



Chemical and Biological Defense IAC (CBIAC)

CBIAC

Story 1

Story 2

CBIAC Develops a Prototype Personal Water Filtration Canteen

CBIAC has developed a prototype water filtration device suitable for individual use. The 1 quart military canteen is the design envelope for the prototype filtration device. The device is required to draw water from available sources such as rivers, ponds, and streams. It allows users to collect, purify, and drink water that would otherwise be unsuitable for consumption.



[Continued on Story 1](#)

Small Area Filtration Equipment (SAFE) Kit

Our close interaction with the CB building protection community has led to the development of the Small Area Filtration Equipment (SAFE) Kit. The SAFE Kit is an ideal protection solution for civilians, emergency responders, security forces, military, and government personnel.

The CBIAC has been playing a prominent role in addressing this issue through the development, evaluation, and application of CB building protection technology.



Interior door installation of SAFE Kit

[Continued on Story 2](#)

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CBIAC Develops a Prototype Personal Water Filtration Canteen (continued)

The prototype canteen developed consists of a canteen body similar to the 1 quart canteen with a modified shoulder to accommodate the pump/filtration assembly. Secured to the side of the canteen is a length of tubing connected to the pump/filtration assembly. At the end of the tubing is a strainer that screens out large particles and debris. Water passes through the tubing into the handle/piston assembly. Through a series of flapper-type check valves, water is pumped into a well that surrounds the filter element. Water passes through the outside ceramic portion of the filter element and through the column of Triosyn, filling the canteen with clean filtered water. The ceramic portion of the filter element captures particles greater than two microns in size while the Triosyn portion destroys the biological contaminants. When the ceramic body becomes clogged, it can be cleaned and the filter remains useable for approximately 80 gallons of water.



The canteen is compatible with the existing military cup and cover.

The Triosyn® advantage over existing water treatment systems is it releases iodine on demand rather than creating a solution with iodine, thereby reducing the quantity of iodine used for each application and minimizing the residual iodine taste.

Results obtained from initial testing of the filter unit exceeded the reduction requirements for *Klebsiella terrigena* (6 logs) and MS2 (4 logs) set by the EPA Guide Standard and Protocol for Testing Microbiological Water Purifiers.

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Small Area Filtration Equipment (SAFE) Kit (continued)

Buildings present an attractive target for CB terrorism due to a number of factors. The release of a chemical or biological (CB) agent internal or external to a building could have serious impacts upon the health of occupants and the equipment employed within a facility.

For example, a typical mechanical system will quickly spread and contain an agent within a building, thus allowing concentrations to rapidly reach lethal levels. Due to the increasing threat of CB terrorism, the inherent vulnerabilities of buildings, and the potential devastating impact of such an event, a number of high risk Government and commercial buildings are beginning to take action.

**SAFE Kit**

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**Packaged SAFE Kit**