APPLY THESE FUNDAMENTALS TO PERFORM RELIABLE AIR QUALITY TESTS

MEASURING VOLATILES IN AIR: US EPA METHOD TO-17

US Clean Air Act regulations have identified specific Hazardous Air Pollutants (HAPs), also known as air toxics. These volatile organic compounds (VOCs) are released into the environment and can cause health issues, pollution, and adverse effects on ecosystems. They are most effectively evaluated using pumped sampling onto sorbent tubes. Followed by thermal desorption (TD) or GC/ECD (Electron Capture Detector) analysis.

TD is a proven technique that has been adopted for measuring, facilitating the enhancement of analysis of non-volatile and semi-volatile species – including volatile and semi-volatile compounds.

TO-15 air toxics in urban air

Analysis of C5 to C9 hydrocarbons in ambient air

OZONE PRECURSORS IN AMBIENT AIR

C5 to C9 hydrocarbons on sorbents have been identified as precursors to the formation of aerosols and ozone. Due to their higher boiling points, these samples allow for comprehensive analysis of绘制化合物 in major air pollutants, providing insight into the formation mechanism.

In addition, regulations in response to the Kyoto protocol on greenhouse gas emissions require the monitoring of exhaust volatile organic compounds with high sensitivity and mass spectral profiling. These include Benzene, toluene, xylene, ethyl benzene, Propylene, and 1,3-butadiene. These compounds are monitored using TD-GC/MS, and are semi-volatile in nature. Therefore, an online sorbent system is required.

URBAN AIR TOXICS: TO-14 AND TO-15

EPA Methods TO-14 and TO-15 cover the analysis of volatile and semi volatile organic compounds. Generally, TO-14 is limited to the analysis of known compounds, while TO-15 is for more complex regulation. Canisters are ideally suited for sampling ultra-volatile species, such as freons and CFCs, which are difficult to trap on solid adsorbents at ambient temperatures. They also make good sampling containers.

AIR TOXICS IN URBAN AIR

Compliance with standard methods, and complete retention of all but the most volatile species.

ADVANTAGES

- 100% recovery of polar, semi-polar, and volatile analytes.
- 100% capture of complex mixtures, such as urban air toxics.
- Infinitely Thin Film's infills is the only method that provides 100% recovery of polar, semi-polar, and volatile analytes.
- Infinitely Thin Film's infills is the only method that provides 100% capture of complex mixtures, such as urban air toxics.

Analysis of C0 to C2 hydrocarbons in ambient air

INDOOR AIR QUALITY: US EPA METHOD TO-17, EN ISO 16017-1, ASTM D 6196

Many people in the developed world spend an estimated 90% of their time indoors. Regulators and scientists around the world are increasingly concerned about the impact of poor indoor air quality (IAQ) on human health and comfort. Sources of indoor pollutants may be due to indoor sources, such as building materials, or outdoor sources, such as exhaust fumes.

Tubes

- High sensitivity
- High selectivity
- No need for a check valve

Tubes

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Enforcing an inert GC flow path is critical – and now, easy to achieve

By removing flow path activity through proprietary chemists, Agilent’s Inert Flow Path technology ensures accurate quantification with high sensitivity for low-level analytes:
- Ultra-inert tubes – with ultra-inert deactivated glass – are certified to provide zero micrograms per cubic meter (μg/cm³) of non-polar and semi-polar analytes
- Axial flows are treated to prevent adsorption and degradation.

- Ultra-inert glass provides ultra-inert ends that are manufactured using ultra-pure reactor grade quartz glass, and are minimally impacted by fit and form factors that could cause leaks that reduce or destroy the integrity of the sample.
- Ultra-inert glass reduces exposure to contaminants during sample transfer.

- Ultra-inert Flow Path technology’s ultra-inert ends that are equipped to minimize carrier gas actions into the flow path.

To learn more about the best practices for environmental and workplace air monitoring, visit agilent.com/chem/air