



TECHNOLOGY

Color Changing Polymer Detects Chemical, Biological Threats

OVERVIEW

Background

Chemical and biological warfare agents and homemade explosive devices (HMEs) threaten the safety of soldiers and law enforcement officials. These agents, which may include Ricin, Sarin, and Soman, and HMEs, such as nitroglycerin and triacetone triperoxide (TATP), can be difficult to detect. Foodborne pathogens can also be difficult to detect and constitute a major public health danger. In recent years there have been a number of outbreaks of Escherichia coli (E. Coli), Salmonella, and Listeria, to name a few. Although these incidences remain uncommon, they do kill hundreds of Americans every year. Finally, patients may become sicker if pathogens persist in hospital environments. It is clear that early detection of harmful foodborne pathogens, chemical and biological warfare agents, and HMEs would save many civilian and military lives.

Innovative Technology

Researchers at the University of Maryland have developed novel polymer films capable of specifically and selectively recognizing a variety of distinct foodborne pathogens, chemical and biological warfare agents, and HMEs. Upon recognition of a potentially harmful substance, the polymer coating changes color, providing an easily visible warning sign. This polymer can save lives by identifying contaminated food, by alerting military and law enforcement officials to the presence of dangerous chemical agents, and by detecting pathogens in hospitals.

Advantages

- Effectively detect presence of foodborne pathogens, chemical and biological warfare agents, and homemade explosives
- Provide easy to see warning when a harmful substance is present

Applications

- Polymer films can be applied as a coating on food packages, as litmus test strips, or as small stickers.
- The films can be integrated into fabric, such as uniforms for food industry workers, or military and law enforcement officials.
- The polymers can be used to detect pathogens in hospitals, safeguarding vulnerable patients.

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Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

Patent(s) pending

LICENSE STATUS

Contact OTC for licensing information

CATEGORIES

- Imaging
- Biomarker

EXTERNAL RESOURCES

- [US Patent 9,863,886](#)
- [US Patent 9,863,886](#)

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