Collins Aerospace – Hamilton Sundstrand Corporation

Core Business Areas/Focus:

Hamilton Sundstrand Corporation (HSC), a Collins Aerospace company, is one of the operating units of United Technologies Corporation. UTC is a global technology leader with a long history of pioneering innovation in aerospace, defense, and commercial industries. As part of UTC, Collins Aerospace companies design and manufacture aerospace and defense systems for commercial and government customers.
HSC's analytical instrumentation business is based in San Dimas, California where it operates out of a brand new 78,000 square foot facility with state of the art engineering laboratories, chemical and environmental testing and production facilities. This business has 50 years of experience as a premier developer and manufacturer of precision analytical instruments in life-critical and threat environments for soldiers, sailors, and NASA astronauts. The HSC San Dimas site specializes in high-performance, rugged, and reliable chemical detection instrumentation for the U.S. Army and Department of Homeland Security (DHS), as well as atmosphere monitoring devices for NASA human space flight vehicles and US Navy Submarines.
HSC San Dimas provides full life cycle product support including emerging technology development through product design, development, manufacture low rate and full rate production, field support and overhaul and repair services. Our organization has produced and fielded thousands of chemical detection instruments for the US Government over the last 50 years.
The greater Collins Aerospace corporation, including it's 70,00 employees and 16,000 engineers, as well the United Technologies Research Center are additionally available resources for employment on customer programs.

R&D Highlights/Projects:

Portable Explosive Trace Detector (pETD)
Our Portable Explosives Trace Detector (pETD) is a compact, hand-held, battery operated explosives detector that uses differential mobility spectrometry to monitor for traditional and emerging threat explosives, with sensitivity to detect minute samples.

Personal Chemical Hazard Detector (PCHD)
This product will mature prototype wearable chemical threat detectors designed to meet analytical performance requirements for CWAs and TICs on the PCHD threat list with stretch design goals for size, weight, battery life, environmental temperature and humidity.

Chemical Surface Detector (CSD)
This modular system provides continuous threat CWA threat detection and identification, mounted on a reconnaissance vehicle, traveling at speed over a wide range of terrain and surfaces. This system uses Raman Spectroscopy and multivariate data processing algorithms coupled with a comprehensive spectral library to enable automated detection.

MAEGLIN
A Molecular Analyzer for Efficient Gas-phase Low-power Interrogation (MAEGLIN) has been using a tandem ion mobility spectrometer technology that will allow unattended environmental monitoring for up to two years.

Patents:
HSC has recently been granted US patents for the use of wearable chemical detectors and the DMS-IMS based portable chemical detection.

Technical Expertise:

HSC- San Dimas has a 50-year track record in research, design, and development of sophisticated analytical instruments for the U.S. military, with all the necessary expertise and infrastructure to design and develop unique detection systems for the US Customs and Border Protection Agency.

Core technologies include:

- Mass Spectrometry
- Ion Mobility Spectrometry
- Raman Spectroscopy
- Gas Chromatography
- Optical (Laser) Spectroscopy
- Particle and Vapor Sampling Methods
- MEMS Sensors
- Ruggedized Mil Specification Equipment
- Space and Airborne Hardware Qualified Systems

HSC-San Dimas maintains a dedicated test laboratory for chemical testing including Chemical Warfare Agents (CWA) simulants, Toxic Industrial Chemicals (TICs), narcotics and explosives standards. This facility is used for developing and testing a wide variety of analytical instrumentation, from individual chemical sensors to mass spectrometry systems. We also maintain an environmental laboratory with chambers for temperature, humidity, and vibration testing. With our facilities, personnel, processes and infrastructure, we continue to actively pursue innovative and emerging technologies for our government and commercial customers.