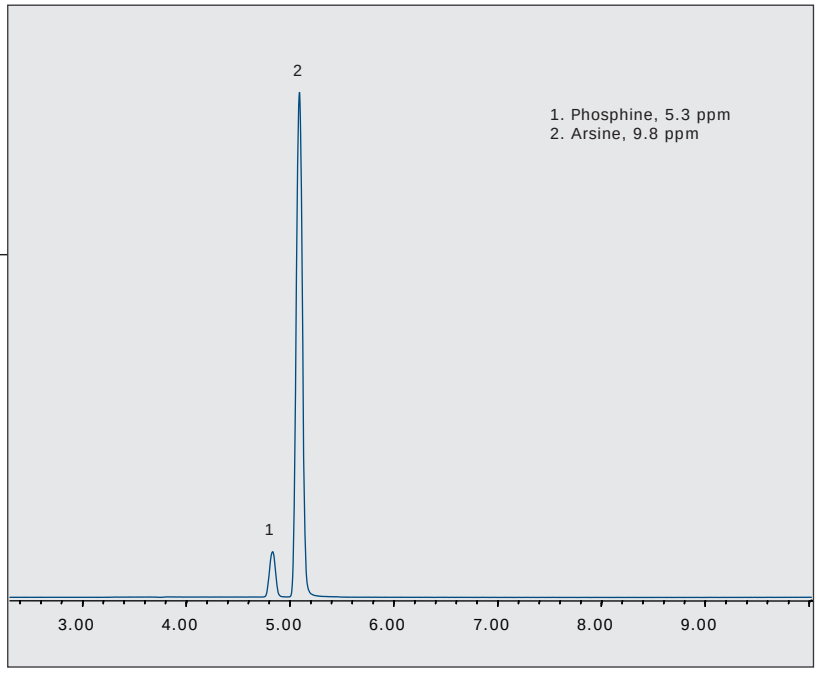
Method 2 utilizes the MSD selective ion mode to detect carbonyl sulfide and hydrogen sulfide to a lower detection limit of 0.05 ppm.





Arsine/Phosphine Analysis

The MSD selective ion mode allows the detection of arsine and phosphine to a lower detection limit of 0.05 ppm.



The 46X Family Analyses

The 46X family uses three different methods to analyze for a variety of species. Method 1 uses a mass spec detector (MSD) to detect oxygenates and mercaptans to a lower detection limit of 0.05 ppm. This is achieved by using selective ion mode on the MSD to maximize sensitivity.

The 46X Family of Monomer Analysis

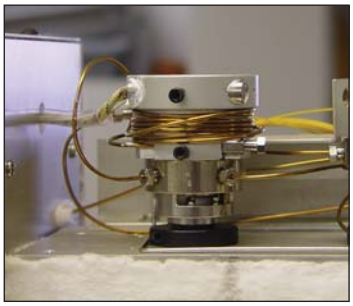
- Application 460 - Impurities in Propylene by MSD
- Application 460B - Impurities in Ethylene and Propylene by MSD
- Application 462 - Impurities in Propylene by MSD/PDHID
- Application 462B - Impurities in Ethylene and Propylene by MSD/PDHID

Application 46X: MS Analysis

The 46X GC/MSD analysis of MTBE, ethyl mercaptan, dimethyl sulfide, diethyl sulfide, isopropanol, ethanol, n-propanol, and n-butanol.

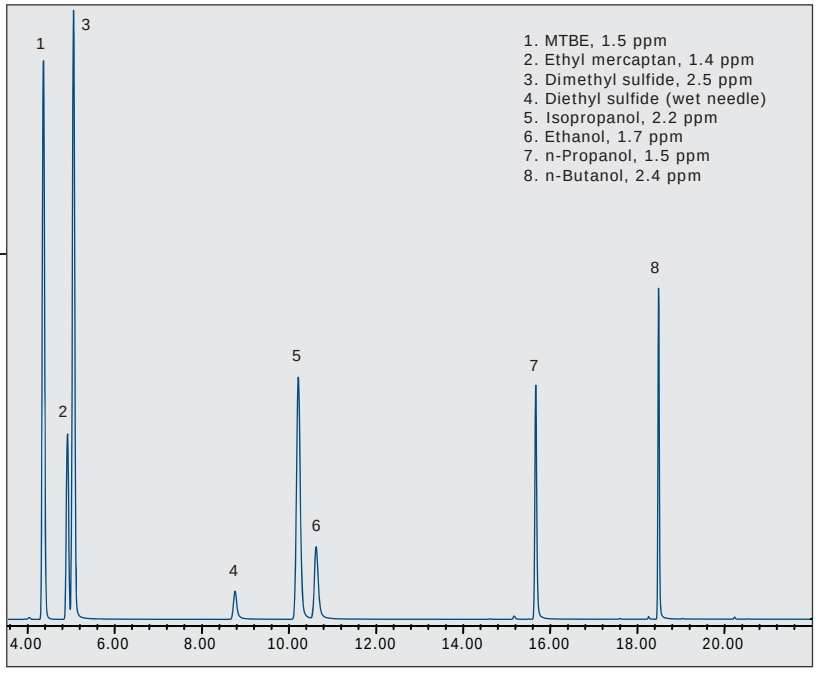
Monomer Analysis by MSD allows for maximum flexibility

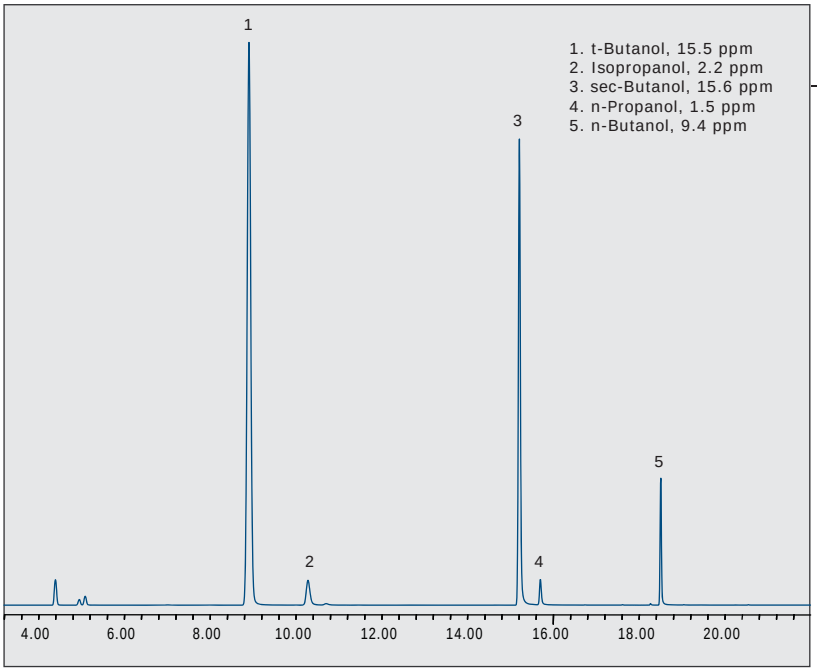
The 46X applications allow the user to identify a large variety of monomer impurities on one instrument. The 46X family of applications combines the MSD with the Valco PDHID to allow even greater analysis power.



On-Board Vaporizer

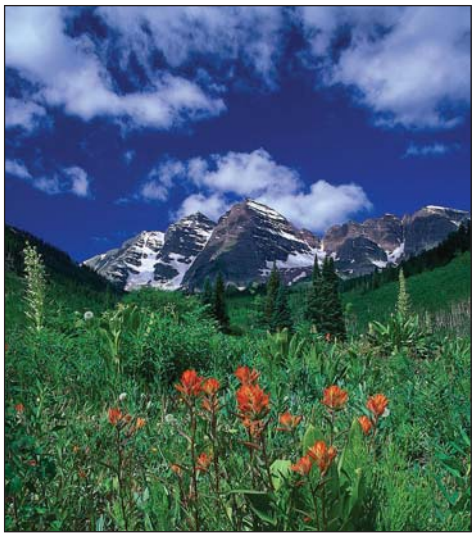
Converts propylene liquid to the gas phase prior to injection.





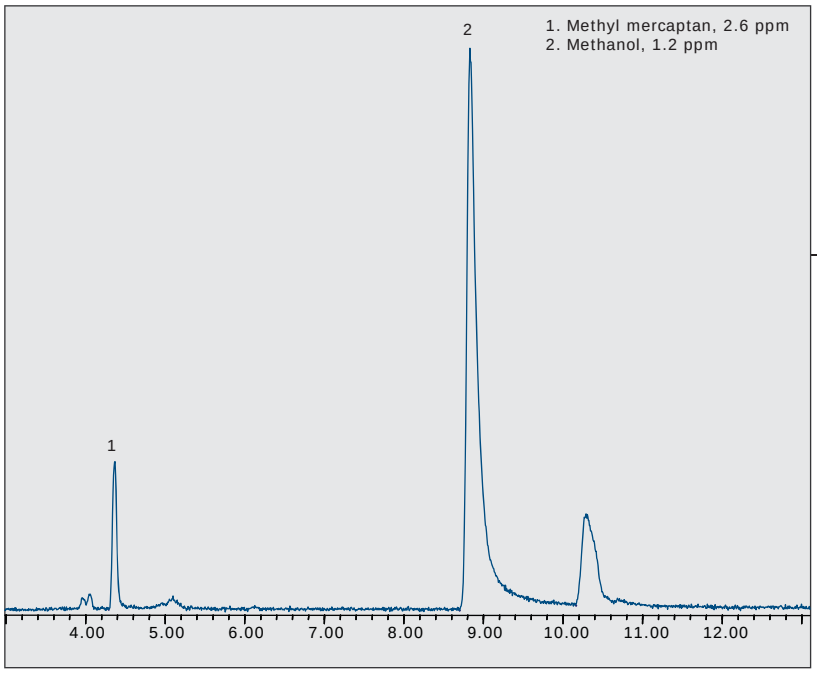
Oxygenates Analysis by MSD

The MSD detects alcohols to a lower detection limit of 0.05 ppm.



Selective Ion Mode

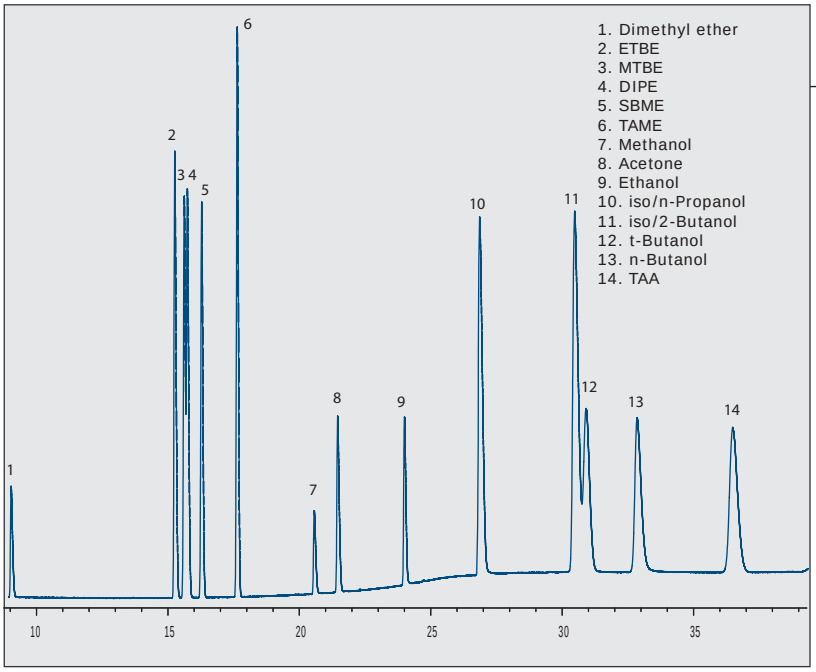
Maximizes Sensitivity!



MeSH and MeOH Analysis

The MSD is capable of detecting methyl mercaptan and methanol to a lower detection limit of 0.05 ppm.

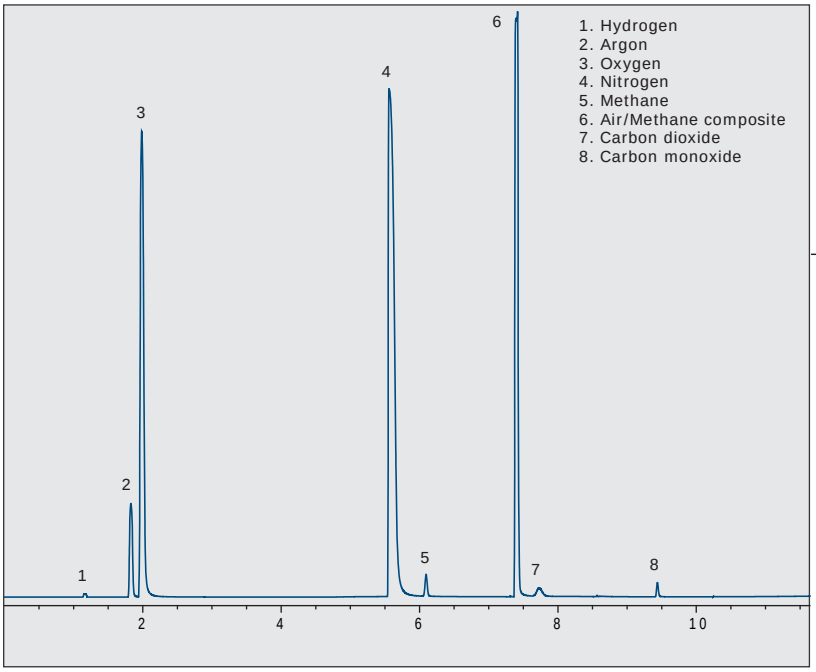
Application 253
Oxygenate Analysis by FID



Application 253: Oxygenates

The FID detects trace oxygenates in ethylene, propylene, butane/butenes, gasoline and naphtha. The lower detection limit for this analysis is 1 ppm.

Application 410
Analysis by PDHID

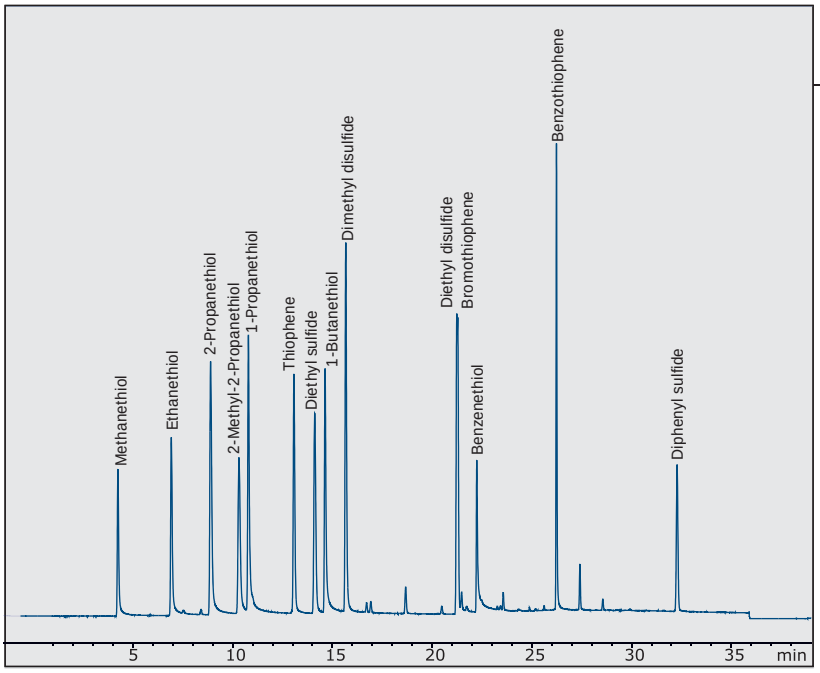


Application 410: PDHID

A Valco pulsed discharge helium ionization detector (PDHID) detects hydrogen, argon, oxygen, nitrogen, methane, carbon monoxide, and carbon dioxide to a lower detection limit of 200 ppb.

Applications 660/670

Sulfur and Nitrogen Analysis by SCD/NCD

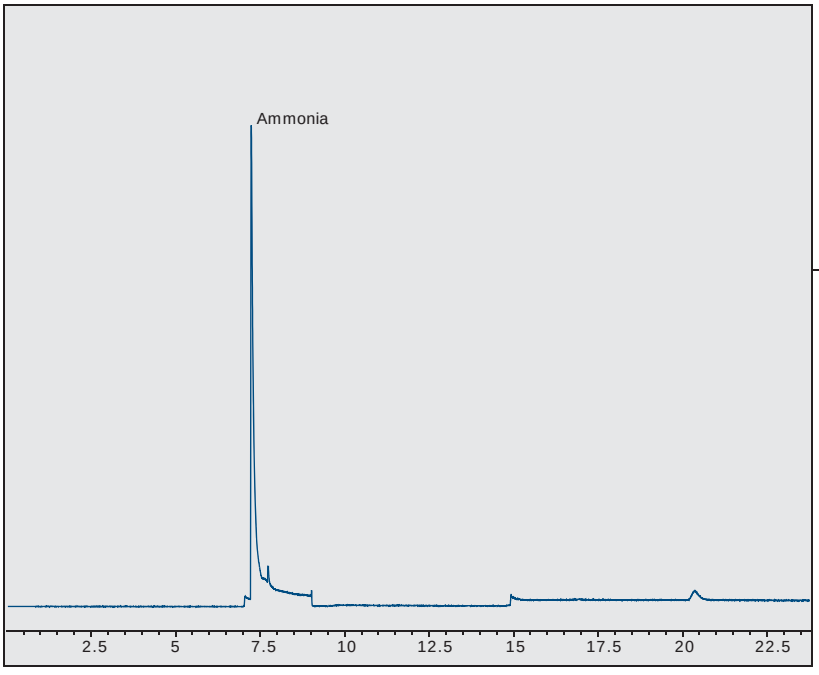


App 660: Sulfur Detection

An Agilent Technologies Sulfur Chemiluminescence Detector (SCD) is configured for sulfur speciation. The SCD is an equimolar detector with a lower detection limit of 20 ppb.

Why Utilize the 660/670?

The Agilent Chemiluminscence family of detectors provide sulfur and nitrogen specific analyses, avoiding the problem of hydrocarbon interference experienced by other types of detectors.



App 670: Ammonia Detection

An Agilent Technologies Nitrogen Chemiluminescence Detector (NCD) is configured to perform the analysis of trace ammonia in ethylene to a lower detection limit of 50 ppb.

Polymer Grade Monomer Analysis

The Turn-key Analytical Concept

The analyzer is completely developed including valves, additional heated zones, and analytical columns.
The chromatography is tested using certified calibration blends.
The gas chromatograph is delivered to the customer's facility.
A service engineer comes to the customer's site to perform installation and training.
The instrument guarantee covers all parts and analytical performance during the first year.

Monomer Solutions

Wasson-ECE provides turn-key solutions for the following monomers:

- Ethylene
- Propylene
- 1-Butene
- Isobutylene
- 1,3-Butadiene
- Vinyl chloride monomer
- Styrene

All of our systems are built to order, so that we can meet your specific analytical needs.

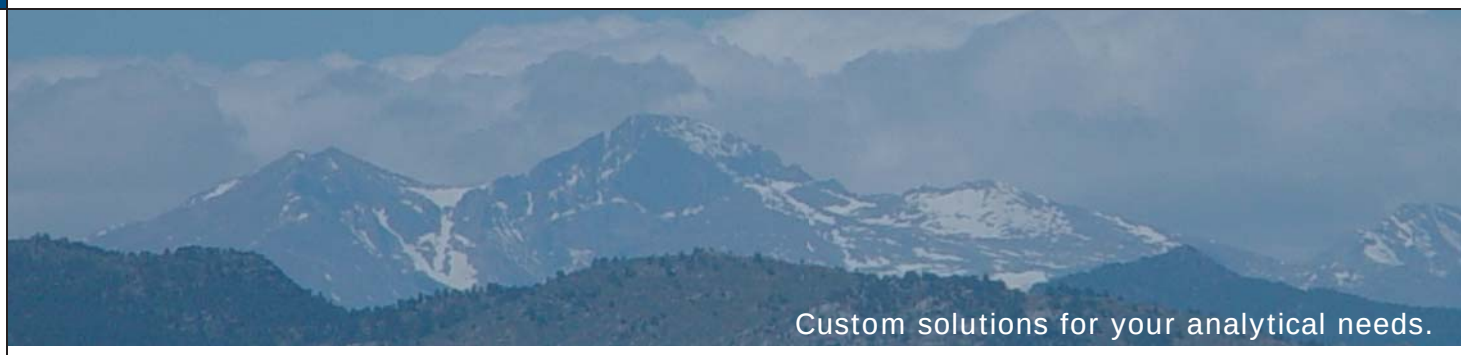
Wasson-ECE Instrumentation

Engineered Solutions, Guaranteed Results.

Wason-ECE Instrumentation specializes in configuring and modifying new or existing gas chromatographs exclusively from Agilent Technologies to become guaranteed, turn-key analytical systems. Our customers describe their objectives and their samples: analytes, concentration ranges, phases, temperature, throughput, and any special needs. From this dialog we configure a task specific instrument. We add extra ovens, valves, plumbing, flow control, columns, electronics, and software to yield a complete solution. This saves our clients valuable time and delivers instruments that are state-of-the-art and ready for use upon installation.

The complete analytical method is developed, tested, and documented utilizing our experience working with numerous companies that have similar needs and goals. The resulting chromatograms and reports are inspected by our application chemists and you, to ensure system performance and design quality. Our field engineers then install each system and provide training. After installation, and throughout the life of the chromatograph, our support chemists are ready to help. We can assist with application details, questions, training, calibration, maintenance, and on-site service. Wasson-ECE brings experience and efficiency to your project, giving you confidence in the quality of your results.

Please contact us for more information



Ph. 970.221.9179
Fx. 970.221.9364

www.Wasson-ECE.com
sales@wasson-ece.com