

EnviroPen

Innovative handheld biosensor device for *in situ* detection of halogenated compounds

EnviroPen is reliable, portable and economical device for rapid monitoring of a wide range of halogenated hydrocarbons. EnviroPen is easy to operate in field conditions without requirement for collection and transfer of samples to laboratory as usual for standard chromatographic methods.

CONCEPT

EnviroPen's high sensitivity is based on specific activity of haloalkane dehalogenase enzymes with a target analyte, coupled to a fluorescence dye indicator immobilised on the biosensor tip.

APPLICATIONS

EnviroPen is suitable for detection of surface and ground-water contamination, monitoring of bioremediation and wastewater treatment progress. Small size and robustness enables the usage of EnviroPen in the deep ground water wells.

TECHNICAL PARAMETERS

- ✓ Fast response time: 1 min
- ✓ Broad pH range: 4 - 10
- ✓ Broad temperature range: 4 - 40 °C
- ✓ On-line mode
- ✓ Remote control
- ✓ GSM mapping
- ✓ Examples of analytes:

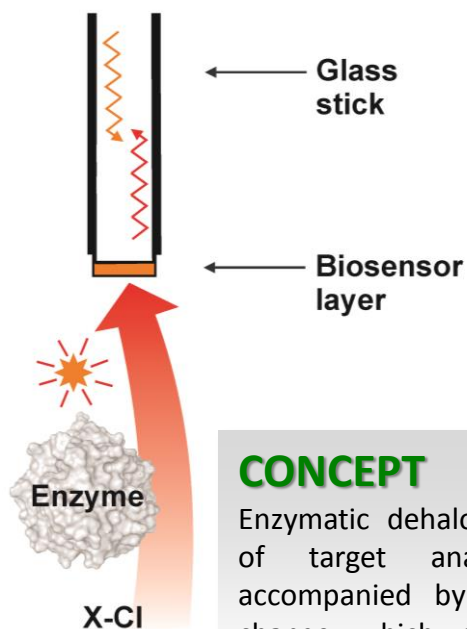
1,2-dichloroethane
1,2-dibromoethane
1,2,3-trichloropropane
3-chloro-2-(chloromethyl)-1-propene



DETAILED TECHNICAL PARAMETERS

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|---|--|
| Chemical compatibility: | aqueous solutions |
| Response time: | 1 min |
| pH range: | 4 – 10 |
| Temperature range: | 4 – 40 °C |
| Calibration: | 2 buffers |
| Storage conditions: | dry or wet |
| Memory capacity: | > 200,000 samples |
| Battery life: | > 100 hours of continuous measurement |
| Examples of analytes and detection limits: | 1,2,3-trichloropropane (1.3 ppm) 1,2-dibromoethane (2.6 ppm) 3-chloro-2-(chloromethyl)-1-propene (0.8 ppm) 1,2-dichloroethane (2.4 ppm) |

LED Photodiode



CONCEPT

Enzymatic dehalogenation of target analyte is accompanied by the pH change which decreases fluorescence intensity of the pH indicator.

SIMPLE AND ECONOMICAL MEASUREMENT

Detection of halogenated compounds is possible within 1 min of measurement time. Collected data are transferred to the computer for evaluation and back up. The cost of one measurement is approximately 1 euro, which is 100 times lower than for conventional chromatographic analysis.

