

## MASS SPECTROMETRY: A ROLE IN CHEMICAL AND BIOLOGICAL HOMELAND SECURITY

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The development of a National capability for dealing with incidents involving chemical and biological warfare (CB) agents involves planning and response from a broad range of government and other agencies. Science and technology plays an important role in supporting this planning process as well as supporting the crisis and consequence management of incidents suspected of involving of CB materials.

This paper outlines the role of scientific advice in assisting the decision-making processes at the strategic, operational and tactical levels and how laboratory analysis can link into these processes. In particular, the paper deals with the application of mass spectrometry for the characterisation of CB materials ranging from the field screening of materials suspected of containing CB agents, to forensic analysis. Data is provided on an MS approach to the screening of samples where the nature of the hazard is unknown. In this work samples are treated to inactivate bacteria that may be present in an unknown sample followed by phospholipid extraction and MS screening. The sample is also analysed for the presence of chemical warfare agent degradation products. The results of this initial screening will assist in determining the most appropriate sample handling and transport procedures for delivery to a suitable laboratory for detailed characterisation using a range of analytical and assay techniques. The MS analysis of chemical warfare agent residues to determine the agent production process, and likely starting materials, to support a forensic investigation is also discussed.

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