

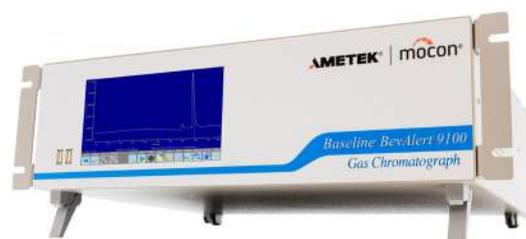


AIRBORNE MOLECULAR CONTAMINATION CLEANROOM MONITORING OF DETRIMENTAL GASES

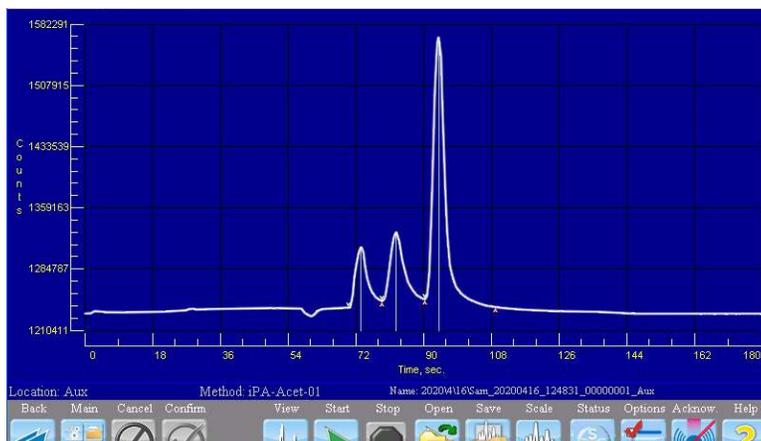
Part-Per-Billion Detection Utilizing Gas Chromatographs
and Hydrocarbon Analyzers

AMC via Gas Chromatography

Airborne Molecular Contamination (AMC) can cause detrimental effects, both physically and electrically, during the production and processing of many sensitive products such as semiconductors, PCBs, and optics. AMC may result from off-gassing of volatiles or direct contact with other materials. AMETEK MOCON offers the Baseline 9100 GC to monitor for various cleanroom solvents at low levels.



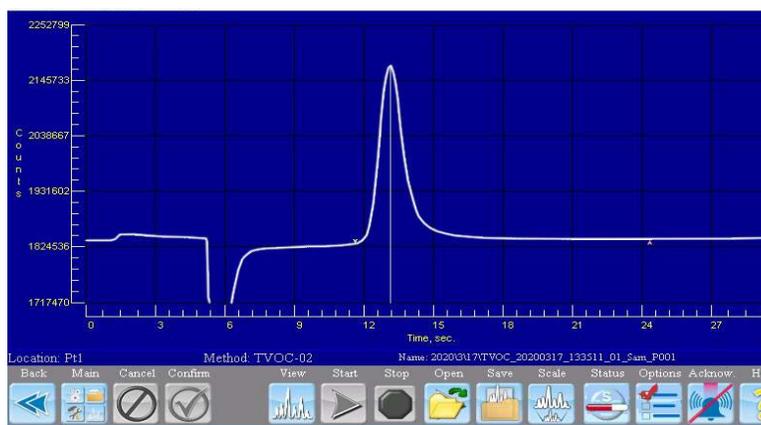
Isopropyl Alcohol (IPA) and Acetone in Air



DETECTOR:	Photoionization (PID) High Sensitivity PID (HS-PID)
CARRIER GAS:	UHP Nitrogen
SAMPLE :	Ambient Air
MDQ/LDL:	PID: < 20ppb HS-PID: IPA < 5ppb, Acetone < 2ppb

The Baseline 9100 GC configured for acetone and IPA is commonly used in chip manufacturers clean rooms to monitor specific AMCs. Sulfurs, ethanol, and other aromatic hydrocarbons such as BTEX can also be added to the application when necessary. Contact MOCON to create an application to suit your needs.

Total Volatile Organic Compounds (TVOC) in Air



DETECTOR:	Photoionization (PID) High Sensitivity PID (HS-PID)
CARRIER GAS:	UHP Nitrogen
SAMPLE :	Ambient Air
MDQ/LDL:	PID: < 1ppb HS-PID: < 0.05ppb (as benzene)

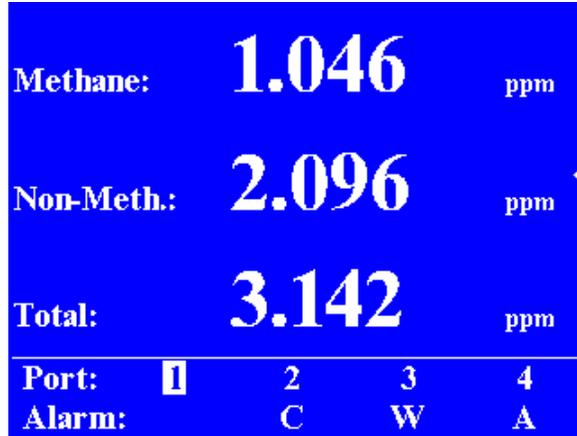
Baselines 9100 GC configured for Total VOC provides a rapid analysis of all ionizable gasses when identification of individual species is not required. This application can also be combined with specific organics (such as IPA and/or acetone) when a hybrid analysis is desired. Total VOC content can be reported as any reference gas, such as acetone, isobutylene, or benzene.

Continuous Hydrocarbon Monitoring

Very low levels of hydrocarbon impurities in air can leave residue on surfaces meaning batch testing does not provide enough control or resolution to solve AMC problems as they occur. AMETEK MOCON offers the Baseline 9000 to provide continuous hydrocarbon monitoring, total or methane/non-methane, at low parts-per-billion (ppb).



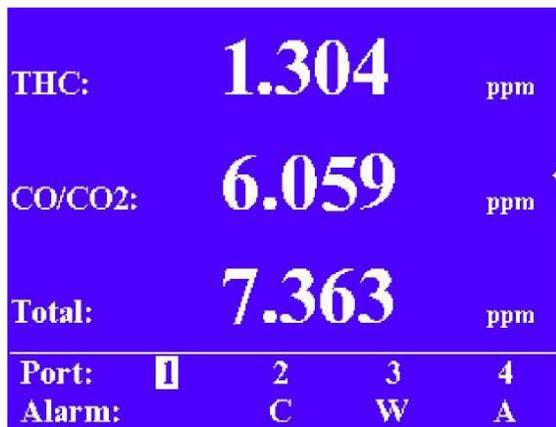
Methane/Non-Methane Hydrocarbons in Air



DETECTOR:	Flame Ionization (FID)
CARRIER GAS:	UHP H ₂ , Zero Air
SAMPLE:	Ambient Air
MDQ/LDL:	< 30ppb

The 9000 Methane/Non-Methane analyzer uses a flame ionization detector (FID) in conjunction with an oxidation catalyst that oxidizes all hydrocarbons except methane. This produces a methane only measurement which is then subtracted from the total concentration to determine the non-methane hydrocarbon reading. This is our most popular analyzer utilized in cleanroom AMC applications.

Total Hydrocarbons in Air



DETECTOR:	Flame Ionization (FID)
CARRIER GAS:	UHP H ₂ , Zero Air
SAMPLE:	Ambient Air
MDQ/LDL:	< 10ppb

The 9000 Total Hydrocarbon analyzer is a versatile instrument for use in numerous applications ranging from parts-per-billion level detection for trace analysis in ultra-pure gases to %-level for process optimization or LEL monitoring. When very low level total hydrocarbon detection is required this is the analyzer of choice.

Total Volatile Organic Compounds

Volatile Organic Compounds (VOC's) are potentially dangerous compounds that vaporize under normal atmospheric conditions. VOC levels are much higher in indoor environments as they can be emitted by many manufactured products such as carpet, paint, and cleaning supplies. Outdoor sources can include landfills, industry, and hydrocarbon emissions.



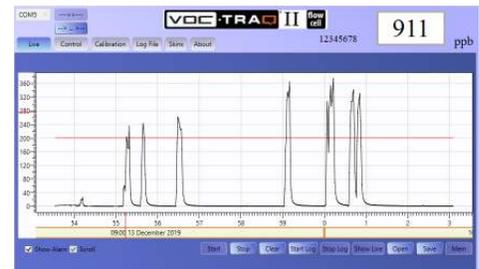
TVOC Detection

Photoionization Detectors (PIDs) are the simplest and most efficient way to detect VOC levels. Although not as selective without the use of a gas chromatography column, a standalone PID provides real-time measurement of many volatile organic compounds in a portable or fixed format that anyone can use.

The VOC-TRAQ® Total Volatile Organic Compound (TVOC) detector is an inexpensive solution to monitor for non-explosive gas leaks actively using a Windows® based PC or by data logging over time by storing up to 36,000 sample readings. The VOC-TRAQ uses a piD-TECH® eVx photoionization sensor to monitor vaporized gases in the range you require.



DETECTOR:	piD-TECH eVx PID
LAMP ENERGY:	10.6eV
RANGES:	5 available, Low Level 0.5ppb up to High Level 10,000ppm (as isobutylene)



Custom Process GC Applications



The applications shown are just common examples of the hundreds of different analyses we have created for our customers. Contact us to discuss your detection needs. AMETEK MOCON will select the best detector for your application commonly utilizing Photoionization (PID), High-sensitivity Photoionization (HS-PID), Flame Ionization (FID), or Thermal Conductivity (TCD). Analytical arrangements typically involve a single valve, two column configuration, but may vary depending upon the application

