# Product Overview

- The CBRNE Detection Specialists

Innovation with Integrity

CBRNE

# Prepared for a Changing World of Threats

Bruker Daltonics – since 30 years a trusted manufacturer of CBRNE detection equipment – offers and constantly improves their sophisticated CBRNE product line and this way tries to help counter chemical, biological, radiological, nuclear and explosive threats. State-of-the-art technology, ruggedized design and modular accessories allow flexible and extensive applications.

## The complete product line for CBRNE detection

CBRNE technology has always been the core competence of Bruker Daltonics. We were the first supplier who covered the complete range of chemical, biological and nuclear detection. Bruker is specialized in development, engineering and manufacturing of military hardened and easy-to-use analytical systems and is ISO9001 certified. The product line supports all possible use cases for the detection of various threats.

## Systems for CBRNE Defence

Bruker solutions includes personal and handheld point detectors as well as detection systems for reconnaissance vehicles, battle tanks, shipboard or stationary use. Bruker provides sophisticated CBRNE software solutions for instrument control and systems integration.

## Safety & Security

Bruker equipment supports not only the response teams from Fire Departments, Police, Customs and Civil Defence in addition, major events such as summits, concerts, parades and sporting events can be targets for terrorist attacks. Harbours, ports, airports and public buildings are also sensitive to the release of hazardous agents. Bruker detection equipment can be integrated into monitoring

systems for these critical infrastructures using combinations of both static and mobile detection systems.

## Bruker offers a wide product range including

- Mobile Mass Spectrometers
- Ion Mobility Spectrometers
- Stand-off detectors based on passiv FTIR
- FTIR ATR ruggedized Spectrometers
- Radiation Meters
- Neutron Induced Gamma Spectrometry
- Generic Biological Aerosol detectors
- PCR and ELISA based biological identifiers

Bruker CBRNE equipment is in service with armed and naval forces, civil defence and first responders worldwide. Our instruments are part of major reconnaissance vehicles in the world like the CBRNRS Fox or the Korean K-216 and part of the chemical and/or radiological detection system of ships like the German frigate F123/124 and the MEKO 100. The systems are also an integrated part of the protection system within German and Swedish Coast Guard ships.

## RAID series

A series of chemical monitors, covering multiple tasks including monitoring of collective protection facilities and CBRN filter stations, as well as handheld or personal point detection for protection purposes. Based on the well-established Ion Mobility Spectrometry, all important CWA and Toxic Industrial Chemicals (TIC) can be monitored in realtime.

The µRAID; the first personal chemical agent detector based on Brukers field proven IMS technology; provides unmatched overall sensitivity in this class of instruments. The expandable TIC capability is organised into five libraries that can be tailored with the relevant instrument dataset to meet your specific requirement.

The innovative RAID-XP combines chemical and radiological detection into one system.

The RAID-M 100 is distinguished by its flexible and easy use for portable and hand-held deployment. It is designed for fast and sensitiv detection and identification of CWA and TICs.

The RAID-S2 is specially designed for long term operations. The instrument can either be operated separately, or several instruments can be connected in networks.

RAID-AFM can be deployed for stationary chemical detection in vulnerable areas such as air and sea ports and public facilities such as sports arenas. The innovations of a non-radio-active ionisation source or a gamma radiation detector option makes it the most flexible stationary solution in the world.


RAID-AFM
(NC version)


Integrated
RAID-S2 sensors

RAID-XP

µRAID

RAID-M 100

# Chemical & Radiation Detection

## Stand-off detector for atmospheric pollutants

A compact, mobile infrared detector for real-time remote sensing of chemical agent clouds. All known CWA and important Toxic Industrial Chemicals (TICs) can be automatically identified and monitored over a distance of several kilometres – either stationary or on the move. Latest developments have resulted in linking two ore more RAPID's to setup a triangulation system and allowing tomographic reconstruction of chemical clouds.

Monitoring of public events with stand off detection of chemical clouds.

RAPID

## MM2

The MM2 sets a milestone in GC/MS technology with a volume of 43 litres and a weight of 35 kg. Equipped with improved Gas Chromatography/ Mass Spectrometry technique it represents the new generation of quadrupole mass spectrometers. The MM2 is optimized for long-term chemical reconnaissance in various armoured vehicles, as well as for mobile chemical agent inspection and detection missions.

MM2

## SVG 2

Hand-held, hardened radiation detector, based on state-of-the-art semiconductor technology. Equipped with integrated sensors for gamma and neutron radiation detection, and an external α/β/γ-probe.


SVG2

# Biological Detection

VeroTect a generic detector for biological aerosol uses the combination of fluorescence and aerosol shape and size sensors for the detection of biological aerosol clouds.

pTD is a fully automated ELISA based on-site identifier for toxins using the unique electrical biochip technology in a disposable consumable.

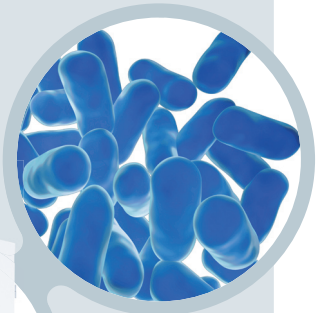
M-BL, the mobile biological lab, offers PCR based detection of pathogens with integrated sample preparation in a ruggedized, easy to use format.


VeroTect


pTD

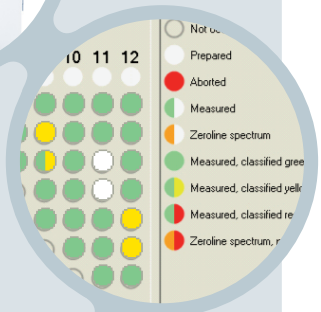
M-BL

Sample Preparation



Data Acquisition


Analysis




Reference Library


## MALDI Biotyper

The MALDI Biotyper allows fast and reliable identification and classification of microorganisms, such as bacteria, archaea, yeasts or fungi. There is neither a need for any prior PCR amplification, nor for the usage of selective growth media nor for any other pre-assumptions, which may influence the outcome of the analysis. The MALDI Biotyper software identifies microorganisms by the species-specific signal patterns contained in their respective molecular profiles.

For research use only. Not for use in diagnostic procedures.

B

R

# First Responders & Environmental Protection

## E²M

The enhanced environmental mass spectrometer E2M is a mobile, compact and lightweight GC/MS system for fast, reliable onsite identification of organic chemicals from any medium (soil, water, air) within 20 minutes via complementary sampling techniques. Typical fields of application are environmental protection, mobile on-site analysis and event monitoring. The E2M fully supports First Responders and Homeland Security detection and identification activities. The instrument has been developed in close co-operation with German Fire Brigades and Disaster Management Authorities.


E²M

RAID-M 100


DE-tector

## RAID-M 100

The RAID-M 100 is outside the military used by civil defense forces, first responders and fire fighters to challenge the threat of toxic industrial compounds.

## DE-tector

The third generation of IMS based trace detectors is formed with the Drugs Explosive detector of Bruker. The twin-tube IMS design means no split of the sample before it will be ionised with a non radioactive source. CHIRP and IMS-Profiler gives unmatched sensitivity and false alarm suppression.

Mobile-IR in use

## Mobile-IR

Most chemical substances have their own infrared signature; just like a fingerprint. With the new Mobile-IR, it is easy to identify unknown chemicals in just a few seconds, by comparing the fingerprint of the substance with included data bases. Unlike other portable instruments, the Bruker Mobile-IR is designed to be used under adverse conditions. It is waterproof to IP67 standards, and offers a high degree of shock protection.

NIGAS

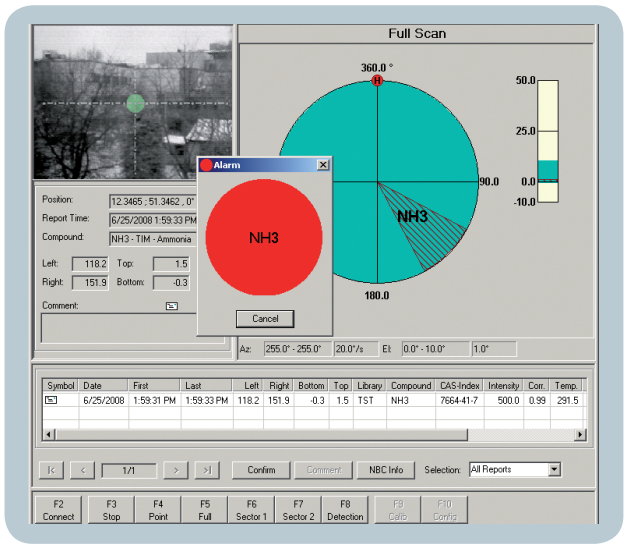
## NIGAS

System for automated, non-invasive detection of chemical warfare agents in ammunition, using Neutron Activation Analysis with a non-radioactive source. The instrument is transportable and can be used even under field conditions.

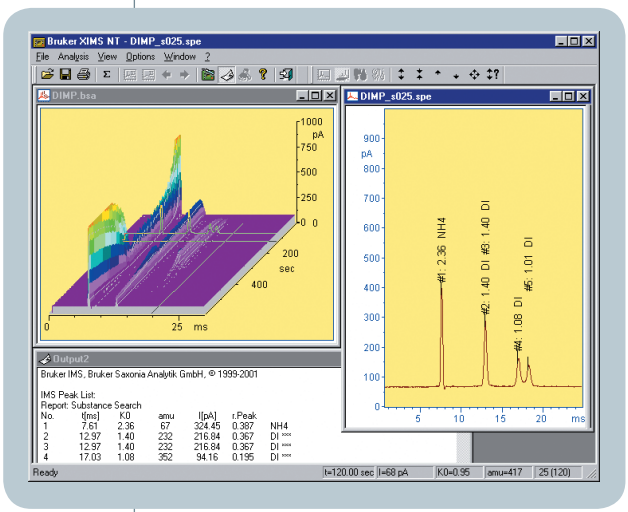
# Software Solutions

## System Integration

Our CBRNE detectors can be easily integrated into any kind of CBRN detection platform. The systems are deployed under various environmental conditions. Ruggedised design and sophisticated accessories allow flexible and extensive applications for the detection of hazardous compounds by mounting the systems on vehicles, ships, helicopters, shelters or by hand-held use under field conditions. Sophisticated software supports the integration of our CBRNE detectors. Bruker has over thirty years of experience in systems integration.




RAPID Control software with alarm window, on-line video picture and function keys for fast access to all system operation parameters.



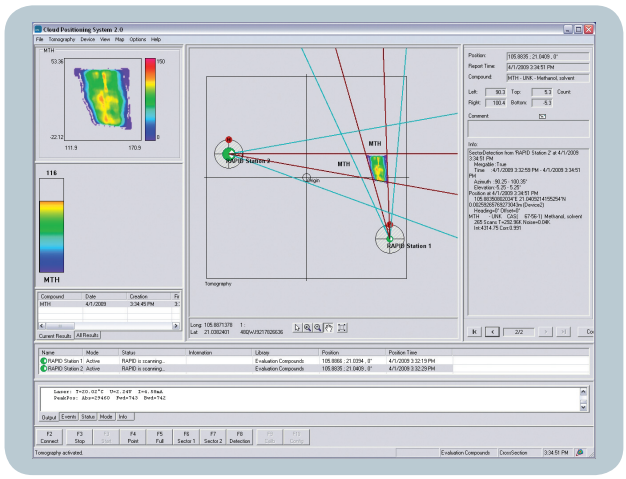

## Analytical support tool XIMS NT

Bruker offers analytical software packages to support the use of their hand-held and personal detection equipment in order to get deeper insight into the threat situation and to tailor the instruments to customer specific needs.

Bruker XIMS software family are control and data systems for the Bruker Ion Mobility Spectrometers (IMS). They are assigned for instrument control of the detector, for data acquisition and analysis of two- and three-dimensional IMS spectra on a PC.

## CPS- Cloud positioning system

CPS collects data from two ore more RAPID systems. It offers triangulation and tomographic reconstruction of detected chemical clouds.

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# Our product line for chemical, biological, radiological and nuclear detection

## Nuclear & Radiation Detection

- **SVG 2** The new generation of nuclear radiation detectors
- **RAID-XP, RAID-AFM (NC version)** Innovative and flexible instruments for NC detection

## Biological Agent Detection

- **VeroTect** Real-time generic biodetector
- **pTD** Automated on-site detection of toxins
- **M-BL** Automated on-site detection of bacterial and viral pathogens
- **MALDI Biotyper** Software tool for reliable identification of unknown microorganisms (BWA)

For research use only. Not for use in diagnostic procedures.

## Chemical Warfare Agent Detection

- **MM 2** Mobile Mass Spectrometer for reconnaissance vehicles
- **RAID series** Rapid Alarm and Identification Devices based on proven IMS technology
- **RAPID** FT-IR Stand-off detector for atmospheric pollutants

## Personal Chemical Agent Detector

- **µRAID** The compact, flexible and reliable personal detector

## Chemical Emergencies & Demilitarisation

- **E²M** Enhanced Environmental Mass Spectrometer for mobile on-site analysis
- **Mobile-IR** Portable FT-IR Spectrometer
- **NIGAS** System for non-invasive identification of explosives and CWA


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