WINNER

1995 R&D 100 Awards Winner
Microsensor for Volatile Organic Compounds

Features:
- Permits real-time environmental monitoring.
- Provides reversible sensing, that is, it can be used again and again; time between use and reuse is <10 seconds.
- Does not generate hazardous waste.
- Compact, inexpensive, and power efficient.
- Robustness of covalent bonding provides long-term stability.
- Ultrasensitive detector of organic toxins; current detection limit to 20 parts per billion.
- Only sensor that can track aromatic, chlorinated, and simple hydrocarbons.
- Compatible with silicon (semiconductor) technology, allowing it to be mass produced on microchips.

Applications:
- Real-time environmental monitoring
- Plume/site remediation
- Industrial waste stream characterization
- Air-quality monitoring (stack and ambient)
- Storage-tank leak detection

Benefits:
Our microsensor is the only chemical sensor that can be reliably used for long-term, real-time, continuous monitoring of volatile organic compounds in air, water, and possibly soil. Because of its compactness, the microsensor can easily fit in areas difficult to access with conventional sensor systems. With an array of microsensors, toxins can be fingerprinted--that is, they can be specifically identified--and organic plumes can be characterized for size, concentration, and movement. Our microsensor costs one-twentieth the price of competitive sensors, resulting in large cost savings to buyers.