



Integrated Bio-Disinfection/Decontamination Applications



TOMI™ Environmental Solutions, Inc.

TOMI™ Environmental Solutions, Inc. is a global bacteria decontamination and infectious disease control company, providing environmental solutions for indoor surface disinfection/decontamination through manufacturing, sales and licensing of our premier platform of Hydrogen Peroxide based products that use Binary Ionization Technology® (BIT™), a state of the art technology for the production of its disinfectant/decontaminate mist/fog represented by the TOMI™ SteraMist™ brand.

SteraMist™ Binary Ionization Technology® (BIT™)

Binary Ionization Technology® (BIT™) and the SteraMist™ platform was developed in conjunction with the Defense Advanced Research Projects Agency (DARPA) and a large U.S. defense contractor, in response to Amerithrax (anthrax attacks) post 9/11/2001.

Binary Ionization Technology® (BIT™) is a patented two-step process that activates and ionizes a 7.8% hydrogen peroxide solution. The fine mist/fog is called Activated Ionized Hydrogen Peroxide (AIHP). AIHP contains a high concentration of Reactive Oxygen Species (ROS), consisting mostly of hydroxyl radicals, which damages pathogenic organisms through oxidation of proteins, carbohydrates, and lipids. This leads to cellular disruption and/or dysfunction and allows for disinfection/decontamination in targeted areas and large spaces.

A Powerful Technology for All Applications

SteraMist™ powered by Binary Ionization Technology® (BIT™) is a powerful technology in fighting the spread of bacteria, bacterial spores, viruses, fungal spores and for the neutralization of weaponized chemical agents. Effective broad-spectrum surface disinfection; SteraMist™ BIT™ is customizable to meet multiple needs, helping biosafety laboratories maintain compliance with industry standards and government regulations.



Bio-Disinfection/Decontamination Applications Include:

- Building and suite disinfection/decontamination
- Pass-through chambers
- Clean rooms
- Custom build-ins
- Fixed room/cabinet systems
- HVAC integration
- Emergency/first response
- Replacement for VHP, Formaldehyde, Glutaraldehyde, Titanium dioxide
- Complete room fogging
- Direct point & spray of high touch surfaces & equipment for those accidental spills in BSL 3 and 4 labs

STERAMIST™

ENVIRONMENT SYSTEM

**Makes whole room disinfection easier.
Transportable and remotely controlled.**

- Multiple systems can work together to treat larger areas
- Converts a liquid solution into a reactive oxygen species after passing through an atmospheric cold plasma arc
- Eliminates 99.9999% of Clostridium difficile spore (C. diff) (ATCC #43598)
- Can be used as a complete room/area fogger or a hand-held point and spray application
- Programmable logic controller (PLC) interface
- Remote controlled push button start/stop
- Leaves environment with only oxygen and water, humidity
- Two level security - password protected
- Automated dosage calculation to reach concentration to achieve maximum efficacy
- Automatic aeration cycle begins after contact time is achieved
- Aeration cycle times can be reduced with optional air scrubber
- Ability to store recorded parameters
- Equipment fabricated from scratch resistant roto-molded polypropylene copolymer material cases
- Ability to aerate the space using existing exhaust/HVAC system
- Visual indicator of room cycle status
- Available in 110v or 220v
- User Manual translated into multiple languages
- Multi year warranty and service options available
- 24-hour technical service support



STERAMIST™

SURFACE UNIT

Fully portable, hand-held, point and spray disinfection system.

- Converts a liquid solution into a reactive oxygen species after passing through an atmospheric cold plasma arc
- Lightweight, easy to transport, and capable of achieving reliable disinfection
- Physical kill by destroying bacterial cell C. diff spore wall
- Disinfecting formula free of Bleach and Chlorine, Formaldehyde, Glutaraldehyde, Titanium dioxide, Silver ions, and Peracetic acid
- Leaves environment with only oxygen and water, humidity
- Equipment fabricated from scratch resistant roto-molded polypropylene copolymer material cases
- Available in 110v or 220v
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STERAMIST™

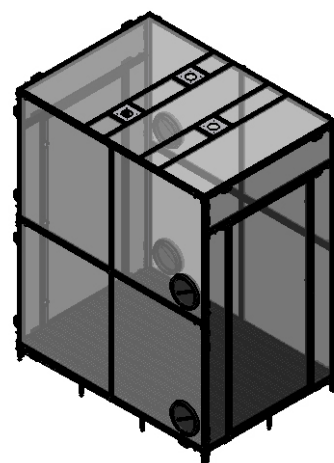
MOBILE DECONTAMINATION CHAMBERS

Portable for emergency disinfection/decontamination control. Ideal for materials transfer and first responders equipment and supplies.

TOMI's innovative application, SteraMist Mobile Decontamination Chambers was funded for development by the USAid Fighting Ebola: A grand challenge

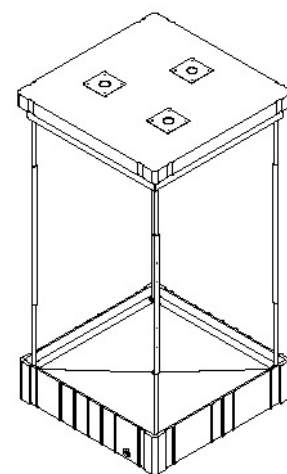
SteraMist™ Mobile Decontamination Chamber - Rigid

- Reinforced 6mm polycarbonate walls for added strength & durability
- Pre-mounted carrying handles for easy portability
- Easily aerate chamber with built-in HEPA ports
- Aluminum grating floor to eliminate puddling
- Sloped drain tray to remove access liquid runoff



SteraMist™ Mobile Decontamination Chamber - Flexible

- Can be assembled by two (2) people, no tools, and fully erected in under 20 minutes
- All components made of non-porous materials that are resistant to H_2O_2 and easily sterilized
- Entirely self-contained and disassemble into its own container
- Base of the shipping container is the chamber floor base, with a drain pan, drain plug, and support poles
- Lid of shipping container converts into the chamber roof with affixed plates for applicators



STERAMIST™

FIXED ROOM SYSTEMS

**Built-in and automated for easy disinfection/
decontamination of closed areas any time of day or night.**

SteraMist™ Pass Boxes

Custom Features Include:

- AISI 316 mirror finished, corner rounded and easy to clean stainless steel
- Laminar airflow with an ISO 5 (ISO14644)/Grade B (EU cGMP) contamination class level. The working chamber internal dimensions can be customized upon request
- Shelves, hooks, and grids to allocate the different materials efficiently
- Optional carts are available for easy loading and unloading
- An automatic roller conveyor can be installed in the working chamber to load and unload carts



SteraMist™ Complete

Custom Features Include:

- National Electrical Manufacturing Association (NEMA) Enclosures 30" Hx25" Wx25" D (76.2cm x 63.5cm x 63.5cm size varies by application)
- Siemens PLC control unit placed in a convenient space for 24/7 accessibility
- Equipped with a Siemens human machine interface (HMI) Touch Screen 6-inch thin-film-transistor (TFT) monitor which indicates run time, concentration, injection rate, and injection volume of TOMI's BIT™ Solution
- Two level security – password protected for increased safeguarding
- Control unit to start the process automatically after a set delay, ideal for overnight disinfection/decontamination



STERAMIST™

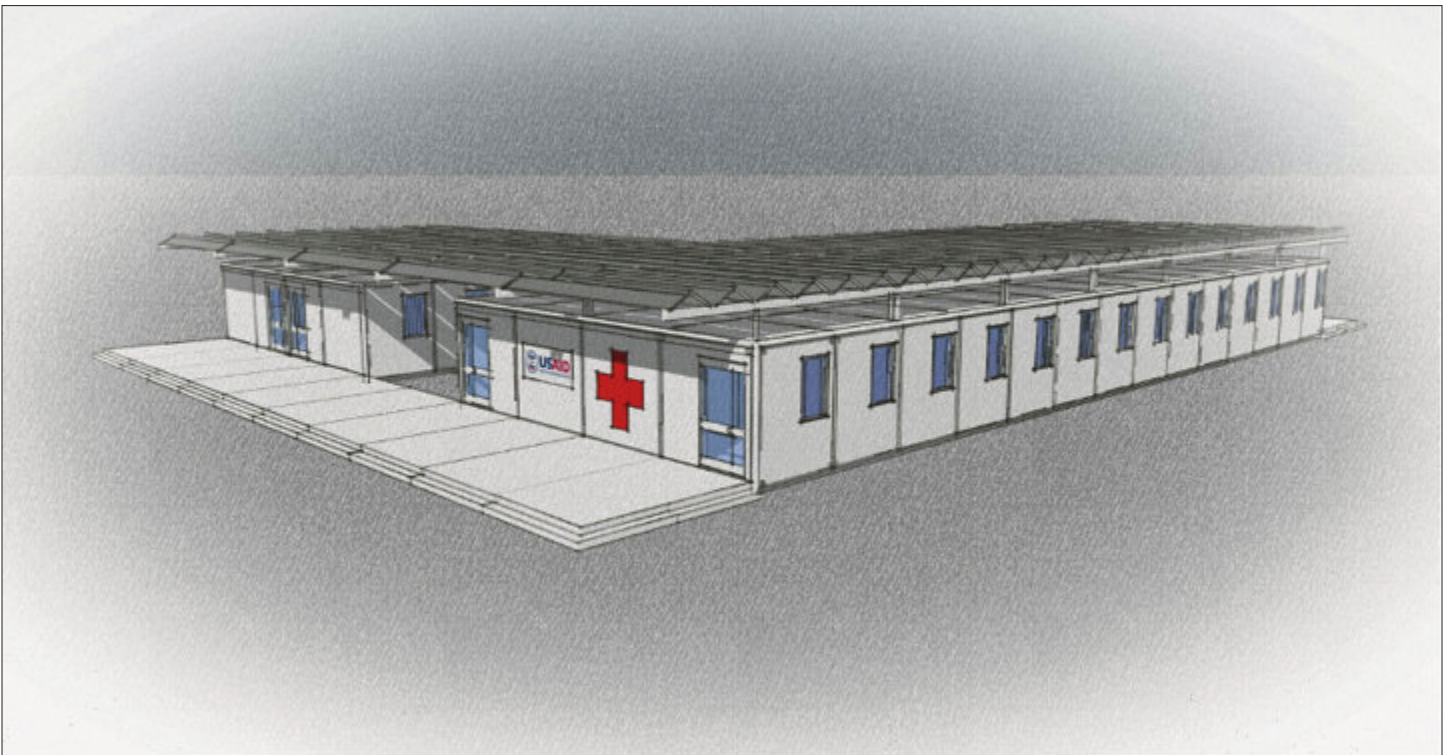
FIXED ROOM SYSTEMS

**Customizable and ensures complete surface disinfection/
decontamination of materials.**

Fellow USAID Ebola Grand Challenge grant winner, Modula S is focused on the commercialization of construction materials and construction processes that enable structurally and thermally resilient net-zero energy buildings. Their proprietary building envelope technology, coupled with unique modular construction methods enable the construction of rapidly deployable, resilient, healthy buildings.

Modula S' quick-to-deploy building systems may be deployed as resilient, off-grid structures for numerous applications including forward operating bases and the treatment of infectious diseases in remote locations.

SteraMist™ BIT™ can be integrated into these prefabricated modular structures to ensure automated complete disinfection/decontamination.



Courtesy of www.modula-s.com

STERAMIST™

COMPLETE ROOM INTEGRATION OPTIONS

Fully custom systems operates with the push of one button.

Heating Ventilation & Air Conditioning (HVAC)

One of the problems faced in many airtight facilities is the potential colonization of microorganisms in the heating, ventilation, and air conditioning unit. While routine cleaning is necessary, HVAC systems can remain a major source of mold and bacteria. Integrating SteraMist™ BIT™ can prevent the spread of diseases and viruses that can spread through airborne particles. Further, integrating SteraMist™ BIT™ air will eliminate mold, mildew, and odor causing bacteria in ductwork and air conditioning equipment.



SteraMist™ Complete - Immune Building

The SteraMist™ Complete is an automated disinfection/decontamination system that utilizes the facilities existing HVAC system. This involves installing remote SteraMist™ BIT™ applicators within the designated space to achieve maximum results. The SteraMist™ BIT™ generator and the Programmable Logic Control (PLC) will be housed in a NEMA enclosure in a central remote location.

The entire system can be developed for multiple rooms and various specifications; and controlled remotely through a NEMA interface. Once the area has reached its specified criteria for decontamination/sterilization, remote Dräger monitors will test the air at required intervals until the H₂O₂ concentration is below 1ppm. The status of the cycle is monitored with remote indicators and can be integrated into a supervisory control and data acquisition (SCADA) SCADA monitoring board.

Benefits Include:

- Area doors can be automatically sealed/unsealed (inflatable bladder with in door/door frame)
- Area doors can be automatically secured/released (magnetic locks)
- Vacuum can be drawn to ensure the area is sealed
- Pre-determined injection and dwell cycles
- Area monitoring of H₂O₂ levels
- Interface into areas HVAC control system (controlling exhaust/shut down)
- Visual system status (3 color beacon)
- NEMA Enclosures

STERAMIST™

Emergency Preparedness and Response

Infectious disease outbreaks happen regularly in all areas of the world. The opportunity for these outbreaks to spread rapidly around the globe remains a constant threat. Additionally, chemical threats should also be prepared for as more menacing actions take place, like terrorist attacks. Disinfecting/decontaminating potentially contaminated civilians and first responders quickly in the wake of an outbreak or attack is of vital importance and allows for fast transport of the injured or seriously ill. Inappropriate disinfection/decontamination protocols might hamper, rather than contribute to, medical mitigation of morbidity and mortality.

The **SteraMist™ Decontamination Chamber** and **SteraMist™ Surface Unit** can be set up as portable pass boxes and are ideal for response to pandemics, chemical threats and more.

In a vivarium or animal/farm enclosure, custom bio-disinfection/decontamination chambers can be readied to treat potentially contaminated animal cages. This is recommended before reoccupying a disinfected/decontaminated area.

Disinfection/Decontamination Evaluation & Training

TOMI™ Environmental Solutions' SteraMist™ assessment and training program is designed to accomplish multiple goals, including:

- Initial review of the effectiveness and efficiency of current cleaning and disinfection/decontamination protocols
- Development of custom SteraMist™ BIT™ disinfection/decontamination procedures
- Ongoing education about SteraMist™ BIT™
- Hands-on use of SteraMist™ BIT™ equipment
- Maintain compliance with training requirements
- Maintain database of trained technicians



SteraMist™ BIT™ High Energy Atmospheric Cold Plasma Arc



STERAMIST™

POWERED BY BINARY IONIZATION TECHNOLOGY®



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