



## **1<sup>ST</sup> DETECT BUILDS UPON ITS PATENT PORTFOLIO FOR CHEMICAL ANALYZERS**

**Webster Texas – May 4, 2016 - 1<sup>st</sup> Detect Corporation** was awarded three patents by the United States Patent Office (USPTO) enabling the field use of ion trap chemical analyzers in harsh and demanding environments. These recent awards bring 1<sup>st</sup> Detect's total patent count to 16 U.S. and 10 international issued and 8 U.S. and 12 international pending as of April 30, 2016.

"These patents build upon our expanding IP portfolio that protects our technology enabling advanced chemical analysis to be performed reliably under adverse conditions commonly found in the field," said Thomas B. Pickens III, Chairman and CEO of 1<sup>st</sup> Detect Corporation. "Safeguarding this ability maintains a key differentiator, particularly as we pursue a broader range of markets from the battlefield to the factory floor. We are excited about the market opportunities, and, in fact, several Fortune 500 companies are already evaluating our chemical analyzers for use in the semiconductor and the food & beverage industries."

- U.S. Patent No. 9,312,112 titled, 'Evacuating a Sample Chamber' describes an alternative method for introducing volatile and semi-volatile samples into a mass spectrometer. The use of swab sampling for the collection and transfer of illicit materials to chemical analyzers for threat detection is widely used throughout the security sector. However, the standard practice of heating these swabs to achieve gaseous transfer of the sample to the analyzer often results in thermal degradation of the analytes, thereby limiting one's ability to detect thermally sensitive components. This most recent patent from 1<sup>st</sup> Detect provides a novel approach to achieving efficient transfer by utilizing reduced pressure conditions to increase the analytes' vapor pressure. In this way, improved transfer of the un-degraded sample can be accomplished.
- Japanese Patent No. 5,895,034 titled, 'End cap voltage control of ion traps' represents another significant innovation in ion trap technology pioneered by 1<sup>st</sup> Detect. This enhancement to the design and operation of miniaturized ion trap mass spectrometers enables improved system performance in terms of extending both the range of ion masses that can be detected as well as the range of sample concentrations that can be monitored. These improvements allow 1<sup>st</sup> Detect's miniaturized mass spectrometers to obtain levels of performance that have previously only been obtainable by much larger systems.
- U.S. Patent No. 9,299,545 titled, 'Systems and Methods for Calibrating Mass Spectrometers' represents a key technological advantage for 1<sup>st</sup> Detect to deploy its novel miniature chemical analyzer technology into security and industrial applications where the size and complexity of traditional mass spectrometers have prevented their use. The technology protected by this patent allows the mass calibration system of the instrument to operate successfully regardless of orientation or vibration, while minimizing size and cost. It also allows easy servicing of the calibration element without the need for tools or advanced training.

### **About 1<sup>st</sup> Detect Corporation**

1<sup>st</sup> Detect, a subsidiary of Astrotech Corporation (NASDAQ: ASTC), develops, manufactures, and sells powerful, sensitive, and accurate chemical analyzers that streamline processes for industrial use in the food and beverage, semiconductor, pharmaceutical, healthcare, research, and environmental markets, as well as for government applications used in explosive and chemical warfare detection for the Department of Homeland Security and the military. The company's core mass spectrometry technology was first developed under an agreement with NASA for use on the International Space Station. The unit is capable of detecting a wide variety of chemicals including residues and vapors from explosives, chemical warfare agents, toxic chemicals, food & beverage contaminants, and pollutants. These capabilities, combined in an economically priced, transportable, and ruggedized solution, make it an ideal tool for a variety of applications. For more information on 1<sup>st</sup> Detect Corporation, please visit [www.1stDetect.com](http://www.1stDetect.com).