

SPORE DETECTION INSIDE SEALED MAIL

MicroBioSystems, in conjunction with the National Center for the Design of Molecular Function at Utah State University, has developed a new method and detector capable of detecting bacterial spores through paper and inside sealed envelopes. This detector technology has the following capabilities:

- Detection of sub-milligram quantities of bacterial spores inside sealed envelopes. [Reproducible detection limit of <0.5 mg of dried spores inside a sealed envelope. (0.5 mg of dried spores is between 5,000 and 10,000 times less the amount of spores used in the anthrax-tainted letters used in Autumn 2001 attacks.)]
- Distinguishing between bacterial spores and ‘hoax materials.’
- Uses no reagents.
- Requires no sample preparation or sample contact.
- Detection is currently accomplished in less than one second and can be done in less than a millisecond.
- Adaptable to current mail sorting equipment.

Spores are detected *via* the fluorescence emitted by components found naturally in endospores when excited with light at the appropriate energies. The method developed by MBS is based upon the identification of new fluorescent signals that are specific for bacterial spores (they are not observed in mold or fungal spores) and that are not susceptible to the fluorescence interference from papers and inks. These fluorophores have been found in all of the tested *Bacillus spp.* spores (spores from *Bacillus anthracis* are indistinguishable from spores of other *Bacillus* species)--detection is made *via* detection of these components and NOT by a “species or threat signature.” This technology is robust.

Data from the prototype is shown below:

