



CRESS

Chemical Reconnaissance and Explosives Screening Set

What is CRESS?

The Chemical Reconnaissance and Explosives Screening Set (CRESS) is a screening kit that enables warfighters and first responders to detect bulk solids or traces of homemade explosives, known as HMEs, in theater in less than a minute. The kit is made of inexpensive plastic and fits in the palm of the user's hand. It has four one-inch by one-inch compartments, each containing ampoules of reagent next to a pad of filter paper used to absorb reaction products. Each compartment contains reagents selected to identify either the HME oxidizers perchlorate or nitrate, or the HME fuels ammonium or urea.

The CRESS kit employs a simple, well-established colorimetric technology. The user places a small amount of a suspicious powder in each compartment, then snaps a form-fitting plastic lid down over the compartments, creating four closed reaction chambers. The user then presses down on the flexible covering of each reaction chamber, breaking the reagent ampoules. The reagent liquids react with the powder and the color that appears on the filter paper indicates whether the sample is positive or negative for any of these four HME compounds. The kit can distinguish between a safe fertilizer, such as urea, and a powerful HME, such as urea nitrate.

What problem does CRESS solve?

In Afghanistan too many Coalition warfighters were getting killed or gravely injured by IEDs. In response, the Department of Defense ordered U.S. forces to confiscate ammonium nitrate, a substance widely used as the main explosive charge in these devices. But first, warfighters needed a system to identify traces of ammonium nitrate, and other commonly used explosive materials. Also, it had to be easy-to-use and fit in a pocket. The usual process of design, development, acquisition, testing and training of an entirely new detection system typically takes up to ten years. Instead, a team of engineers and scientists from ECBC invented, tested and produced a quick-result, lightweight and easy-to-use device in a fraction of that time.

Why is CRESS unique?

CRESS is the only HME field detector currently available that is light enough to carry in a pocket, simple enough for any Warfighter to use with a minimum of training, and inexpensive to produce. ECBC is now expanding the kit's capabilities to detect additional HME precursors and commonly abused drugs. ECBC is also developing an Android app to digitize data analysis and reporting. Ultimately, CRESS will be a powerful tool in the hands of Warfighters and law enforcement officials as they battle terrorism and drug trafficking at home and abroad.

Interested in more?
Contact ECBC

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