### Technology Value Proposition

The U.S. Navy wishes to commercialize a patent describing a novel method for detecting explosives where the explosive is detected by an microelectrode sensor through the changes of its electrical properties (resistance, conductance, capacitance, etc.) when the explosive molecule undergoes an exothermic chemical reaction with the coating on the sensor’s surface.

This invention is unique because even a single molecule will produce a change in the electrical properties through chemical “amplification” of a binding event, thereby providing greater sensitivity than that achieved by current explosive detectors. This method would reduce the need for electronic amplification of the signal, thereby improving the signal-to-noise ratio for even single binding events and requires lower power. This technology would allow detection of explosives at a greater distance and with a lower vapor pressure, and especially explosives packed in a container, such as land mines or Improvised Explosive Devices (IEDs). This technology will result in a reduction of false positive detections.

### Benefits

- Enables detection of low concentrations of explosives
- Can be incorporated into standard microelectrode array
- Can be handheld or remotely-operated

### Potential Customer Segments

- Explosive Ordnance Disposal
- Humanitarian Demining
- Improvised Explosive Device Detection
- Homeland Security/Transportation Security Administration (for personal/baggage screening)

### Opportunity

Issued U.S. Patent 8,231,746 is available for license.

Potential for collaboration with U.S. Navy inventors and Indian Head Explosive Ordnance Disposal Technical Division (IHEODTD) laboratory

### Contact

Mr. John Millemaci,  
Director, Technology Programs  
jmillemaci@etcmd.com  
(W) 301-645-6637 x 709

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