

# Researchers produce smart fabric to neutralize nerve gas

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visible and gradual color change, which Bandosz said can be used for the selective detection of [chemical warfare agents](#) and for monitoring their penetration inside a protective layer.

"These [smart textiles](#) adsorbed almost 7g of CWA surrogate/its [detoxification](#) products per gram of Cu. The superior performance was linked to the high dispersion of the MOF crystals on the fibers, and a specific texture promoting the availability of the active copper centers," said Bandosz, who is seeking funding for additional research.

Provided by City College of New York

Teresa Bandosz. Credit: City College of New York

From the lab of City College of New York chemical engineer and Fulbright Scholar Teresa J. Bandosz comes a groundbreaking development with the potential to thwart chemical warfare agents: smart textiles with the ability to rapidly detect and neutralize nerve gas.

The fabric consists of a cotton support modified with Cu-BTC MOF/oxidized graphitic carbon nitride composites. The latter were developed in the lab previously and tested as nerve agent detoxification media and colorimetric detectors.

Combining Cu-BTC and g-C<sub>3</sub>N<sub>4</sub>-ox resulted in a nanocomposite (MOFgCNOx) of heterogeneous porosity and chemistry. Upon the deposition of MOFgCNOx onto cotton textiles, a stable fabric with supreme photocatalytic detoxification ability towards the [nerve](#) gas surrogate, dimethyl chlorophosphate, was obtained.

The detoxification process was accompanied by a

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