

# 5320 ELCD

## ELECTROLYTIC CONDUCTIVITY GC DETECTOR

**The 5320 Electrolytic Conductivity Detector (ELCD) is designed for selective detection of halogen-containing compounds.**

**The 5320 ELCD consists of three principal components: the reactor assembly, the cell-solvent assembly, and the detector controller. The ELCD's primary mode of operation is the halogen mode (X); sulfur (S) and nitrogen (N) modes are also available. Each detection mode kit contains all of the required materials (except the solvent) to operate the ELCD in the specified mode.**

### Operating Principle

The ELCD converts halogen compounds eluting from a GC column to an ionizable gas (HX) using reductive conditions in a high-temperature catalytic microreactor. Gaseous reaction products carried into the detector cell become dissolved in a deionized solvent, which increases the electrolytic conductivity of the mixture. The detector amplifies this instantaneous change in conductivity, producing a signal proportional to the mass of halogen in the original compound.

### ELCD Capabilities

- Quick-change reactor design, disposable resin cartridge, and reliable solvent system
- Analog-controlled reactor temperature and solvent flow
- Detector base optimized for capillary columns
- Solvent venting using GC timed-event relay
- Direct interface with most GC brands and models
- Directly interfaces to a 4430 PID without a transfer line to form a tandem detector that requires only one detector port



### Principal Applications

- USEPA Methods (502.1, 502.2, 601, 608, 611, 8010, 8021)
- VOCs
- Pesticides
- Halogenated Compounds
- QA/QC
- Petroleum Products
- Process Control, Testing, and Analysis
- Fluorinated and Chlorinated Contaminants in Process Streams

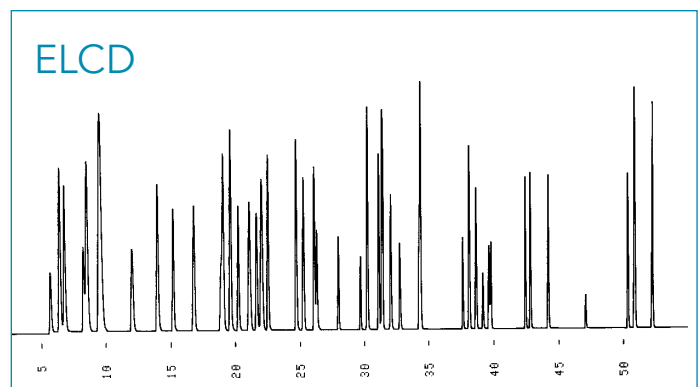
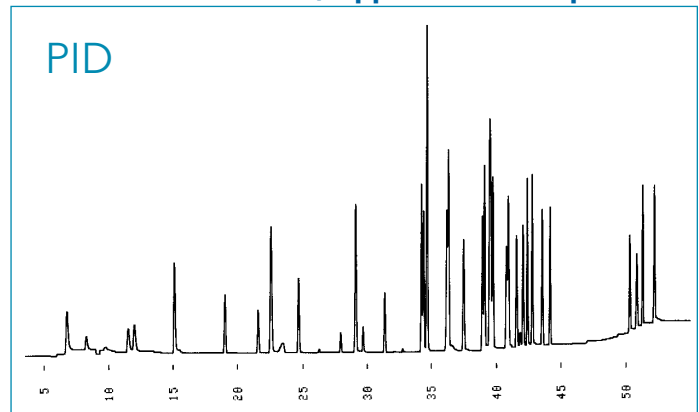
# 5320 ELCD SPECIFICATIONS

## 5320 Specifications - Halogen Mode

<b>Detectable Mass</b>	
Maximum*	1 pg lindane
Maximum	5 µg lindane
<b>Dynamic Range</b>	5 x 10 <sup>6</sup>
<b>Selectivity</b>	Cl/HC > 10 <sup>6</sup> Cl/N > 10 <sup>5</sup> Cl/S > 10 <sup>5</sup>
<b>Reactor Temperature</b>	
Range	800 - 1,100 °C in 100 °C increments
Stability	± 1 °C
<b>Solvent Flow</b>	Adjustable on the cell amplification board
<b>Solvent Flow Range</b>	0-200 µL/min
<b>Solvent Vent Valve</b>	Controlled by GC timed-event relay
<b>Detector Output</b>	0-1 V or 0-10V
<b>Operational Modes</b>	Halogen, Sulfur, Nitrogen
<b>Gas Requirements</b>	Hydrogen, Ultrahigh purity (99.999% or better)
<b>Power Requirements</b>	90-260 V <sub>AC</sub> (±10%) 47-63 Hz, 200 W
<b>Detector Controller</b>	
Weight	3.8 kg (8.4 lb)
Dimensions	21.0 cm H x 12.7 cm W x 30.5 cm D (8.25" H x 5.0" W x 12" D)

\* Minimum Detectable masses were obtained under optimal operating conditions.

## PID and ELCD chromatograms of USEPA Method 502.2 standard, 5 ppb of each component



### Standard

5 ppb each in 5 mL H<sub>2</sub>O

### Gases

10 mL/min (He) Carrier  
20 mL/min (He) Makeup

### Oven

35 °C for 10 min, to 200 °C at 4 °C/min, hold at 200 °C for 10 min

### P&T Sample Concentrator

Standard EPA Method 502.2, Tenax®/Silica/Charcoal Trap (#9 Trap)

### Column

Rtx® - 502.2, 105 m x 0.53 mm I.D. x 3.0-µm film thickness

### Note

Performance is affected by several factors, including GC, column, electrolyte, gas flows, and compound class.



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