



U.S. ENVIRONMENTAL PROTECTION AGENCY
 Office of Pesticide Programs
 Antimicrobials Division (7510P)
 1200 Pennsylvania Ave., N.W.
 Washington, D.C. 20460

EPA Reg. Number:
 85797-1

Date of Issuance:
 07/23/2015

NOTICE OF PESTICIDE:

Registration
 Reregistration
 (under FIFRA, as amended)

Term of Issuance:
 Conditional

Name of Pesticide Product:
 Handheld Electrochemical Decon
 Apparatus

Name and Address of Registrant (include ZIP Code):

TDA Research, Inc.
 12345 W. 52nd Avenue
 Wheat Ridge, CO 80033

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Antimicrobials Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(B). You must comply with the following conditions:

1. Submit and/or cite all data required for registration/reregistration/registration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data.

Signature of Approving Official:

Demson Fuller, Product Manager 32
 Registration Branch II
 Antimicrobials Division (7510P)

Date:

7/23/2015

2. You are required to comply with the data requirements described in the DCI identified below:
 - a. Sodium Bromide GDCI-013907-1169
 - b. Sodium Chlorite GDCI-0202502-29789

You must comply with all of the data requirements within the established deadlines. If you have questions about the Generic DCI listed above, you may contact the Reevaluation Team Leader (Team 36): <http://www2.epa.gov/pesticide-contacts/contacts-office-pesticide-programs-antimicrobial-division>

3. Make the following label changes before you release the product for shipment:
 - Revise the EPA Registration Number to read, "EPA Reg. No. 85797-1."
4. Submit one copy of the final printed label for the record before you release the product for shipment.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

If you fail to satisfy these data requirements, EPA will consider appropriate regulatory action including, among other things, cancellation under FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Please also note that the record for this product currently contains the following CSFs:

- Basic CSF dated 07/06/2015

If you have any questions, please contact Wanda Henson by phone at (703) 308-6345, or via email at henson.wanda@epa.gov

Sincerely,



Demson Fuller, Product Manager 32
Regulatory Management Branch II
Antimicrobials Division (7510P)
Office of Pesticide Programs

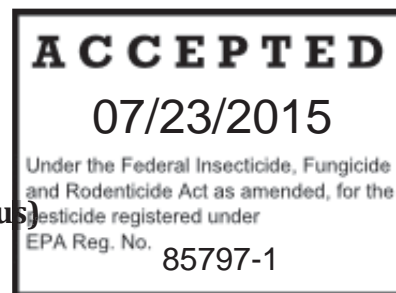
Enclosure

Handheld Electrochemical Decon Apparatus

EPA Reg. No.: 85797-1

Front Panel

EC Decon
(Handheld Electrochemical Decon Apparatus)
Disinfecting/Sanitizing Agent



To be used for generating aqueous chlorine dioxide to disinfect hard non-porous surfaces on such as transportation devices, in industrial, commercial, and public buildings, residences, hospitals, and clinics.

When used as directed, this disinfecting agent is effective against bacterial spores, including spores of *Bacillus anthracis* (anthrax).

Active Ingredients

Sodium chlorite	51.4%
Sodium bromide	45.2%
Other ingredients	3.4%
Total	100.0%

Manufactured by:

TDA Research, Inc.
12345 W 52nd Ave.
Wheat Ridge, CO 80033
EPA Reg. No. 85797-1
EPA Est. No. 83797-CO-1
Telephone: (303) 422-7819

KEEP OUT OF REACH OF CHILDREN
WARNING



PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Sodium Chlorite: **WARNING.** May be fatal if swallowed or inhaled. Causes moderate skin irritation. Causes moderate eye irritation. Harmful if absorbed through skin. Do not get in eyes, on skin, or on clothing. Do not breathe vapor or spray mist. Wear coveralls worn over short-sleeved shirt and short pants, socks, chemical resistant footwear, rubber gloves a NIOSH approved particulate filter with any N, R, P filter with NIOSH approval number prefix TC-84A; or a NIOSH-approved powered air purifying respirator with an HE filter with NIOSH approval number prefix TC-21C, and protective eyewear (goggles, face shield, or shielded safety glasses). Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

The active ingredients are sealed in packets. Packet A contains sodium bromide and sodium chlorite. When charging the apparatus, the contents of Packet A are poured into the Handheld Electrochemical Decon Apparatus (HDA) mixing chamber. Exposure to the active ingredients may occur during the charging of the HDA.

FIRST AID

IF SWALLOWED: If swallowed call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow.

Do not induce vomiting unless told to do so by a poison control center or doctor.

Do not give anything by mouth to an unconscious person.

IF INHALED: Move person to fresh air. If person is not breathing call 911 or an ambulance then give artificial respiration, preferably mouth to mouth if possible.

Call poison control center or doctor.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 – 20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15 – 20 minutes remove contact lenses, if present after the first 5 minutes then continue rinsing eye. Call a poison control center or doctor.

For information on this pesticide product (including health concerns, medical emergencies or pesticide incidents), call the National Pesticide Information Center at 1-800-858-7378.

See back panel for additional Precautionary Statements. Detailed Directions For Use is contained in the accompanying Operating Manual. For Product Use

Information, call 1-303-940-2355.

STORAGE AND DISPOSAL

PESTICIDE STORAGE: The Handheld Electrochemical Decon Apparatus should be stored as received in a secure, dry storage area. The unit contains two packets: one containing active ingredient salts and buffers and one containing surfactants.

PESTICIDE DISPOSAL: Dispose of unused active ingredients (Packet A) in approved landfill. Residual salt solutions may be discarded to the local treatment plants in accordance with state and local laws.

REFILLABLE CONTAINER. Refill this container with Packets A and B only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. See cleaning instructions, below.

WEIGHT (less charging water): 4.4 lbs.

Back panel

PRECAUTIONARY STATEMENTS

For use only by:

- Federal On-Scene Coordinators and contractors and other trained federal/state/local response personnel under the FOOSC's supervision;
- Trained U.S. Military personnel and contractors under their supervision;
- Persons who, within the preceding 24 months, have been trained and determined to be competent by the registrant (or its contractor) following completion of the required training.

This product may only be sold or distributed by the registrant directly to the persons identified above.

ENVIRONMENTAL HAZARDS

This product is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to the discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

PHYSICAL OR CHEMICAL HAZARDS

Do not allow the components of Packet A to contact skin or eyes; do not breathe

dust that may be generated when charging the equipment (pouring the contents of Packet A in the receiving vessel).

Strong Oxidizing Agent. Mix only into water. Contamination may start a chemical reaction with generation of heat, liberation of hazardous gases, and possible fire and explosion. Do not contaminate with moisture, garbage, dirt, organic matter, household products, chemicals, soap products, solvents, acids, vinegar, beverages, oils, pine oil, dirt rags, or any other foreign matter.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Follow the accompanying Instruction Manual for detailed instructions.

Abbreviated directions are below.

1. Collect Handheld Electrochemical Decon Apparatus (HDA), Packets A and B, and one liter of water.
2. Disconnect battery connection plug.
3. Remove spray head.
4. Add water to the bottle below the 1-liter fill mark.
5. Open Packets A and B and pour them into the bottle, mixing them with water. Add water to the 1-liter mark.
6. Replace spray head back onto the bottle.
7. Reinsert the battery plug and wires.

APPLICATION DIRECTIONS

Follow the Instruction Manual for detailed instructions.

Charging

Ensure that the sprayer is fully charged before it is used. Charging takes approximately two hours from a fully discharged state to a ready state.

Priming

Push the Trigger Safety to the ON position. Aim the Sprayer away from the object that is to be decontaminated in a safe direction and pull the trigger. The pump will take about 10-15 seconds to fully prime. After the pump has been primed continue to hold the trigger until the solution that is being sprayed turns a light shade of yellow.

Application

Product is effective on *Bacillus anthracis* spores when sprayed on visibly clean hard non-porous surfaces and kept thoroughly wet for at least one (1) minute. Hold the spray stream perpendicular to the surface being sprayed as a distance of no more than 12 inches, at room temperature for a minimal one minute contact time. Start with a sweeping motion from side to side at the lowest part of the contaminated surface and gradually work upwards coating the entire surface

completely. Starting from the bottom will give positive visual certainty that the entire surface was touched with fresh decontamination solution.

Cleaning

The HDA must be cleaned after every use! The surfactants and salt solution can have negative effects on the components in the pump and the electrochemical cell if left in the unit for an extended period of time.

To clean the HDA, disassemble the spray head from the bottle as was done to fill it. Empty out all of the remaining decontaminate solutions and dispose of it properly. Then rinse the bottle with fresh clean water. Place at least 300 ml clean fresh water in the bottle and reassemble the spray head onto the bottle and run all 300 ml of the fresh water through the sprayer. *Do not submerge the sprayer in water!*

Personnel Protective Equipment (PPE)

Handling the product prior to preparation and use does not require PPE, as exposure to the active ingredients is prevented since they are contained in packet A, which is sealed.

PPE required for charging the HDA:

Wear long sleeve shirt, pants, and shoes with socks. Wear gloves and use eye protection. Wear a dust filter to prevent inhalation of salt particles generated when charging the HDA.

PPE required for application:

Wear full decontamination gear. This is primarily for prevention of possible exposure to anthrax spores. Wear Nitrile, vinyl gloves (or equivalent). Depending on the level of hazard don the appropriate PPE, as described below.

There are four levels of protection, which are based on the combination of the suit and related accessories; and the level of respiratory protection. The EPA levels of protection are as follows:

- **Level A** - Fully encapsulated vapor-protective suit (including accessories) coupled with the highest level of respiratory protection (a self-contained breathing apparatus [SCBA] or supplied air respirator [SAR] with escape SCBA).
- **Level B** - Liquid splash-protective suit (including accessories) coupled with an SCBA or SAR. The suit may be fully encapsulating or non-encapsulating.
- **Level C** - Liquid splash-protective suit (including accessories) coupled with a lesser level of respiratory protection (an air-purifying respirator or APR).
- **Level D** - A work uniform with associated accessories (offers minimal chemical protection)

Note: When the EPA states “SCBA” or “SAR”, it is required that the unit be of the positive-pressure type.

1. Responders should use a NIOSH-approved pressure-demand SCBA in conjunction with a Level A protective suit in responding to suspected biological incident where any of the following information is unknown or the event is uncontrolled:

- the type(s) of airborne agent(s)
- the dissemination method;
- if dissemination via an aerosol-generating device is still occurring or it has stopped but there is no information on the duration of dissemination, or what the exposure concentration might be.

2. Responders may use Level B protective suit with an exposed or enclosed NIOSH-approved pressure-demand SCBA if the situation can be defined in which:

- the suspected biological aerosol is no longer being generated;
- other conditions may present splash hazard.

3. Responders may use a full facepiece respirator with a P100 filter or powered air-purifying respirator (PAPR) with high efficiency particulate air (HEPA) filters when it can be determined that:

- an aerosol-generating device was not used to create high airborne concentration,
- dissemination was by letter or package that can be easily bagged.

These type of respirators reduce the user’s exposure by a factor of 50 if the user has been properly fit tested

Heat Stress (Danger!)

Be cognizant of the dangers of heat stress when full PPE is worn in hot, humid conditions. Refer to OSHA Technical manuals, Section 3, Chapter 4 and the U.S. EPA’s “A guide to Heat Stress in Agriculture” as well as the multi-agency “Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (prepared by NIOSH, OSHA, USCG and EPA, 1985).

WARRANTY STATEMENT

To the fullest extent permitted by law, the manufacture shall not be liable for damages ensuing from the misuse of this product.

TDA Proprietary

Handheld Electrochemical Decon Apparatus

(Type 2 rechargeable version)

Operating Manual

2008

For Research Purposes Only



TDA Research, Inc., has determined that this report and equipment may contain information and materials subject to export controls under the International Traffic in Arms Regulations (ITAR)

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Introduction

The Handheld Decon Apparatus (HDA) is a unique solution for operational decon, being a small light weight, compact, shelf stable device that has the ability to electrochemically generate active species that can effectively destroy chemical and biological warfare agents.

Operation of the HDA requires only a few steps and two components mixed in the tank. When the HDA is loaded with the supplied chemicals and water mixed together use of the device is simply point and shoot.

Operation Requirements

1 package of powdered chemical per liter / per use (part A)

1 package of surfactant per liter / per use (part B)

1 liter of water per use

Gloves

Chemical fume hood or full-face protective respirator

Eye protection

Clothing and body protection

HDA Component Overview

- A. Spray Head
- B. Bottle Cap / Spray Head Nut
- C. Bottle
- D. Rechargeable 12V Battery Pack
- E. Charge Port



Figure 1: HDA Component Overview

Filling Procedure

Step 1.

Collect all required components:

HDA

1 Liter of water

1 Package of Salts (Part A)

1 Package of Surfactants (Part B)



Figure 2: Required components for operation

Step 2.

Disconnect battery connection plug by removing the small screw and pulling gently on the wires until the plug is removed.



Figure 3: Sprayer with battery contact plug removed

Step 3.

Remove spray head by loosening the bottle cap. Be careful while pulling the electrode out of the bottle to avoid any binding or twisting of the electrode during extraction.



Figure 4: Spray head removed from bottle displaying electrode

Step 4.

Add water to the bottle to below the 1-liter fill mark



Figure 5: Bottle filled up to 1-liter fill line on bottle

Step 5.

Open the salt and surfactant packages and pour them into the bottle carefully mixing them with the water. Allow all solids to dissolve. Add water until solution volume reaches the 1-liter mark. The mixture will be cloudy white.



Figure 6: Salts and surfactants ready to be poured into the 1 liter of water in the bottle

Step 6.

Replace the spray head back onto the bottle. Be careful not to cross thread the cap to prevent the bottle from leaking during operation.

- Make sure that the Battery port on the back of the spray head and the charge port on the battery pack on the bottom of the bottle are lined up after the spray head is secured to the bottle.



Figure 7: Spray head replaced onto the bottle displaying alignment of the spray head and charge port

Step 7.

Reinsert the battery plug and wires and secure in place with the screw. The HDA is now ready to be used.



Figure 8: Sprayer ready for decontamination

Trigger Safety

The HDA is equipped with a trigger safety. The safety prevents the unit from operating and shuts off the connection between the pump and bottle preventing the unit from leaking. Before you can operate the device push the safety from the LOCK position to the ON position.



Figure 9: Spray head trigger safety (safety shown in the LOCK position)

Operation of the HDA

The HDA is a simple electric sprayer with a point and shoot operation. The HDA has two principle spray patterns, a Stream spray and a mist spray. The Stream spray is preferred for the electrochemical decon system.

Charging the HDA

The Sprayer should always be fully charged before it is used. Charging the unit will take about 2 hours from a fully discharged state to a ready state. Plugging the unit into the supplied charger checks the charge state of the unit. If a red indicator light is seen the battery requires charging, if a green indicator is shown the battery is ready for use.

Priming the HDA

To start decontaminating after the unit has been filled and prepped (see filling procedures on pages 4 thru 7). Push the Trigger Safety to the ON position. Aim the Sprayer away from object that is to be decontaminated in a safe direction and pull the trigger. The pump will take about 10- 15 seconds to fully prime. After the pump has been primed continue to hold the trigger until the solution that is being spray turns to a light shade of yellow. When the solution is yellow, the pump is fully primed and the HDA is ready to decontaminate.



Figure 10: HDA Battery Charger

Application

Hold the spray stream perpendicular to the surfacing being sprayed at a distance of no more than 12 inches. Start with a sweeping motion from side to side at the lowest part of the contaminated surface and gradually work upwards coating the entire surface completely. Starting from the bottom up will give positive visual certainty that the entire surface touched fresh decontamination solution.

For experimental purposes it is acceptable to spray the electrochemical decontaminant into a beaker or other glassware, then pipette a desired volume or aliquot. The solution must be used immediately after generation as the oxidant concentration will quickly decrease with time.

Cleaning The HDA

The HDA **MUST BE CLEANED** out after every use, the Surfactants and salt solution can have negative effects on the components in the pump and the electrochemical cell if left in the unit for an extended period of time. To clean the HDA disassemble the spray head from the bottle as was done to fill it. Empty out all of the remaining decontaminate solution and dispose of it properly. Then rinse the bottle with fresh clean water. Place at least 300 ml of clean fresh water in the bottle and reassemble the spray head onto the bottle and run all 300 ml of the fresh water through the sprayer. **DO NOT SUBMERGE THE SPRAYER IN WATER**, it is not designed for this and may be damaged.

Safety

The electrochemical decon system dispenses a salt solution through an electrochemical cell, oxidizing the salts, generating chlorine dioxide and hypobromite ions from sodium chlorite and sodium bromide. Both oxidants can irritate skin and bleach clothing. Care should be take to minimize contact with the generated decon solution.

The electrochemical decon system generates chlorine dioxide that is dissolved in a water solution. However when sprayed, chlorine dioxide can come out of solution and become an inhalation hazard. Chlorine dioxide is an oxidant and is toxic by inhalation; the PEL as established by OSHA is 0.1 ppm (as an 8-hour time weighted average). For these safety reasons, TDA recommends that all tests/experiments performed with an electrochemical decon system be performed in a fully functional chemical hood to provide adequate ventilation.

Additional details on the occupational safety and health guideline for chlorine dioxide can be found at

<http://www.osha.gov/SLTC/healthguidelines/chlorinedioxide/recognition.html>.

All testers should have appropriate safety procedures and protective equipment in place in accordance company safety policies and state and federal laws.

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