

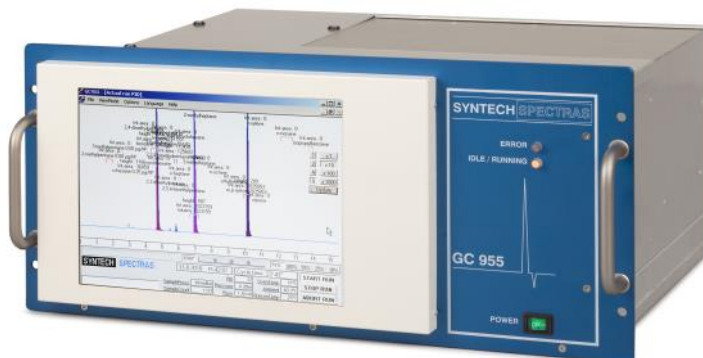
# GC955 SYNSPEC BENZENE/BTEX ANALYSER



## Background

Monitoring of benzene, toluene, ethylbenzene, xylenes (BTEX) and other hydrocarbons in ambient air.

Synspec GC955 series 600 BTEX analyser is built for the measurement of benzene, toluene and xylene isomers in ambient air. Over 1500 of these analysers measuring BTEX are sold all over the world. This analyser is approved according to EN 14662-3.

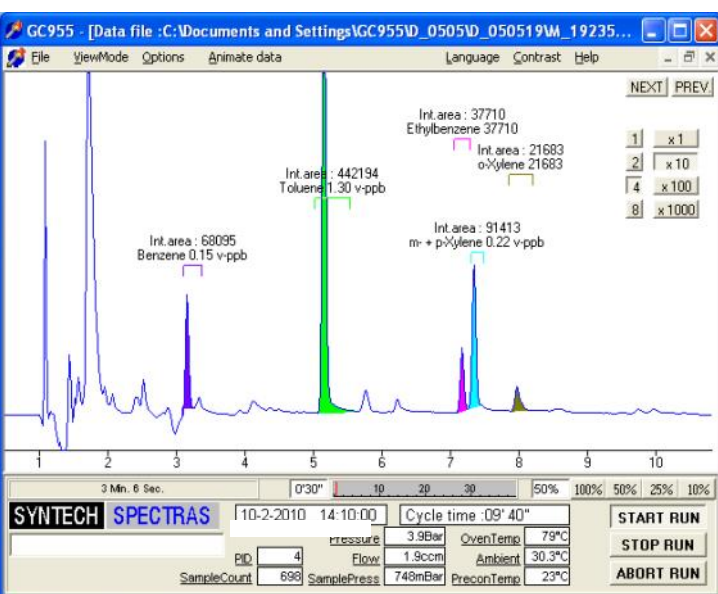


## Hydrocarbon Selection

Benzene is a carcinogenic compound and it is harmful already in very low concentrations; there is no absolute safe concentration limit for benzene. By European regulations, measurement of benzene in ambient air is obligatory. The yearly mean value must be below 5 µg/m<sup>3</sup>. The concentration of benzene in ambient air varies from under 0.1 to above 100 micrograms per m<sup>3</sup>.

Benzene in ambient air is coming from evaporated fuel, either from gas filling stations or from cars. Furthermore, it is emitted by cars by burning fuel and from other burning processes like bio fuel heating or forest fires.

Toluene, Ethylbenzene and o-, m-, p-Xylene are standards that are included in the analyser configuration. This group of components belong to the most active ozone precursor VOCs and have many sources.



BTEX measurement in ambient air

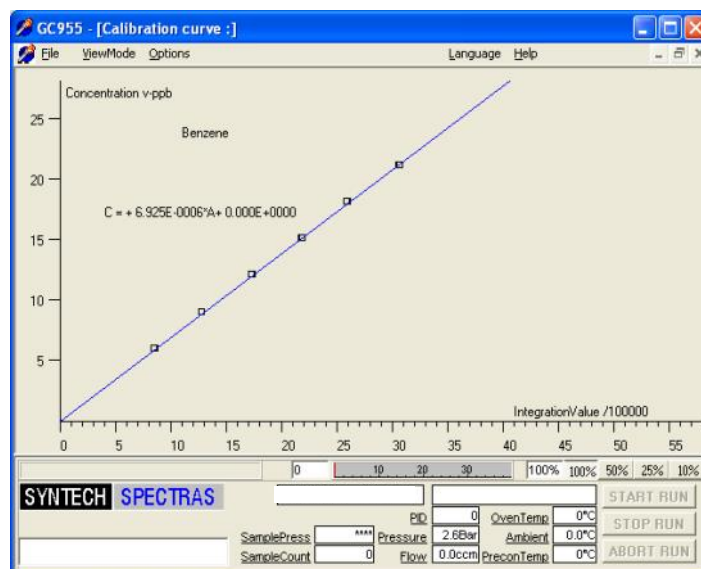
## Measuring Principle

Synspec GC 955 series 601 BTEX analyser can measure up to 40 components.

With different settings and suitable calibration gas it is possible to measure components like octane, chloroethenes, trimethylbenzenes in one 30-minute run. Data processing and communication are prepared for this.

The customer can also specify a list of components that have to be measured and Synspec can include those compounds in the settings of the system. The customer needs to buy the suitable calibration gas to check this and calibrate the system.

As an alternative it is possible to order the 611 ozone precursor (C6 to C12) system or a toxic system 615.



Six-point calibration test up to 20 ppb

## Details

The instrument is a gas chromatograph with a built-in pre-concentration system. Hydrocarbons are pre-concentrated on Tenax GR, desorbed thermally, and separated in an appropriate column to reach optimal separation from interfering hydrocarbons. Alternative columns are available for special applications. Analysis is done by a photo ionization detector (PID). This ensures highly specific sensitivity for benzene and aromatic hydrocarbons in general.

A standard industrial PC, running under Windows, is used. The user-friendly software stores all the chromatograms on the hard disk and data can be interpreted easily with this intuitive software. Data can also be transferred by network and modem connection. Besides this, analogue and digital output options are available to communicate with other data logging systems using several data protocols.

Simple operation, good reliability and low maintenance costs are important to us. With a worldwide network of trained distributors the end-user can be sure that the analyser comes with an individualized training and that local support is available when needed. Synspec GC955 consumes a small quantity of nitrogen as carrier gas.

Preventive maintenance is only required once a year. For good data quality it is recommended to have a regular (automatic) calibration or validation. In the software an automatic multipoint validation/calibration is possible using calibration gas of one concentration per component by using different volumes of air passing over the pre-concentration trap.

The expected lifetime of the analyser is 10 years. Consumable parts are economically priced.

SYNSPEC GC955 SERIES 601 BTEX ANALYSER	
TECHNICAL DESCRIPTION	PID detector. Lowest detection level for benzene 0.1 µg/m <sup>3</sup> (0.03 ppbV). Range: standard 0-20 ppbV, with software adaptations up to 300 ppbV possible.
CERTIFICATES	Approval for EN 14662-3, EN 15267-1, EN 15267-2, VDI-Richtlinie 4202 Blatt 1 and VDI-Richtlinie 4203 Blatt 3 CE approval for EMC conformity: EN 61010 incl. A1 and A2, EN 61000-6-2, EN 61000-6-3 and EN 61326
STANDARD CALIBRATION	Standard 4 point calibration provided for BTX in range 4 to 16 ppbV.
EXTRA COMPOUNDS AVAILABLE	The software of the analyser is prepared to measure up to 40 hydrocarbons. Ask which hydrocarbons you want to add and we will check if this is possible with the existing hardware. Ask Synspec for advise about calibration gas and peak window setting.
REPRODUCIBILITY	Typical <3% at 1 ppbV (benzene, with capillary column)
GAS CONSUMPTION	Nitrogen: quality 5.0, 4 bar, 6 ml/min
DIMENSIONS	19" rack, 5 standard Height Units, depth 43 cm (W 48,3 D 43 H 22 CM), WEIGHT 19 kg
HARDWARE	Internal industrial x86 based computer, suitable for measuring and saving data up to 10 years. Hard disk, full color touchscreen, various data connection options.
COMMUNICATION	Direct control via touchscreen, keyboard or mouse. External data communication via RS232, analog and digital outputs via TCP-IP. Standard available protocols : ASCII terminal, Hessen, Gesytec and MODBUS; other protocols on demand.
INCLUDED SOFTWARE	Windows embedded and GC955 software. Direct control via touchscreen, keyboard or mouse via remote host (RS232/modem) or Ethernet. Software for running the analyser and demo version for data evaluation and reprocessing on desktop is included.
POWER DEMAND	230 V AC, 100 VA (115 V AC available) 50/60 Hz