

Israeli Scientist Invents Bomb Detector Spray

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A cotton swab, sprayed with a color-changing chemical, will turn red after contact with urea nitrate. (Almog)

Professor Joseph Almog has developed a spray that can detect urea nitrate, a powerful explosive that can be created by non-professionals in relatively simple back-yard facilities. Urea nitrate is commonly used by Palestinian terrorists in Israel, as well as in suicide bombers' belts and in the 1993 World Trade Center bombing in New York.

Although urea nitrate is a colorless crystalline substance that is similar in appearance to sugar, Almog has developed a chemical color test, where a suspect's hands are wiped with treated cotton, which will then turn bright red if the individual had recently touched urea nitrate. The test is based on the formation of a red dye in the chemical reaction between the chemical p-dimethylaminocinnamaldehyde and urea nitrate under

neutral conditions.

Almog and research student Nitay Lemberger, who are from Hebrew University's Casali Institute of Applied Chemistry in Jerusalem, have added the bomb detector test to an arsenal of other forensics tests.

Almog, a former Israeli Police Brigadier General and Director of the Identification and Forensic Science Division of the Israeli Police, has done previous research on color changing test fluids.

His inventions include Ferrotrace, a chemical that turns dark violet when sprayed on hands that have recently held a pistol or grenade, an agent that reveals hidden fingerprints, as well as a kit that can identify a wide variety of explosives.

While other methods exist to detect urea nitrate, the spray is much simpler and less expensive, and has the potential to be widely used. Another advantage is that the spray can detect minute traces of the explosive not only on hands, but also on door handles, luggage containers and vehicles. The chemical can also distinguish with a high level of accuracy between sugar or other similar white powders and urea nitrate.

More information: [Casali Institute of Applied Chemistry, Hebrew University Press Release](#)

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