

Ceeker™ Summary



Veritide™ Ceeker™

At a Glance

CAPABILITIES		FIELD CONSIDERATIONS	INFORMATION
Technology Category: <input checked="" type="checkbox"/> Detection <input type="checkbox"/> Decontamination <input type="checkbox"/> Sampling Targets: <input checked="" type="checkbox"/> Biological agents <input type="checkbox"/> Chemical agents <input type="checkbox"/> Toxic industrial chemicals <input type="checkbox"/> Radiological agents <input type="checkbox"/> Other	Applications: <input type="checkbox"/> Liquids <input type="checkbox"/> Aerosols <input checked="" type="checkbox"/> Powders	<input checked="" type="checkbox"/> Weighs <10 lb <input checked="" type="checkbox"/> Batteries <input type="checkbox"/> AC current <input checked="" type="checkbox"/> Explosive atmosphere operation <input checked="" type="checkbox"/> Novice operator <input type="checkbox"/> Skilled operator <input type="checkbox"/> Audible alarm <input checked="" type="checkbox"/> Visible alarm	Information Available: <input checked="" type="checkbox"/> Product Brochure <input checked="" type="checkbox"/> Product Data/Spec sheet <input checked="" type="checkbox"/> Technology Whitepaper <input checked="" type="checkbox"/> 3 rd party test data- United States <input checked="" type="checkbox"/> 3 rd party test data- International

OVERVIEW OF TECHNOLOGY

The Ceeker™ is a hand-held detector for qualitative screening of suspicious powders for bacterial spores, e.g., anthrax, in less than 10 min. The Ceeker™ uses ultraviolet light to induce photochemical changes in the sample, which are detected using fluorescence. Spectral signatures of bacterial spores are readily distinguished from hoax materials such as flour, baking powder, corn starch, etc. The presence or absence of spores is indicated on an LCD screen and a visible alarm alerts the user to the presence of bacterial spores. The sample is not consumed or destroyed during analysis. The unit is fully sealed and chemically resistant to withstand standard decontamination procedures. Intended users are first responders, HazMat personnel, military and civilian decontamination teams, civil support teams, federal agencies, postal sorting facilities, and corporate mail rooms.

PERFORMANCE

- ❖ Lower detection limit: approximately 3,000 spores. Upper limit: none.
- ❖ 99% accurate in detecting spores from over 100 hoax substances.
- ❖ No known interferants.

DEPLOYMENT

- ❖ The Ceeker™ is approximately 22 cm x 15 cm (9 in x 6 in) and weighs approximately 2 kg (4.4 lb).
- ❖ Battery operated; rechargeable battery included. Battery charge lasts approximately 1 hour during intense use and 1 month while not in use.
- ❖ Operating temperature range of -10° to 40°C (14° to 104°F).
- ❖ Approximately 6 samples can be processed per hour.

INDEPENDENT TESTING

INDEPENDENT EVALUATIONS/REVIEWS:

ESR Ceeker™ Test Report (November 2008): Independent third party testing was conducted by the New Zealand Government's forensic testing laboratory, ESR, in Wellington, New Zealand. Testing used the anthrax simulant *B.g.* spores from U.S. Army Dugway Proving Ground and also tested the Ceeker™'s performance across a range of hoax substances such as flour, milk powder, cornflour, chalk, salt, etc. The Ceeker™ was correctly able to distinguish all the hoax substances from the anthrax simulant in all 45 tests. This report is available upon request.

Midwest Research Institute Veritide Ceeker Testing (April 2009): Independent third party testing was conducted by Midwest Research Institute Florida Division in Palm Bay, Florida. Testing used four strains of *Bacillus anthracis*, *Bacillus globigii*, and ten hoax substances. The Ceeker™ correctly detected spores in 100% of spore containing samples and was 95% correct in results across hoax substances. This report is available upon request.

Product information, brochures, and white papers are available at www.veritide.com.

PRODUCT DESCRIPTION

PRODUCT DESCRIPTION: The Ceeker™ is a hand-held detector for qualitative screening of suspicious powders for bacterial spores, e.g., anthrax, in less than 10 min. A small amount of sample is collected using a provided spatula which is then placed on a provided sample mat. The Ceeker™ is placed on the sample mat and the single button on the unit is depressed to initiate analysis. The Ceeker™ uses ultraviolet light to induce photochemical changes in the sample, which are detected using fluorescence. Spectral signatures of bacterial spores are readily distinguished from hoax materials such as flour, baking powder, corn starch, etc. The presence or absence of spores is indicated on an LCD screen and a visible alarm alerts the user to the presence of bacterial spores. The sample is not consumed or destroyed during analysis. The unit is designed for compatibility with forensic and biological sampling standards such as ASTM E2458-06.

INTENDED USERS: First responders, HazMat personnel, military and civilian decontamination teams, civil support teams, federal agencies, postal sorting facilities, corporate mail rooms.

UTILITY REQUIREMENTS: Battery operated; rechargeable battery included. Voltage requirements for charger: Universal 100-240 VAC, 50 Hz to 60 Hz.

DURABILITY/RUGGEDNESS: The Ceeker™ is designed for use in the field and is able to withstand normal field wear and tear. The unit is capable of being decontaminated with standard decontamination procedures and is waterproof. The unit meets the requirements of: EN61010-1 and EN61326 safety standards; IEC60825, safety of laser products; and IP67 protection ratings.

SOPS, METHODS, USERS MANUALS: An instruction card is included with the unit.

ACCESSORIES/COMPONENTS: The Ceeker™ is used with sample spatulas and a sample mat to provide a light-tight detection zone. The unit is provided with one sample mat and six spatulas. Both the mat and spatulas may be reused after cleaning and decontamination for training; however, Veritide™ recommends that a new spatula be used for every test to maintain high sensitivity and specificity. Some users may wish to keep the spatulas as evidence. Additional spatulas can be purchased separately. Other accessories included with the unit are a rechargeable battery, a battery charger, and a storage/carrying case.

THROUGHPUT OF PRODUCT: Results are obtained within approximately 7 to 10 min depending on spore species, spore density, and analysis conditions. Overall, throughput is approximately 6 samples per hour. The unit requires approximately 3 min to warm up from a cold start (depending on ambient temperature). There is no stand-down or recovery time between subsequent analyses.

PORTABILITY: The Ceeker™ is hand-portable, and requires no installation or special operating requirements. The unit is approximately 22 cm x 15 cm (9 in x 6 in) and weighs approximately 2 kg (4.4 lb). The Ceeker™ battery charge lasts for approximately 1 hour during intense use and 1 month when unused. Battery recharge time is approximately 2 hours.

OPERATION/MAINTENANCE:

The user is responsible for regular cleaning of the unit and maintaining battery charge. An annual calibration and battery check by a Veritide service agent are recommended. The recommended operating temperature range is -10° to 40°C (14° to 104°F). The Ceeker™ uses no reagents or chemicals, and therefore there are no consumables with a shelf life.

DECONTAMINATION/REUSE: The unit is fully sealed and chemically resistant to withstand standard decontamination procedures including wipe down, showers and full immersion.

TRAINING: The Ceeker™ is designed to be easy to use and simple to operate. An unskilled user can operate the device with minimal training.

TECHNICAL SUPPORT: Technical support and service is provided 24 hours, seven days a week through Veritide's Technical Support plan.

HEALTH/SAFETY -- PERSONNEL HAZARDS: The Ceeker itself does not expose the users to any hazards. However, the user should wear appropriate personal protective equipment for environment that the Ceeker™ is being used in when evaluating potentially toxic or hazardous substances.

HEALTH/SAFETY -- ENVIRONMENTAL HAZARDS: The Ceeker™ does not use any reagents or chemicals and therefore produces no waste in operation. The Ceeker™ is composed of approximately 794 g (28 oz) of recyclable plastic, fully recyclable fasteners, and aluminum. The rechargeable batteries must be carefully disposed of or recycled properly.

HEALTH/SAFETY -- PUBLIC HEALTH HAZARDS: There are no public health hazards resulting specifically from operation of the Ceeker™.

DETECTION LIMITS/EFFECTIVENESS: The Ceeker™ detects the presence or absence of bacterial spores including anthrax. The lower limit of detection is approximately 3,000 spores. The lethal dose for anthrax is considered to be approximately 10,000 spores, and a visible sample contains many millions of spores. There is no upper limit of detection. The Ceeker™ is >99% accurate in detecting spores from a range of over 100 hoax substances such as flour, baking powder, corn starch, etc. There are no known substances that cause false positives. The rate of false negatives is less than 1%.

DETECTORS: The output of the Ceeker™ is qualitative in nature, displaying the presence or absence of spores on a color back-lit LCD screen. There is a visible alarm to alert users to the presence of bacterial spores.

INTERFERENCES: There are no known substances that produce false positives. Among the potential interferants tested so far are: diesel particulates, dust, soil, and U.S. Postal Service paper dust.