# Golden Specialty, Inc.

# FREQUENTLY ASKED QUESTIONS EPA Method 325 Fenceline Monitoring

#### What is EPA 325 A/B?

The "Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards" ruling, finalized by the EPA in September 2015, requires refineries to implement a fenceline monitoring program for Benzene using EPA Method 325 A & B. The program's objective is to measure the emission of benzene as an indicator or representative compound for overall possible emissions of Volatile Organic Compounds (VOCs). EPA Method 325 titled "Volatile Organic Compounds from Fugitive and Area Sources" describes thermal desorption / gas chromatography interfaced with Mass Spectrometry (TD/GCMS) analysis of volatile organic compounds (VOCs) from fugitive and area emission sources collected onto sorbent tubes using passive sampling. It includes two sub-parts: Part A - Sampler Deployment and VOC Sample Collection, and Part B - Sampler Preparation and Analysis. These complementary methods cover the design, deployment, preparation and analysis of a series of passive diffusion sampling devices located at specified points around the refinery property line.

#### What are the current deadlines?

On or before January 29, 2018 all refineries must have a sampling program in place and begin sampling by January 30, 2018.

#### What are the specific requirements for refineries?

EPA Method 325 A&B require refineries to monitor VOCs at the fenceline of their facilities, using benzene as the reference. The EPA has specified 12 to 24 diffusive sampling points to be monitored on a bi-weekly basis to determine benzene concentrations around the fenceline of every refinery property. The sampling program must include:

**Sampling Stations:** 12 to 24 sampling stations along the refinery fenceline with the number dependent on refinery size. Stations to include passive sampling tubes packed with an adsorbent to trap ambient air samples.

Sample Collection: Samplers are operated on a two-week time period, with the devices being collected and analyzed every 14 days. While one set of samples is at the laboratory for analysis the other set is deployed to the sample stations.

Sample Analysis: Analysis must be performed for samples taken from each sampling station every 14 days (2 weeks) using Thermal Desorption-Gas Chromatography/Mass Spectrometry (TD-GC/MS) technology.

**Benzene Concentration Monitoring:** The concentration of benzene on the samplers must be monitored on an annual rolling average basis to determine if there are significant excess emissions of fugitive sources that need to be addressed.



The GOLD STANDARD for Air Analysis

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#### What are the requirements for sampling stations?

EPA Method 325 requires that sampling stations be located either equal linear distance between samplers or equal degrees of separation around the geometric center of the facility. The number of locations is dependent on the size of the facility with requirements broken into groups of <750 acres, 750-1,500 acres, and >1,500 acres. Protective shelters should be used to contain the sampling tubes over the 14-day sampling period, while protecting them from rain and other elements.

#### How Does Passive Sampling Work?

Passive sampling relies on the unassisted molecular diffusion of gaseous analytes through a diffusive surface onto an adsorbent. Unlike active sampling where a pump is used, passive samplers require no electrical or mechanical interface. They have no moving parts and are simple to use. After sampling, the adsorbed analytes are desorbed off the adsorbent by solvent or thermal desorption. **Absorption** is the process in which a fluid is dissolved by a liquid or a solid (absorbent). **Adsorption** is the process in which atoms, ions or molecules from a substance, which could be gas, liquid or dissolved solid, adhere to a surface of the adsorbent.

#### What are the requirements for the sampling media?

The sampling media required by EPA Method 325 passive sampling tubes which are sorbent-packed stainless steel tubes, with an open-mesh diffusion cap on one end for VOC collection. The tubes are deployed in stations and exposed to the atmosphere for 14 days at a time, after which the diffusion cap is replaced with and solid cap and the tube sent for analysis. Tubes are analyzed then cleaned and re-certified. Certified tubes are good for 2 years from their certification dates and can be re-used for up to 50 sampling events, whichever comes first. There are a wide list of compounds for which these tubes and this technique of collecting ambient air samples can be used. Benzene is the target compound for this regulation, but the same packed tube can be analyzed to determine other VOCs, including 1,3-butadiene, ethylbenzene, toluene, xylenes, and other hazardous air pollutants.

#### What if the tubes get damaged?

These tubes are very resilient, stainless steel. There are a couple things that can go wrong and damage to the tubes could occur and prevent good sampling or analysis. From a user's end, the greatest likelihood of damage could come from excessive tightening of the storage caps. We will continue to remind the technician, snug the cap and only a <sup>1</sup>/<sub>4</sub> turn from snug is tight enough. Should a problem with a tube occur the possible damage or contamination should be noted on the chain-of custody form so that the data in question can be flagged for potential elimination from the dataset.



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# How can Golden help our facility meet the fenceline monitoring requirements?

Golden has several cost-effective solutions for your facility including all necessary equipment, analysis, and project management and coordination, including

Sampling Locations: Site mapping and planning of sampling locations

Sheltered Sampling Stations: Sampling stations, as well as installation of the stations.

Sampling Kits: Complete kits which include passive sorbent tubes, caps, wrenches, gloves, and pre-printed chain-ofcustody forms. In-house analysis, and continuous replenishment with replacement kits is provided as the project continues, readying the site for the next sample set

Sampling: Tube distribution, collection and replacement

Sample Analysis: In-house accredited 325B analysis of sampled passive sorbent tubes.

Training: Training of refinery personnel as needed

**Data Management:** Assistance with data input and management including required calculations of rolling averages using the new EPA guidelines

Analyzing the raw data to subtract out background concentrations as appropriate.

Developing monitoring plans to provide an alternate method for quantifying background concentrations

#### On-Site Meteriological System:

Rental, Installation and maintaining meteorological equipment for on-site ambient meteorological data, if not available

Conducting a quality assurance audit of on-site meteorological monitoring system

- Correction Action: Assistance in preparing root-cause analysis and corrective action plans to submit to U.S. EPA if refinery exceeds concentration action level
- Project Management: Each client program has a dedicated Project Manager assigned to answer any questions you have or provide any assistance you need

#### Why should I choose Golden over other EPA 325 providers?

Golden Specialty, Inc. has been in the air business for over 20 years delivering the industry's optimal package for quality air and industrial sample analysis. From PM2.5 and GC/MS, to onsite or in-lab FTIR, our experienced scientists and leading technology allow for the flexibility to fulfill a wide variety of projects. We have multiple-state NELAP accreditations, advanced instrumentation, and strong, sound science processes. Above all else, our client's priorities are our primary focus and we pride ourselves on timely, accurate results and efficient service.

Golden has participated in several pilot programs for EPA 325 monitoring across the country, as early as 2015. Several clients, after completing their pilot program, have continued monitoring using Golden to this day. Golden was the preferred choice after several trials of comparative studies for location, analytical consistency, pricing, sample preparation and kits, reporting and customer service.



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#### What is the turnaround time on my samples?

Samples are loaded and analyzed within 72 hours of entering the laboratory. The analytical data is then sent through the Laboratory Information Management System (LIMS) to report preparation, which is followed by a thorough Quality Control evaluation. This process normally takes 7 business days. For a rush fee, reporting can be as little as three (3) days.

#### How is Golden qualified?

Golden maintains NELAP Accreditation through the Texas Commission of Environmental Quality (TCEQ) and secondary NELAP Accreditation for the State of Washington Department of Ecology, the State of Pennsylvania and through the State of Louisiana. Golden has successfully completed a third-party EPA Method 325B Audit, and recently passed a 325B Proficiency Testing Round for BTEX on Carbopack X.



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