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Lambda Technologies tests VFM system for bulk mail decontamination...

VARIABLE FREQUENCY MICROWAVE TECHNOLOGY PROVES EFFECTIVE AGAINST ANTHRAX THREAT

RESEARCH TRIANGLE PARK, NC (November 15, 2001) – Lambda

Technologies, the microwave systems manufacturer that developed Variable Frequency Microwave (VFM) technology to rapidly cure polymeric adhesives and encapsulants in electronics assemblies, has now adapted their patented technology to help “cure” the threat of anthrax contamination in the mail system. Testing has shown the VFM technology’s ability to effectively neutralize pathogens such as anthrax spores contained within mail packages.

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In preliminary tests conducted by the company along with researchers at the University of North Carolina Pathology Department, Lambda Technologies' VFM system proved effective in killing test spores inside envelopes within minutes of exposure to the microwaves generated by the system.

“Our VFM technology has the potential to quickly and safely neutralize pathogens in mail, without the complications and safety issues inherent with other technologies,” explained Lambda Technologies CEO Dick Garard. “Initial testing confirms that our technology can be readily adapted to process large volumes of mail efficiently. Our next step is to initiate a more comprehensive test program with a government test laboratory for further evaluation and certification.”

Unlike conventional fixed-frequency microwave ovens for home and commercial use, Lambda Technologies' VFM technology uses a sophisticated electronic amplifier to sweep the center frequency to the optimum frequency for coupling to the bacteria/spore. VFM controls the microwave frequency around that central frequency thousands of times per second. This produces a uniform heat that can be precisely controlled to avoid damage to the object being heated, and enables VFM systems to safely handle metal parts (such as staples and paper clips) without arcing and sparking.

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Lambda Technologies' VFM systems operate by emitting a central frequency microwave energy, which is then electronically "swept" over an adjustable bandwidth to produce the uniform results needed for repeatable processing. Central frequency, frequency bandwidth and sweep rate are all electronically tunable to match specific application requirements. Power levels can also be adjusted to provide accurate thermal profiling.

[A more detailed description of VFM technology can be found at www.microcure.com]

Lambda Technologies has already applied their patented VFM technology to biomedical processes, including the neutralization of viruses in blood products and for thawing frozen plasma. More recently, the company has focused on the electronics industry, where VFM systems are employed to quickly "cure" polymer adhesives and encapsulants used to attach and protect semiconductor chips on circuit boards and substrates, including underfill, "glob-top," cavity dam & fill, post-mold curing of ICs and components, structural bonding applications, and polyimide curing.

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When the recent cases of mail-borne anthrax were announced, Lambda Technologies engineers decided to immediately test whether VFM technology could be used to neutralize anthrax spores and other pathogens in letters and packages. Working with researchers at UNC-Chapel Hill's Pathology Department, the company conducted a series of preliminary tests using harmless test spores that have similar characteristics to the deadly anthrax bacteria.

The tests indicate that VFM technology was able to penetrate simulated mail packages containing the test spores, resulting in a 100% kill rate after a two-minute exposure, and without damaging the contents of the package, even when it contained metal objects such as staples and paper clips. The test procedure was designed to indicate the optimum temperature, power level and exposure time for neutralizing the anthrax spores.

According to Howard Reisner, Ph.D., Professor of Pathology & Immunology at the UNC-CH Pathology Department, "Compared to other methods of spore inactivation, our testing of the VFM system showed an extremely rapid kill of the tested spores. Moreover, the VFM technology does not produce ionizing radiation, such as electron beam or gamma radiation."

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Other methods being touted for neutralizing biohazardous material in mail processing include irradiation technologies, which use gamma rays to kill bacteria in some food sterilization applications; or ultraviolet (UV) light sources, which require direct and prolonged exposure to the pathogens for optimum results. Issues such as expense, inherent safety and efficiency may limit the widespread application of these technologies.

“While it is imperative for the government to thoroughly evaluate all available technologies for combating the threat of bioterrorism, we believe that VFM technology has significant advantages that make it the best choice for processing large volumes of mail,” said Lambda Technologies’ Garard. “Unlike gamma radiation, VFM systems pose no safety issues for operators, and are much less expensive to install and operate. Also, in contrast to UV-based systems, VFM can penetrate envelopes and packages to kill bacteria in minutes.” Monitoring of the process can be done rapidly and safely by built in sensors.

Lambda Technologies’ existing VFM systems, designed for the electronics market, include the Microcure[®] 2100, a “batch” system for small production lots; and the Microcure 5100, an in-line conveyORIZED system for large volume processing. Standard VFM processes are now used worldwide by electronic manufacturers for packaging and process development activity. The units are priced between \$200,000 and \$400,000 each, making them significantly less expensive than gamma irradiation systems, which can carry a price tag well into the millions of dollars.

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According to Garard, existing VFM systems from Lambda Technologies could be delivered for evaluation within a week, and the company would provide on-site assistance in training and process optimization in conjunction with further testing.

“Because of the urgency of the anthrax threat today, we are using our existing systems for test purposes. However, our VFM technology is adaptable and can be readily designed into larger, more specialized machines specifically designed for mail processing.”

For more information about VFM technology and its ability to combat anthrax, visit Lambda Technologies at www.microcure.com.

Founded in 1994, Lambda Technologies is based in Morrisville, NC and manufactures Variable Frequency Microwave (VFM) Technology and MicroCure[®] products for the electronics assembly market. The company also develops and licenses VFM technology for application in biomedicine and industrial applications.

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For photo formats, including color transparencies, 35mm slides, b/w prints or electronic files of the attached images, please call Mariryan McCann at BtB Marketing Communications, 919-872-8172, or e-mail at mccann@btbmarketing.com.