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The MX908 is a multi-mission tool able to identify CWAs and pharmaceutical-based agents as well as explosive threats and relevant precursors.

Multi-mission threat detection in REAL TIME

David A. Godin outlines real-time chemical and explosives detection at trace levels

Handheld devices enable responders to safely detect solid, liquid, vapour and aerosol threats at the point of need. The MX908 is a multi-mission, handheld mass spectrometer employed by élite hazmat, law enforcement and CBRNE responders across the world

It is uniquely capable of detecting traditional chemical warfare agents (CWAs), controlled substances, explosives, and new and emerging threats such as fourth-generation or Novichok agents, and pharmaceutical-based agents such as fentanyl, carfentanyl, and other analogues of concern at trace levels.

The mission

At 908 Devices, our mission is to revolutionise access to mass spectrometry by way of simple-to-use handheld and desktop devices for critical-to-life applications. Our devices are used at the point-of-need to interrogate unknown and invisible materials and provide quick, actionable answers to directly address some of the most critical problems in life sciences research, bioprocessing, pharma/biopharma, forensics and adjacent markets.

Core technology

At the heart of the MX908 is our core technology platform known as high-pressure mass spectrometry (HPMS). As opposed to laboratory or other field-portable mass spectrometers, which require a heavy vacuum pump for operation, HPMS allows us to shed the weight and complexity of traditional mass spectrometers and bring this gold-standard analytical power into the field for everyday use. The devices' advanced algorithms turn complicated mass spectra, which traditionally required a highly trained technical user to interpret, into easy-to-read alarms for users with any level of training.

Currently we have more than 1,700 devices supporting critical-to-life missions worldwide, in over 40 different countries across six continents, and devices supporting six different languages with more to follow.

Modular, expandable platform

The MX908 is designed to be a modular, expandable platform that can evolve with the evolving threat landscape.

In 2018 as the opioid crisis worsened in the United States with growing access to deadly synthetic opioids, we developed a novel, predictive fentanyl classifier. This feature allows for detection of fentanyl analogues without a need for reference spectrum, making law enforcement and border patrol agents better able to adapt to the evolving threat in the field.

Also in 2018, as the Russian attack in Salisbury, England was declassified, it became clear that the next generation of chemical warfare agent was now loose in the world: Novichoks. We responded rapidly with new MX908 threat targets for these deadly A-series CWAs and remain the only field-deployable tool to have that capability.

Finally, in Spring 2021 we launched our Aero module for the MX908, which gives responders in the CBRNE community access to real-time, simultaneous monitoring of both vapour and aerosolised particulate threats such as fentanyls, some CWAs, and other pharmaceutical-based agents of concern. The MX908 with Aero is currently the only device capable of performing aerosol analysis in the field.

These rapid adaptations to emerging threats represent our commitment to preparing first responders for the current threat landscape.

Rapid results

The MX908 can be used for rapid results that are critical to informing users of next steps. Whether it is identifying harmful or controlled materials at border crossings, enabling interdiction of controlled substances along trafficking routes, or identifying unknown materials at the point of contact during a hazardous material response – the MX908 can provide identification of bulk materials or trace residues in just minutes.

Beyond the traditional areas of emergency response, we are also heavily ➤

involved in public health on the frontlines of the opioid crisis in the United States. In recent years, counterfeit pills laced with potent synthetic opioids have flooded the illegal drug market, leading to an increase in overdose deaths and concerns for officer safety. The MX908 can see through cutting agents in counterfeit pills and powders to identify deadly fentanyl and other synthetic opioids, empowering first responders to make better decisions on scene and public health officials to better identify overdose risks and treatment plans.

Drug detection

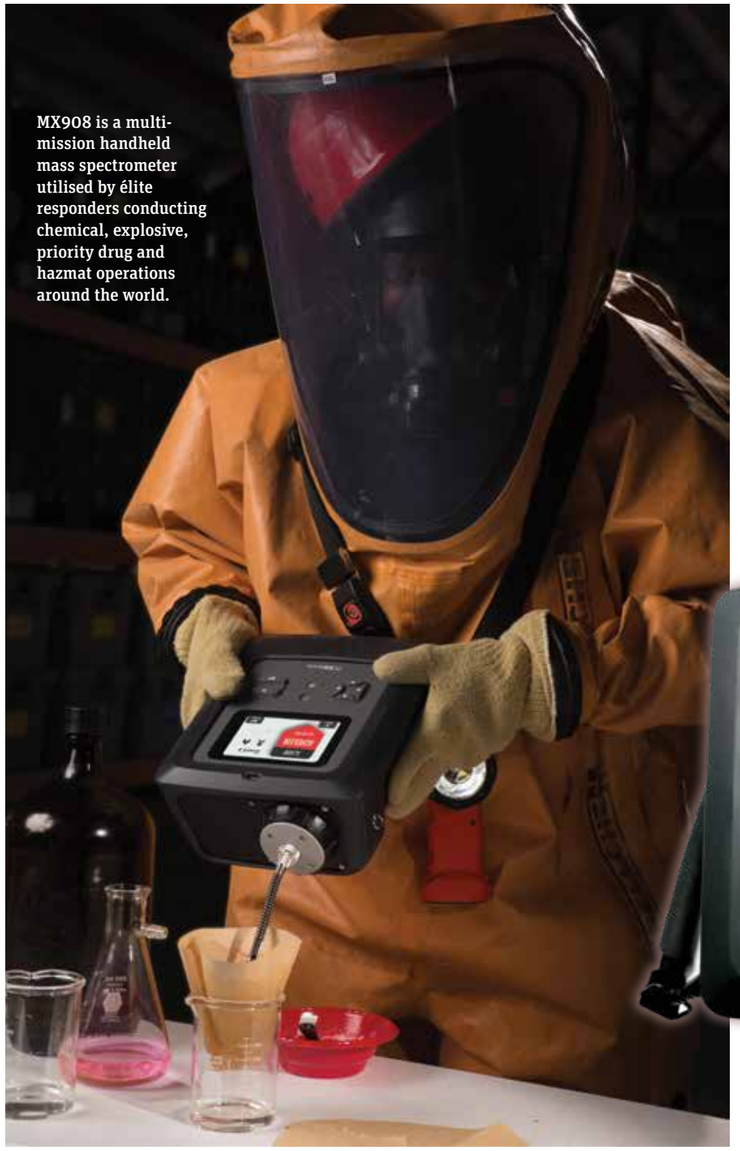
Detecting and identifying controlled substances has become increasingly challenging in the last decade. Synthetic designer opioids, cathinones, and cannabinoids have become increasingly prominent alongside more traditional controlled substances like methamphetamine and cocaine.

Synthetics tend to be highly potent and occur in low-concentration mixtures, which make identification by traditional drug detectors challenging. This also makes synthetics a security concern as potential pharmaceutical-based agents. The MX908 uses the analytical power and sensitivity of mass spectrometry to adapt to a changing threat environment and to keep up with the new analogues created by clandestine chemists.

Support when and where you need it

Our team has a long history of involvement in hazmat, law enforcement and CBRNE response. Many of our team members helped to bring FTIR (Fourier-transform infrared spectroscopy), Raman, IMS (ion mobility spectrometry), and other technologies out of the laboratory and into the field. Our trainers and scientists come to us with decades of operational experience, and we use that experience to guide our product development, training, and customer support efforts.

Learn more about MX908 at 908devices.com/MX908.



MX908 is a multi-mission handheld mass spectrometer utilised by élite responders conducting chemical, explosive, priority drug and hazmat operations around the world.

Above: The Aero is the first and only comprehensive solution to detect and identify vapour and aerosol threats, such as chemical warfare agents and pharmaceutical based agents, simultaneously.

David A. Godin is the Director of Field Forensic Applications for 908 Devices in Boston, Massachusetts. He served five years as a US Army Chemical Officer in the 110th Chemical Battalion, Technical Escort. He has trained hundreds of emergency response personnel in the field analysis of controlled substances, hazmat operations, and CBRNE response.