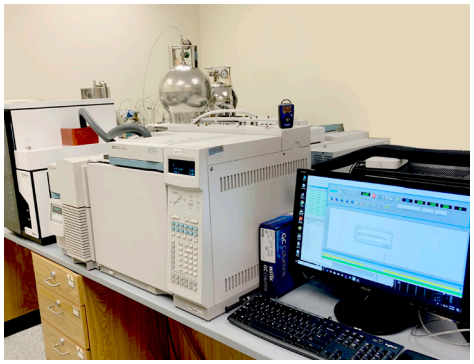
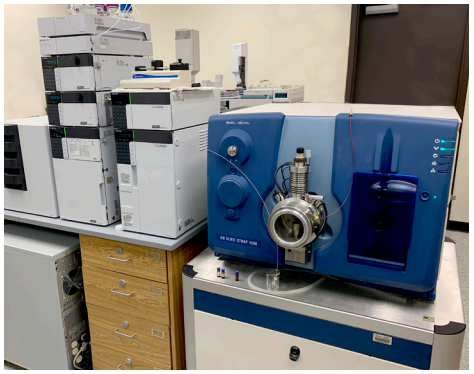
Determination of Volatile Organic Compounds In Air

TO-15 & TO-17 Methods for VOCs

Volatile Organic Compounds, or VOCs, make up 97 of the 189 hazardous air pollutants (HAPs) listed by the Clean Air Act Amendment. Emitted as gases from some liquids and solids, they include a variety of chemicals which may have short- and long-term adverse health effects, according to the Environmental Protection Agency (EPA). Organic chemicals are used in many household products, such as varnishes, paints, waxes, disinfectants, cosmetics, degreasers, and fuels. Columbia Basin Analytical Laboratories, the Washington State division of RJ Lee Group, offers enhanced analysis by EPA methods TO-15 and TO-17 to determine toxic compounds in the air. The compounds are collected onto sorbent tubes that can quantitatively absorb either specific compounds or a broad range of volatile compounds. The system's water management is rigorous and automated, preventing the reduction of target analyte responses and enhancing detection limits. This increased sensitivity enables our laboratory to acquire data in either full scan mode or in Selective Ion Monitoring mode. The precision, as well as linearity and reporting limits for all classes of compounds, meets the EPA





Method TO-15

Utilizing EPA method TO-15, air is collected using a specially-prepared stainless steel canister that has been pre-cleaned, evacuated, and certified. Upon receipt of the canister at the laboratory, the canister can be stored up to thirty days before analysis with no effect on any contained VOCs. Columbia Basin Analytics Laboratory uses the ENTECH Instruments 7200 Preconcentrator and ENTECH 7032A Autosampler, coupled with the HP-6890 Gas Chromatographic System and the Agilent 5973-inert mass Selective Detector.

Method TO-17

The EPA method TO-17 is an optimized method for determining toxic compounds in air samples. This method is normally used in many applications when volatile organics are investigated, including ambient air, indoor air, fence line monitoring, stack, workplace, soil, gas or personal monitoring. Utilizing the TO-17 sorbent tube/thermal desorption/gas chromatographic-based monitoring method for volatile organic compounds, detection limits for ambient air range from 0.5 to 25 parts per billion (ppb) concentration levels. Columbia Basin Analytical Laboratories uses the MARKES International TD 100-xr Automated Thermal Desorber, coupled with the HP-6890 Gas Chromatographic System and the Agilent 5973-inert mass Selective Detector for this method. The analytical results are accurate and legally defensible.

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