



BE PREPARED FOR FUTURE THREATS

# Bruker Mobile Mass Spectrometer

Detection and Identification of **all** threat relevant Novichoks

## Innovation with Integrity

In 2019 the OPCW (Organisation for the Prohibition of Chemical Weapons) amended the Annex on Chemicals Schedule 1 by adding a new class of nerve agents called Novichoks also known as fourth generation agents (FGAs).

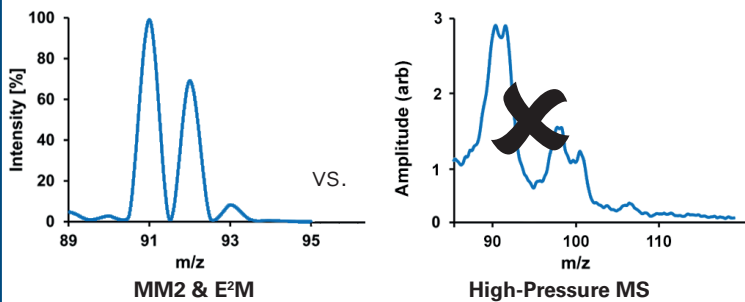
Due to their unique sample analysis and identification capabilities Bruker's latest iteration of mobile mass spectrometer could be expanded now to detect besides the well-known A-230, A-232 and A-234 **all** threat relevant Novichoks comprised in Pos. (13), (14) and (15) of OPCW schedule 1 list.

### What is new?

- New library and spectra data for all threat relevant Novichoks
- New methods for direct measurement via air/surface probe and GC/MS
- Analysis of swabs

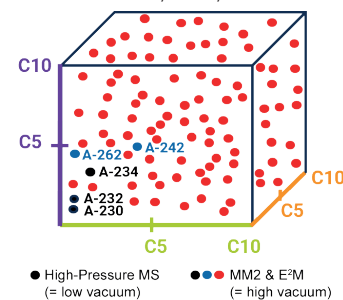
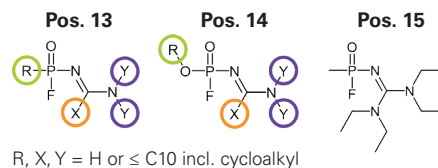
### What is required for Analysis?

- E<sup>2</sup>M or MM2, software upgrade for existing MS is possible
- Resolution better than 1 Da

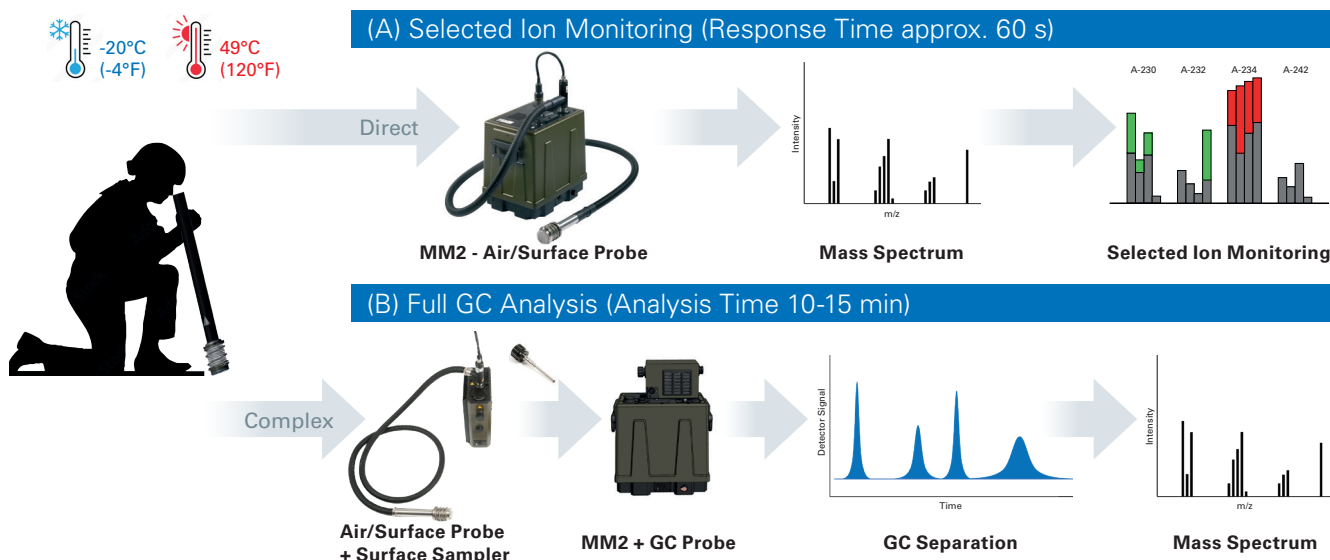


### How many Novichoks are defined by the OPCW?

- According to OPCW schedule 1 list  $\geq 3000$  Novichoks possible



# Tackle all CWAs and TICs: Bruker's GC/MS Solution for LVOCs



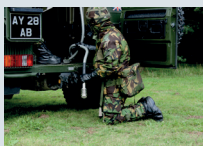
Normally, detecting Novichok agents presents a unique challenge due to their low vapor pressure and high boiling points, making gas-phase detection extremely difficult. Analyzing real-world, complex samples and covering all threat relevant Novichok agents is now easily possible with the standard E<sup>2</sup>M/MM2 system.

**For direct and fast target analysis (A)** the heated probe head is pressed onto a surface (or swab) for the vaporization of chemicals. Predefined methods verify the presence of A-230, A-232, A-234 and other Novichok derivatives, CWAs or TICs within minutes.

For **very low concentrations** or **complex chemical mixtures (B)**, the surface sampler can be equipped with the air/surface probe to trap chemicals on a sampling tube. Through thermal desorption the enriched chemicals can be released in the GC probe and separated by their different chemical properties using predefined methods. Full mass spectra are recorded in the E<sup>2</sup>M/MM2. These fingerprints are used for clear identification through automated comparison with library spectra.

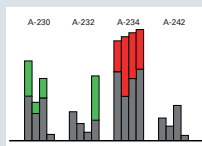
## Take Advantage of the unique E<sup>2</sup>M/MM2 Setup

### Air/Surface Probe



Heatable up to 220°C

### Fast Target Analysis



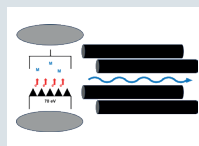
ID within seconds

### Full GC Analysis



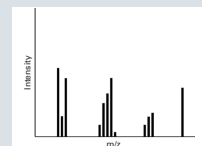
Analyze complex mixtures

### 70 eV EI Ionization



Fully NIST compatible

### Unit Resolution



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