

MICROMAC TOTAL LEAD AND TOTAL CADMIUM

VOLTAMMETRIC ON LINE ANALYZER FOR TPb/TCd MONITORING IN WATER



MICROMAC Total Lead/Total Cadmium

is a microprocessor controlled online analyzer specifically designed for automatic and multiparametric TPb/TCd monitoring on several types of waters matrices.

✓ **ROBUST AND RELIABLE**

Designed for industrial and environmental online control applications it ensures the highest level of robustness in the electronics, mechanics and hydraulics components. Complete separation between electronics and hydraulics, plus a simple and robust hydraulics, allows easy maintenance and long terms reliable operations.

✓ **KNOWN ADDITION**

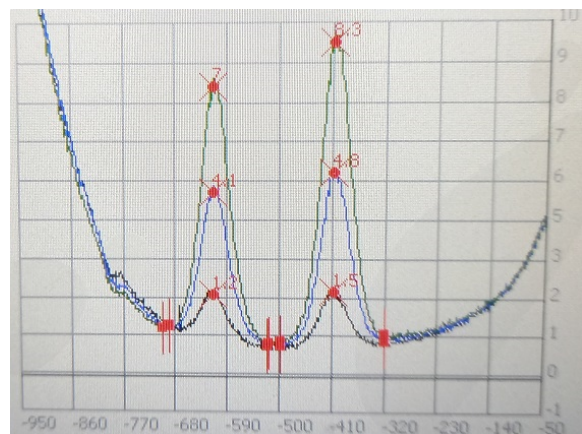
After the sample pretreatment and as part of the measurement process the sample is spiked with two solutions at known concentration. The sample concentration of Lead and Cadmium in the sample are calculated using the known standard additions measurements.

✓ **EASY TO INSTALL**

The online analyzer is delivered after a long and successful series of factory tests ready for installation and setup; it is provided with complete set of spares for start up. To start monitoring is enough to connect reagents, sample line, nitrogen line, waste line and power supply.

✓ **MEASURING INTERVAL**

User selectable; between two measurements the analyzer remains in stand by mode, without reagents consumption.

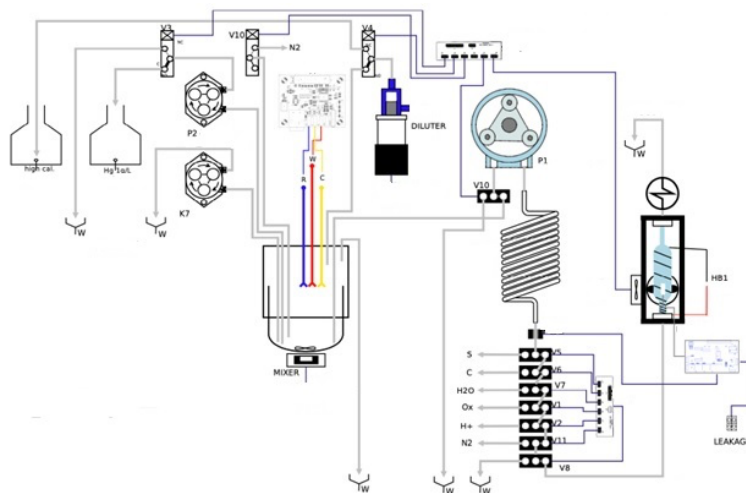


✓ **FEATURES AND BENEFITS**

- Fully automatic operation
- Long autonomy; low maintenance, low operating cost
- Low reagents consumption; short preparation time; low disposable costs
- Easy operation; plug in analyzer, no special training is required
- Electronics and hydraulics completely separated
- Serial interface for local to remote connection.

TPb/TCd measuring principle and hydraulic diagram

This method uses the Anodic Stripping Voltammetry. In this automated method the sample is acidified and heated to degrade all the organic substance, which would interfere with the measurement. During digestion, in the measuring cell mercury deposition is performed on the glassy graphite electrode. After digestion, the sample is transferred to the measuring cell where it is degassed with nitrogen for the removal of dissolved oxygen. The measurement of the concentration is performed in three steps.



Initially, cathodic deposition of the sample at -950 mV and anodic stripping of the sample from -950 mV to -50 mV are performed. Subsequently, the same operations are performed with the sample and the two known calibrant additions, through which the concentration of Lead and Cadmium in the sample are calculated.

Technical Specifications

MEASURING PRINCIPLE: Anodic Stripping Voltammetry

MEASUREMENT TYPE: cyclic

MEASURING INTERVAL: programmable

MEASURING TIME: about 50 minutes depending on sample type/the range

WORKING RANGE: up to 100 ppb either Total Pb or Total Cd

ACCURACY: at 5 ppb average of 7 replicates $\leq 10\%$ both TPb/TCd

REPEATABILITY: at 5 ppb, SD% of 7 replicates $\leq 10\%$ both TPb/TCd

DETECTION LIMIT: SD of 7 replicates at 5 ppb $\times 3,14$, - $\leq 1,0$ ppb both TPb/TCd

OUTPUT SIGNAL: 4-20 mA

INPUT SIGNALS: n. 1 Analysis, n. 1 calibration; digital contacts

ALARMS: n. 1 High Limit, n. 1 General, n. 1 Calibration; potential free contacts

NITROGEN LINE: Nitrogen type C, Pressure: 0,5 bar, Flow rate 200-300mL/min

SAMPLE AND WASTE DELIVERY: pressure free;

SAMPLE TEMPERATURE: 10 °C - 30 °C

REAGENTS REPLACEMENT: 3/4 weeks depending on the operating temperature

PROTECTION: IP55

HARDWARE: PC104 industrial standard, Integrated keyboard and graphics display, RS232 serial port

POWER SUPPLY: 12 VDC external power supply from local power included

WEIGHT / DIMENSIONS: 33 Kg without reagents / 800x420x280 mm (hwxwd)

Subject to change without notice

SYSTE A S.p.A.



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