



• CHEMICAL POINT DETECTION

• DISTRIBUTED SENSING

• INTELLIGENT SENSOR NETWORKS

## ABOUT OUR COMPANY

*Defense and Homeland Security*

## PRODUCTS

Cyrano's product offerings address three major needs of the Defense and Homeland Security markets:

**Detection:** Hand-held chemical/biological detection devices for emergency first responders.

**Monitoring:** Low cost, low power chemical/biological detectors for personnel monitoring or for integration into larger systems.

**Networking:** Integrated systems that allow for early detection and notification of dispersed, facility-wide events such as chemical and biological releases in or around facilities or installations.

The following table summarizes Cyrano's product line and market segments:

Product	Markets	Application	Fully Integrated Device	Miniature Sensor Platforms for OEMs	Networked Sensors
<b>Cyranose™ CD</b> Chemical Point Detection	Homeland Security	<b>Incident Response</b> * First Responders	✓		✓
<b>NoseChip™</b> Chemical / Biological Point Detection	Military / Homeland Security	<b>Detection and Alarm</b> * Respirator Filters * Personal Badges * Collective Filters	✓	✓	✓
<b>Sensigent™</b> Intelligent Software Intelligent Sensor Networks	Military / Homeland Security	<b>Facility Protection</b> * Military Installation * Commercial Buildings * Battlefield Management			✓

## Cyranose™ 320

Cyrano's first product, the Cyranose™320, was commercialized in September 2000. The Cyranose™320 is the first hand-held, array based chemical sensing device and is used to solve problems in quality control and process monitoring applications for industrial and commercial markets. The product incorporates two core Cyrano technologies: array based sensing and advanced pattern recognition software. In combination, these technologies enable rapid detection and identification of materials and substances based upon their chemical profile.



The Cyranose™320 can be deployed in manual hand-held or in-line automated activation modes and is designed to be used on a completely stand-alone basis. The Cyranose™320 was recognized as a significant new capability in the inspection arena and was designated a Best New Product at

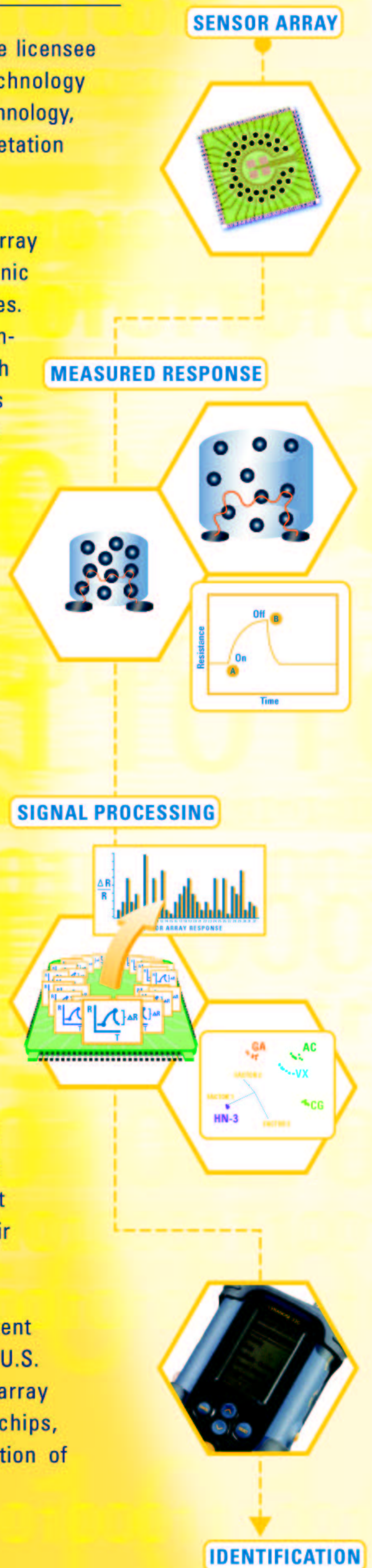
## TECHNOLOGY

Cyrano Sciences is the worldwide exclusive licensee of patented array based sensing technology developed at the California Institute of Technology, as well as data aggregation and interpretation software developed at NASA/JPL.

Cyrano's sensing technology involves an array of composite sensors made of different organic matrices filled with conductive nanoparticles. This organic matrix can either be non-specific, such as a polymer, or specific, such as an antibody or antigen. When the sensors come in contact with a vapor or liquid, the organic material expands like a sponge, producing a change in resistance and a measurement of this change is then taken. The resistance data from each of the 32 sensors in the array is converted into a unique response pattern and using advanced pattern recognition algorithms, an identification is then made.

Leveraging the expertise in data processing developed for array based sensing and additional data fusion software licensed exclusively from NASA/JPL, Cyrano is developing network-based software for complex data management. Written in XML, this software mimics the way the brain interprets complex sensory information and focuses only on those inputs necessary to perform a particular interpretive or analytical task. This software has been designed to allow inputs from all types of sensors and databases, to detect anomalies in this data, and output real time information to customers at their point of need.

Cyrano Sciences has an extensive patent portfolio, with over 20 issued and 26 U.S. pending applications, based on sensor array technology, algorithms, instruments, chips, medical diagnostics, and the communication of digital sensor information over a network.



Key applications identified thus far include:

- A personal badge for chemical and biological agent detection;
- A distributed monitor for facilities protection;
- An integrated chemical and biological detection system for cargo monitoring.

## Sensigent™

Sensigent™ is a real-time intelligent network sensor software system. Sensigent™ collects and interprets data from multiple distributed sensors, notifies personnel of events or alarms, communicates the severity and potential impact of these events to provide a clear picture of any situation as it unfolds, and suggests appropriate actions or responses. Using sensor data-fusion technology known as DAIS™ that has been employed by NASA/JPL in satellite operations and in the development of the Joint Strike Fighter, Sensigent™ aggregates and interprets a wide variety of sensor inputs, including the chemical and biological sensors supplied by Cyrano and provides automatic detection and notification. It is also able to integrate other sensors and available data in order to enable responders to make an informed decision about a given threat or event. Sensigent™ is designed to support both wired and wireless communications and as well as differing levels of data interpretation depending on the complexity of the intended application.



Pittcon 2000, the world's largest annual conference on analytical chemistry, applied spectroscopy and the allied sciences.

The company is currently implementing the needed enhancements in the use model of the device to enable its use in the Defense and Homeland Security markets. These enhancements are directed at the detection of Chemical and Biological Warfare Agents as well as Toxic Industrial Chemicals and include higher sensitivity sensing materials, advanced sampling systems, and improved pattern recognition software.

## **NoseChip™**

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The NoseChip™ family of products represents component-level applications of the Company's technologies. These products are developed and designed to be either stand-alone or integrated into devices and systems produced by others, such as respirators and personal exposure badges. Based on the inherent low cost, low power nature of Cyrano's sensing technology, the company is uniquely positioned to enable applications where these attributes are critical. The NoseChip™ family currently under development includes two products: ChemAlert and ChemBioAlert.

### **ChemAlert™**

ChemAlert is a low cost, low power chemical sensor with optional short-range wireless capability (<300 feet). To be priced to the end user at less than \$100 per unit, ChemAlert is intended to provide chemical detectors across a number of applications. Key applications identified thus far include: Residual life indication for respirators; Wearable, passive personal badge detectors for toxic industrial chemicals and chemical warfare agents; Leak detectors in military or commercial systems; and Quality monitors in embedded systems.

Because chemical concentration drops rapidly with distance, sensing is critical to allow cost effective installation of multiple sensing points in a given environment. ChemAlert allows multiple chemical sensors to be deployed economically in order to achieve low cost, highly effective facility monitoring.

Equipped with proprietary event detection software that reduces false alarms while maintaining required sensitivity, ChemAlert is also configured to tie directly to a physical or electronic response in parallel to an alarm.

### **ChemBioAlert™**

ChemBioAlert is an integrated device that enables detection, discrimination, alarm, and notification of airborne chemical and biological threats facing military and civilian first responder personnel. ChemBioAlert leverages Cyrano's ChemAlert platform in the biological detection area. This device is designed to be integrated into individual or area monitoring applications.



## ABOUT OUR COMPANY

Cyrano Sciences, Inc. provides chemical and biological sensors and software solutions for the Defense, Homeland Security, Industrial and Commercial markets. These solutions allow customers to protect and monitor their people, products, or facilities locally or globally with an end-to-end 'train of awareness' that combines detection, interpretation, and action.

Cyrano's product platforms include hand-held devices, low cost distributed sensors and sensing networks, and integrated detection and notification systems. Each of these product platforms relies on Cyrano's core competencies of array based chemical sensing, data interpretation, and system integration all of which are protected by an extensive patent portfolio.

Based in Pasadena, California, Cyrano is located close to the origins of its proprietary array based chemical sensing technology, the California Institute of Technology. The company's initial focus was the commercialization of its first product, the Cyranose™ 320, which is based on the core sensing technology licensed from Caltech.

With the successful launch of the Cyranose™ 320 in September 2000, Cyrano has evolved into a world market leader prepared to capitalize on its ability to produce low cost, low power array based sensing, data interpretation, and system integration.

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