



Benzene in Water Standards

APPLICATION

Benzene is present throughout hydrocarbon processing and is a known carcinogen. It is slightly soluble in water and thus, is contained in storm water and process wastes from refineries and petrochemical complexes. Regulations require monitoring of benzene at PPM and PPB levels.

When gas chromatography is utilized to monitor benzene discharges, a sparger is employed with a flow of inert gas through the liquid to separate the volatile compounds. The liberated gas is analyzed and the levels reported.

The sparging process is not absolute. Calibration requires a flowing liquid standard containing appropriate levels of benzene passing through the sparger unit. This is usually a completely manual process that may require several hours of a technician's time.

The standard must be prepared manually by mixing a few milligrams of benzene into several liters of clean water. The mixture is then manually fed to the sparger. Because benzene is very volatile, the standard must be freshly prepared for each calibration check. Repeatability between batches is poor, typically +/- 50% or worse! An added danger is the benzene exposure to the technician measuring and using this mixture.

Kin-Tek Laboratories, Inc. manufactures a **Liquid Standards Generator** capable of generating trace concentration levels of benzene and other volatile organics in water. The system utilizes permeation tubes to continuously add trace levels of organics to a small flow of clean water.

By choosing a proper permeation tube, the system can deliver concentrations from about 1 PPB (w/w) to over 10 PPM (w/w). The water flow may be varied from 10 to 100 ML/MIN.

Flow through the unit is precisely metered by positive displacement pumps. A temperature-controlled chamber assures reliable and repeatable permeate output.

Applications include process control, on-line quality assurance, process water monitoring, and wastewater monitoring.

Trace Source Permeation Tubes and associated instrumentation are NIST traceable.

MTI Analytical Technology is available to assist with environmental and process monitoring applications. Design, engineering, fabrication, installation, and commissioning may be accomplished, thus assuring integrity and performance of component units.

MTI Analytical Technology Products

- Analyzers
- Calibration / Validation Standards
- Electrodes
- Electrochemical Sensors
- Emission Eliminators
- Packaged Analytical Systems
- Sample Handling / Conditioning Devices
- Software Documentation Systems for Analyzers
- Software for Continuous Emission Monitoring Reporting

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