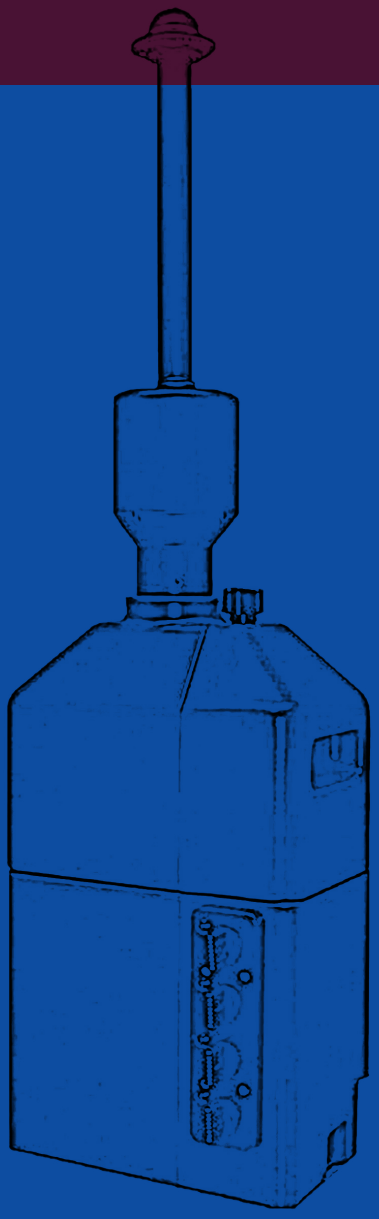
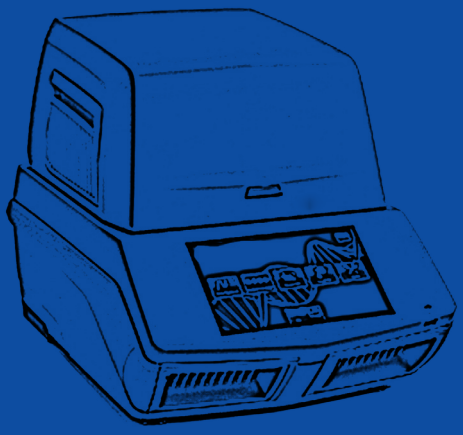
Brochure

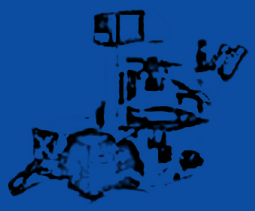
Biodetectors in Defence

Equipment & Accessories

(A Guide Book)







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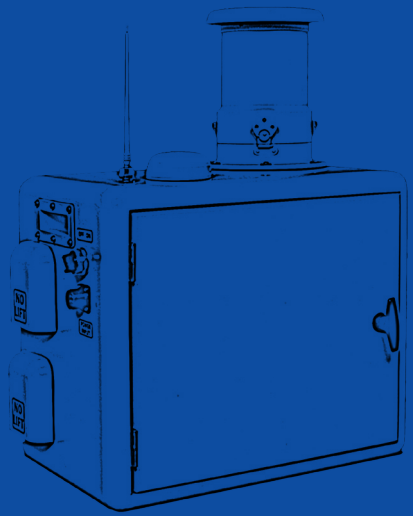

Neo BioMed Services

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Biodetectors In Defence

Equipment & Accessories

(A Guide Book)

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Defence industry is dedicated to providing solutions against biological agents or toxins, and current efforts focus intensively on development of knowledge, systems and technologies for collection, detection, identification and creating new means of protection against biological threats. Fully automated biodetectors have been devised for real-time sample collection, detection, and identification in the field while taking care to maintain the highest level of sensitivity. Biodetectors are available designed for fixed and 24/7 surveillance, outdoor and indoor, which use different principles and technologies for identification and quantification of the bioagents.

The present guide reports summarized information on commercially available collectors, portable detectors and computer-based laboratory systems using advanced technologies, instrumentation and diagnostic system for detection and identification of biological warfare agents in environment, water and food samples. Information is also provided to the source of these technologies and similar technologies and systems.

The guide book provides exhaustve list of over 1300 gadgets, instruments, devices and technologies available from leading global providers (links provided). The guide is useful for educating the general public, defence industry, homeland security agencies, local, state and national governments on biological and chemical defence matters regarding available equipment and technologies to combat WMDs, terrorism, and hoeland security for safety of citizens and critical infrastructure and respond to incidents of CBRNe.

You may buy book at *www.neobiomed.com,www.neobiomed.co.uk*

The Editors seek information from the vendors about any new advancement in their products.

* Companies' products listed

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Executive Summary

Hundreds of companies are dedicated to providing solutions for the military defence against chemical, biological, nuclear, radiological, and high-yield explosive (CBRNE) weapons of mass destruction (WMD). Domestic preparedness against current and emerging threats of WMDs meets the requirements of the International Treaties for detection of Biological Warfare Agents (BWAs), Chemical Warfare Agents (CWAs), Toxic Industrial Chemicals (TICs), or in the monitoring of food, air, soil, and water.

Biological agents are covered under the Biological and Toxins Weapons Convention (BTWC) and are of major concern as many of them can be manufactured, transported, and dispensed with ease; and symptoms appear much later based on incubation time as many people could become sick or die if a biological attack were to occur in a major metropolitan area. Biological Warfare Agents (BWAs) include bacterial agents, viral agents, rickettsiae and biological toxins. Rapid detection thus enables faster, efficient and tailored response as it uses new approaches to differentiate between biological infections and natural contaminants.

Chemical warfare agents are considered as the Weapons of Mass Destruction because of the destructive effects of these chemicals, which are toxic enough to be used as chemical weapons or they may be used to manufacture such chemicals. Any toxic chemical, regardless of its origin, is considered a chemical weapon unless it is used for purposes that are not prohibited: it may include use of nonliving toxic products from living organisms such as botulinum toxin, ricin, and saxitoxin and are considered as chemical warfare agents under the Chemical Weapons Convention (CWC) and provisions.

When investigating a suspicious incidence in the environment, detection of biological and chemical agents for the early responders requires identifying threat agents for planning and implementing the response systems. A number of companies are developing advanced and portable detectors using advanced technologies, instrumentation and diagnostic system, that play an important role in the early detection and identification of the biological threat agent's release offering the possibility of rapid, accurate, and sensitive biodetectors for use in battlefield or urban settings. Advanced detection systems provide early warning, identify populations at risk and contaminated areas and facilitate prompt treatment that integrates technology, operations, and policy and provides a framework for coordinated local, state, and federal emergency response to minimize mortality and morbidity.

The effective detection of biological agents in the environment requires (a) early alert of presence of bioagents about the potential danger (b) concentration of the bio-agents in liquefied, (c) detection, (d) identification of the bioagent using immunological techniques to determine the right countermeasures. In cases of aerosolized incidence, early warning (alerts), detection and identification of bioagents becomes necessary. For investigation into powder incident, a wide variety of sample collection products, field-deployable assays and detection systems are in use to determine if the substance contains biological material and warrants further investigation.

Fully automated biodetectors have been devised for real-time sample collection, detection, and identification in the field while taking care to maintain the highest level of sensitivity. Biodetectors are available designed for fixed and 24/7 surveillance, outdoor and indoor, which use different principles and technologies for identification and quantification of the bioagents.

The present guide reports information on compatible instruments, consumables, and computer-based laboratory systems available either exclusively for detection of biological warfare agents or has the dual application capabilities of detecting both the biological warfare agents and chemical warfare agents for applications in life

science and analytical chemistry. Information is also provided to the source of these technologies and similar technologies and systems. We have not picked radiological and nuclear technologies or systems for the report.

Efforts have been made to summarize commercially available technologies that can be used by first responders, military, homeland security agencies and others to investigate an unusual event that has happened or is in progress in the environment by collecting, screening and identifying the biological materials from the field.

All efforts have been made to provide accurate information of technical specifications primarily based on vendor-provided information; however, where possible the summaries have been supplemented with additional information obtained from reports and websites. Efforts are also made to provide minimum information on the performance metrics in terms of quantity or concentration of organism detected. As far possible, reference to certification by International Organization for Standardization (ISO) has also been avoided so as to minimize the biased decisions.

The aim of the report is only to provide useful information about available technologies to help end-users make informed decisions about biodetection technology procurement and use. The focus of this report is on available equipment and technologies for environmental alerts, sampling and detection, and safety of food and water from biological contaminants including information on decontaminants and protective equipment for first responders.

The purpose of this report is to provide information on types of detection technologies and not to compare the available technologies. The list is neither exhaustive and nor an endorsement of any technology described herein and similar technologies may be available from other companies. Reviewers may verify the authenticity of the details on websites.

The guide is meant for reference purposes for educating the general public, defence industry, homeland security agencies, local, state and national governments on biological and chemical defence matters regarding available equipment and technologies to combat WMDs, terrorism, and homeland security for safety of citizens and critical infrastructure and respond to incidents of CBRNe. The guide lists range of gadgets, instruments, devices and technologies available from leading global providers of instrumentation and technologies providing options best suited to these agencies to meet their requirements.

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Companies' Products Listed

20/20 GeneSystems Inc, USA
3M, USA
Abbott Diagnostics, USA
Abbott Ibis Biosciences, USA
ACE Glass Inc., USA
Adaptive Methods, USA
Advanced Analytical Technologies,USA
Advanced Liquid Logic, Inc, USA
AdVnt Biotechnologies, USA
Aerospace Corporation, USA
Agilent Technologies, India
Air Techniques International, USA
Airogistic, LLC, USA
Akonni Biosystems Inc., USA
Alexeter Technologies Inc., USA
Alfred Kärcher GmbH, Germany
Allen-Vanguard Corporation, Canada
Alluviam LLC, USA
Alpha Innotech, USA
Ambri Pty. Ltd., Australia
AmScope, USA
ANP Technologies®Inc., USA
Ansell Occupational Healthcare, USA)
Applied Biosystems Canada/
Applied Nanotech, Inc, USA
Applied Response Solutions, LLC, USA
Aqua MS, France
Areté Associates, USA
Argon Electronics, UK
Army Chemical Corp., USA
Arrayit Corporation, USA
ASD BioSystem, USA
Aurora Biomed, Canada/USA
Axela Inc., USA
Azbil BioVigilant Systems, Inc, USA
B.A.S. Biological Alarm Systems, Israel
BAE Systems Inc., USA
Battelle, USA
BBI Detection Inc., UK
BD Biosciences, USA
Beacon Analytical Systems, Inc., USA
Beckman Coulter, Inc, USA
Becton Dickinson Diagnostic Systems
Bertin Technologies, France
Biacore, Inc., USA
Bio Rad Laboratories Inc., USA
BioControl Systems, Inc, USA
BioDetect, USA BioDetection Instruments, LLC, USA
BioDetection Systems b.v., Netherlands
BioDetectors Pty Ltd., Australia
Biofire Defence, USA
BioFire Diagnostics Inc. USA
BioForce Nanosciences Inc., USA
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BioMerieux Inc, USA
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Bioquell Defence, Ireland/UK
Bio-Rad Laboratories Inc., USA
BioSentinel, USA
Biosite Inc, USA
BioTech International Inc., USA
Biotrace International, Ltd., UK/USA
BioVeris Corporation, USA
BIOVIGIL Healthcare Systems, USA
Biovigilant, USA
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Blauer Manufacturing Co. Ltd., USA
Block Engineering, USA
BLÜCHER GmbH ,Germany)
Bridger Technologies, Inc., USA
Brinkmann Instruments Inc., USA, A company of
Eppendorf, Germany)
Bruhn NewTech, Denmark
Bruker AXS, Inc., USA
Bruker Corporation, USA
Bruker Daltonics, Germany/UK
Bruker Detection Corp., USA
Building Protection Systems, Inc., USA
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Camtech Diagnostics, Singapore
Canadian Ministry of Defense
Canon Chemical, Inc. under license from Research
International Inc., USA
CapSenze, Sweden
Caribbean Biotechnologies Inc, USA
Carl Zeiss Microscopy, Germany
CBD SBIR Program, USA
CBRNe Solution, USA
CDS Analytical Inc., USA)
CEA, France
Cellex, Inc. USA
Cepheid GeneXpert Systems, USA
Chemering Detection Systems Inc., USA
ChemImage Corporation, USA
Chemring Detection Systems Inc., USA
Ciencia Inc., USA
Clear Lake Medical Foundation , USA
Climatronics Corporation, USA
CLONDIAG Chip Technologies, Germany now Alere
Technologies GmbH, Germany
COLE-PARMER, India
CombiMatrix Corporation, USA
Computing Devices Canada, later General Dynamics
Missions Systems,
Constellation Technology Corpn, USA
Cooperative Research, Development
Coplay Scientific Limited, UK
Corbett Life Science, USA
Corbett Research, Australia
Cristanini SPA, Italy
CustomArray, Inc, USA
Defiant Technologies Inc., USA
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DIOMED Def. Sys.Techs., Turkey
Dionex Corporation, USA
Draeger Safety, Germany/USA
DuPont, USA
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Early Warning, Inc., USA
ECA Robotics, France
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Echo Technologies, Inc., USA
Edgewood Chem. Bio. Centre ,USA
ELBW Technology SA, Switzerland
Electronic Sensor Technology Inc., USA
EM Science, NJ, USA
em.tronic, Slovenia
Emergent Biosolutions Inc., USA
Environics Oy, Finland
Environics, Finland
Environmental Technologies Group.US
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Episensor, USA
Epistem, UK
esearch International, USA)
Evogen, Inc., USA
FAS Military Analysis Network, USA
Field Forensics, Inc., USA
FLIR Systems Inc., USA
Focus Diagnostics, Inc, USA
ForteBio, USA
GeneFluidics, USA
General Dynamics, Canada
GeneReach, USA
GenMark Diagnostics, USA
Genomic Solutions, USA
GenPrime Inc., USA
Gen-Probe Inc., USA and Hologic Incorporated, USA
Gentel Biosciences, USA
Global Security Solutions, Canada
Global Security, Austria
Go!Foton, USA
Groton Biosystems LLC, USA
Guild Associates, Inc., USA
GX Microscopes, UK
Hach Company, USA
Hai Kang Life Corporation (L) HK Hai Kang Life
Corporation Limited, UK
Hamilton Sundstrand Corporation, USA
HandyLab Inc, USA
Hangzhou Bioer Technology Co., China
HazCat Systems, USA
HazTech Systems Inc., USA
HDT Global, USA
Homeland Security, USA
HORIBA Scientific, USA
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ICx Technologies, USA
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INFICON, Switzerland
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Innovative Biosensors, Inc., USA
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Integrated Nano Technologies, USA
Intelagard, Inc, USA
Invitrogen Federal Systems, USA
Invitrogen, USA

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Companies' Products Listed

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Izon Science Limited, New Zealand
J. Blaschke Wehrtechnik GmbH, Austria
Jeol Ltd, Japan
JMAR Technologies Inc, USA
Johns Hopkins University Applied Physics Laboratory, USA
Kaercher Futuretech, Germany
Kappler Inc., USA
KD Analytical, USA
Koch Filter Corporation, USA
Lakeland Industries Inc., USA)
Lauer Manufacturing Co. Inc., USA
LAURUS Systems, Inc., USA
Lawrence Livermore National Lab, USA
Leica Microsystems, USA
LGC Forensic Science, UK
LGI Consulting, France
Life Safety Systems, Inc., USA
Life Sciences Advanced Technology US
Life Technologies, USA
Lockheed Martin, USA
Luminex Corporation, USA
LuminUltra Technologies, Canada
Luna Innovations USA
Luxfer Magtech Inc., USA
Lynntech, Inc. USA
Macherey-Nagel, Germany
Magna BioSciences LLC, USA
Marshall SV, UK
MassTech Inc., USA
MBio Diagnostics, Inc. USA
MBV AG, Switzerland
MD Microscopes International, USA
Mediwell Enterprise Pte. Ltd., Singapore
Medtox Diagnostics, Inc, USA
Menon International Inc., USA
Mesa Tech International Inc. USA
Meso Scale Defence LLC, USA
Meso Scale Diagnostics, LLC., USA)
MesoSystems Technology, Inc., USA
Mesosystems, USA
Met One Instruments, USA
MicroFluidic Systems, USA
Micronics, Inc., USA
Microscopes International, USA
MIDI, Inc, USA
Midwest Research Inst. Global, USA
MIT Lincoln Laboratory, USA
MJ Research, Incorporated, USA
Molecular Devices Corporation, USA
Morphix Technologies, USA
Morpho Detection, USA
MSA Safety Inc., USA
M-Vac Systems, Inc USA
Nano Science Instruments, USA
Nanogen, Inc, USA
Nanoscience Instruments, USA
Nanosphere, Inc. USA
Nanosurf, Switzerland
Naval Research Laboratory, USA
NBC-Sys, France
Neon Engineering Corporation, USA
NetBio, Inc, USA
New Horizons Diagnostic Corp., USA
Nexter Group, France/Germany
Nextteq LLC, USA
Nikon Instruments Inc, USA
NT-MDT, Russia
Oak Ridge National Laboratory, USA
Olympus Corporation, Japan
Olympus Life Science, USA
Omni Site BioDiagnostics, Inc, USA
OptiMetrics Inc., USA
Osho Defence, India
Pacific Advanced Technology, USA
Pacific Northwest National Lab., USA
Pall Corporation, USA
Park Systems, Korea/USA
Particle Measuring Systems, USA
Partner Airogistic LLC, USA
Parvus Corpn.now Curtiss-Wright, USA
Pathogenica Inc., USA
PathSensors, Inc., USA)
Physical Sciences Inc., USA
Positive ID TM Corporation, USA
Power Engg. and Manufacturing, USA
Precision System Science Inc., USA
Princeton Gamma Tech Instruments, US
Proengin, France
Prognosys LLC, USA
Promega Corporation, USA
Pursuit Dynamics PLC, UK
QIAGEN Technical Service, USA
QIAGEN, Inc, Netherlands/USA
Q-linea AB, Sweden
QTL Biosystems, USA
Quant Technologies, USA
Quantum Design Corporation, USA
QuickSilver Analyst, USA
Rapid Diagnostek, Inc. USA
Raptor Detection Technologies, USA
R-Biopharm, Inc, USA
Remploy Frontline, UK
Research International, UK/USA
Resonant Sensors Incorporated, USA
Respirator ZRT, Hungary
Response Biomedical Corpn., Canada
Rheonix, Inc, USA
Richardson Technologies Inc.,USA
Rigaku Corporation, Japan
Rigaku Corporation, USA
Roche Applied Science, USA
Roche Molecular Systems Inc., USA
Roche NimbleGen, Inc. USA
Romer Labs, Inc, USA
SAIC, USA and Ibis Biosciences, USA
Sandia National Laboratories, USA
Sapidyne Instruments Inc, USA
Savannah River Technology Center, US
Sceptor Industries, Inc., USA
Sceptor, USA
Science & Engineering Services, USA
Scott Safety, UK
Sensidyne, USA
Sentel Corporation, USA)
Shimadzu Corporation, Japan
Shimadzu Scientific Instruments, USA
Siemens Healthcare Diagnostics, USA
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Silver Lake Research Corporation, USA
SKC Inc., USA)
Smiths Detections Inc., UK/USA
Snowy Range Instruments, USA
Solutions 3M, USA
Southern Scientific Ltd., UK
Spectrex Inc., USA
SRC Acumen, LLC, USA
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Steris Corporation, USA
Stratagene Inc, USA
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Varian Instruments, USA
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Veritide Ltd., New Zealand
Vijay Sabre Safety Pvt. Ltd, India
Virus Detection Systems Corpn, USA
VWR International, USA
Witec, Germany
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Zeptosens AG, Switzerland