

# BTX

## Benzene-Toluene-Xylenes U.V. Spectrometer

# MODEL BTX 2000 G

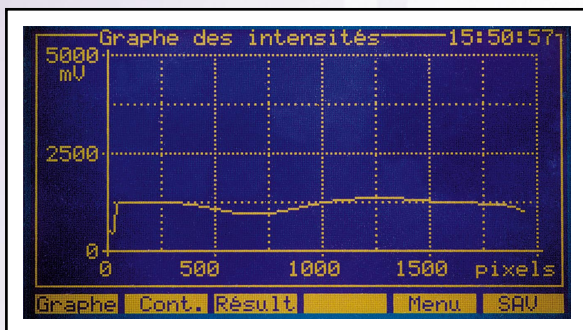


### AMBIENT AIR

The BTX 2000 G analyser belongs to the Series 2000 line of ambient air monitors.

Measurement of BTX in ambient air is usually achieved by gas chromatography after enrichment of these compounds in a trap.

This laboratory measurement has been automated but still remains complex and costly. This is the reason why Seres decided to design and develop in partnership with the EMSE (Ecole des Mines de St Etienne / France) an analyser based on UV spectrophotometry measurement.



AIR QUALITY UNDER STRICT SURVEILLANCE

# MODEL BTX 2000 G

## PRINCIPLE

### ① THERMIC ADSORPTION - DESORPTION

Ambient air is sampled, at constant flow, through a "CARBOTRAP" cartridge consisting of graphite carbon that is perfectly adapted to the adsorption of gaseous compounds having a number of carbon atoms between C4 and C10.

**This is the US - EPA-TO17 method.**

This carbon trap does not stop mineral compounds such as SO<sub>2</sub>, NO<sub>x</sub>, O<sub>3</sub>... whose UV spectrum could interfere. The contact times for adsorption are very short thus ensuring high sampling flowrates and a satisfactory enrichment. This enrichment factor (ratio between the BTX concentration in the air and in the measuring chamber) is about 2500 times in operating conditions as used in the BTX 2000 G analyser.

At the end of the adsorption cycle, the cartridge is heated and the BTX that have been trapped are transferred into the measuring chamber by sweeping with few milliliters of air.

### ② UV SPECTROPHOTOMETRY

The UV spectrophotometry is a simple technique widely used since many years but with limited performance due to spectra interferences.

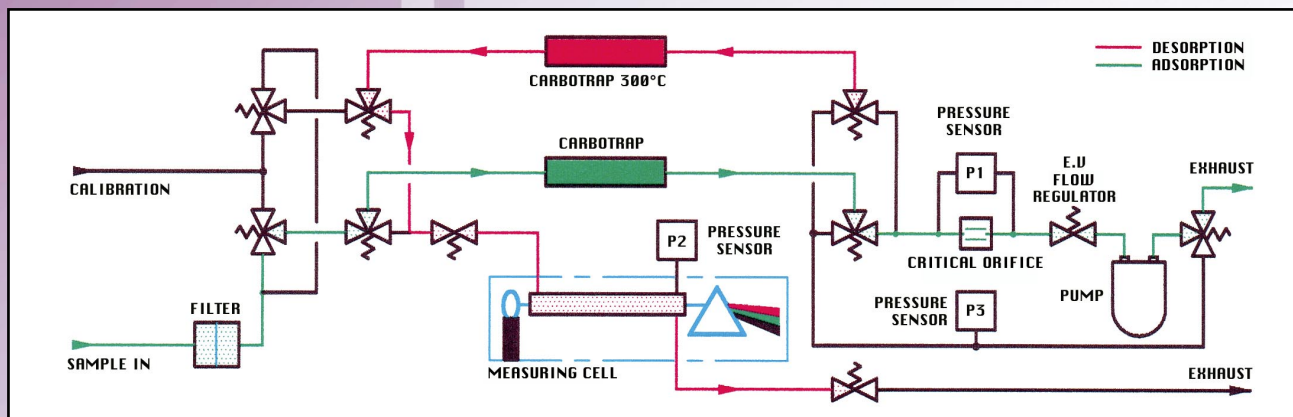
We can now observe a revival of this technique thanks to the use of new optics : monochromatic device with integrated photodiodes array, fiber optics, pulsed UV sources... Moreover, powerful and low cost data processors now make it possible to work out problems of multivariate data analysis using simple and fast technologies.

### ③ SPECTRA PROCESSING

The PLS (Partial Least Square) method enables the measurement of one or several compounds with automatic drift correction. It is a highly performing method that will as well invalidate doubtful data ensuring thus an efficient auto-control of the analyser.

### FOREMOST ADVANTAGES

- Sturdy, simple and reliable analyser.
- Investment and operating costs significantly lower than with gas chromatography.
- Permanent auto-control with correction of possible drifts at each measurement.



## TECHNICAL SPECIFICATIONS

- **Measuring cycle** : 15 or 60 minutes
- **Two cylindrical «Carbotrap» cartridges** : simultaneous backflush cleaning of one cartridge while the other one is used for sampling.  
**Length** : 100 mm - **Diameter** : 14 mm
- **UV spectrophotometer and 2048 photodiodes array.**  
**Spectral range** : 220 - 300 nm.
- **Measuring chamber** :  
Diameter 8 mm - Length 250 mm.
- **Sample flowrate** : 60 to 120 l/h
- **Quarter-hourly or hourly measurements**
- **Accuracy** : 0,15 µg/m<sup>3</sup> (hourly measurement on benzene)
- **Ranges** : 0-100 µg/m<sup>3</sup> or 0-100 ppb
- **Gases measured** : benzene, toluene, xylenes  
**On option** : ethyl-benzene
- **Power supply** : 220-240 V/50 Hz
- **Dimensions** : Rack 19", 6 U  
H = 260 mm, P = 580mm, L = 480 mm.
- **Weight** : 20 kg
- **Graphic LCD display** = 126 x 240 pixels with control keyboard.
- **Outputs** : RS232C and analog 4-20 mA
- **Failure alarms.**

**Seres**  
ANALYSERS

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