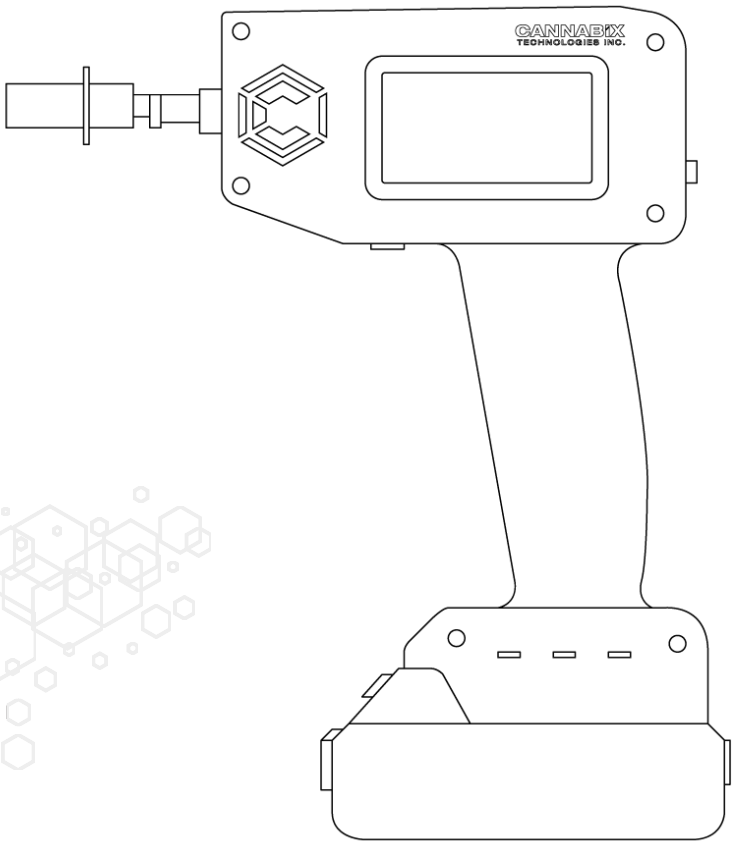
USER GUIDE

BREATH COLLECTION UNIT



BREATH COLLECTION UNIT
BCU

BCU User Guide
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Cannabix Breath Collection Unit (BCU) – User Guide

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1. Definitions

Ambient Air Cartridge	White cartridge used with BCU to collect a background air sample, prior to Donor's breath sample. Found inside the *Breath Kit.*
BC	see Breath Cartridge
BCU	Breath Collection Unit. Collection device is used to capture exhaled breath samples from a subject/donor.
Breath Cartridge	Blue cartridge designed to preserve and stabilize the collected breath sample for subsequent laboratory analysis. Found inside the *Breath Kit* and used with the BCU.
Breath Kit	Breath sample collection kit (sealed plastic tray) containing several items: Ambient Air Cartridge and Breath Cartridge, blue dual caps, individual tube caps, transport bag, mouthpiece and leaflet –all used to complete the breath sample collection using a BCU and securely transport the sample to the laboratory.
CCF	Custody and Control Form
Collector	An individual trained and authorized to use the BCU to collect sample(s) from a donor.
Devices	BCU
Donor	An individual from whom a biological specimen (such as urine, saliva, breath, blood, or hair) is collected for the purpose of drug testing. The donor is the subject of the test and is responsible for providing the specimen in accordance with established collection procedures and regulatory requirements. Also referred to as a *Subject*.
MBT	See Marijuana Breath Test
Marijuana Breath Test	THC detection system designed to identify recent cannabis use through breath analysis. The system is comprised of the BCU and Breath Kits in conjunction with laboratory analysis.
OCCF	Online Custody and Control Form
Plug	A removable rubber plug that covers and seals the socket when the BCU is not in use, protects the BCU from dust, debris, and other contaminants.
RMA	Return Merchandise Authorization
Subject	See Donor
Socket	Opening in the front side of the BCU where the cartridge is inserted.
THC	Δ^9-tetrahydrocannabinol, the principal psychoactive compound found in the cannabis plant

2. Overview

The Cannabix Breath Collection Unit (BCU, Figure 1) is a hand-held collection device used to collect breath samples into a Breath Cartridge. The Breath Cartridge is specifically designed to capture the cannabinoid molecules originating from the lungs. The BCU also has the option to collect an ambient air sample before the breath sample to assess background air THC contamination. The BCU and Breath Kit are intended for trained personnel to collect breath samples in compliance with applicable laws, workplace policies, and manufacturer instructions.

This document describes the features and components of the BCU, sample collection procedure, and steps to be taken by administrator and donor before and after each sample collected.

Figure 1 Cannabix Breath Collection Unit with a Breath Cartridge and mouthpiece inserted

3. Safety Information

- **Warning:** Failure to follow instructions may result in invalid samples or device damage.
- **Battery Powered:** Ultra-low voltage (≤20 V DC).
- **Do Not Modify:** No user-serviceable parts inside.

4. Safety Precautions

- Use only manufacturer-approved batteries, chargers, and accessories.
- Do not operate the BCU if it is visibly damaged.
- Do not expose the BCU to liquids, excessive moisture, or extreme temperatures.
- Do not use the BCU in explosive or flammable environments.
- Do not charge the battery while the BCU is in use. Failure to comply may result in injury or equipment damage.
- The BCU is not a medical device and must not be used for diagnosis or treatment.

5. Sample Collection and Breath Kit Precautions

- Not to be used for clinical diagnosis.
- The sample collection cartridges are for external use only. Do not swallow or inhale.
- Do not use the Breath Kit if the sealing is punctured or not well sealed.
- Use appropriate precautions in the collection, handling, storage and disposal of specimen and kit components. Wear appropriate personal protective equipment when collecting and handling the specimen.
- Wear gloves and wash hands thoroughly afterwards.
- Do not allow the donor to touch or handle the BCU or the Breath Kit, including any items inside the Breath Kit at any point, except for dating and signing the sealed samples.
- The BCU does not perform any kind of analysis and does not display or infer any results. The samples collected are shipped to and analyzed by a qualified laboratory.
- The results are not intended to distinguish between prescription use or abuse of drugs. Professional judgment should be applied to any drug of abuse test result, particularly in evaluating a positive test result.

6. Breath Collection Unit (BCU)

6.1. Main parts of the BCU

The BCU has the following main components (Figure 2).

Figure 2 Main components of the BCU.

6.1.1. Display

BCU has a backlit 2.7” display that shows the stage of the collection, user prompts, and other necessary information. Follow the on-screen instructions and use the function button to continue.

6.1.2. Cartridge socket & plug

In front of the BCU is the cartridge socket where the sample cartridges are inserted. When not in use, the socket should be sealed with the plug to prevent foreign objects from entering the BCU. When turning on the BCU, remove the plug or make sure no cartridge is inserted before starting the self-test.

6.1.3. Power button

The power switch is located at the back of the BCU. Use the latch button to turn the unit on and off; press the power button until it clicks and latches; the red light on the button will remain on. At every startup, the BCU firmware runs an internal device self-test to make sure the pump and the flow sensor are working correctly (for more information, see section 10.3.2). Some of the older BCU models have an on/off toggle switch instead of a button.

6.1.4. Function button with LED indicator

Function button is located next to the power switch. Button is used to move forward during the collection flow. The button has a green ring light that is solid when the BCU is busy and flashing when the BCU is waiting for user action. Pushing and holding the button for 3 seconds will skip the sample collection and jump to the next stage.

6.1.5. Battery with charge indicator

BCU has a 18V removable lithium-ion battery. The battery features a USB-C port for charging and an LED indicator that shows the remaining battery level with four lights when the button is pressed and held. The green LED flashes while charging and remains steady when fully charged, indicating the charge status. For more information about the battery and charging see section 7.

6.2. Contents of the BCU case

The Breath Collection Unit (BCU) is packed in an EVA foam case (Figure 3), which contains the BCU, battery, battery charger, charging cable, and quick start guide.

Figure 3 BCU kit and its contents.

6.3. Recommended conditions of use

	Parameter	Min - Max
Recommended operation conditions	Temperature	5 - 55°C (41 - 131°F)
Recommended storage conditions*	Temperature	10 - 30°C (50 - 86°F).
	Relative Humidity	30 - 50 %

* Long-Term Storage. Avoid direct sunlight and rapid temperature fluctuations during storing.

7. Battery and Charging Information

7.1. Installation

- Insert battery fully until latch clicks. Battery should sit flush.

7.2. Charger and Power

- Use supplied USB-C charger (20W, 110V input).
- Charger includes over-current, over-voltage, over-heat, and short-circuit protection.
- Charging cables rated to 100W; battery power delivery 20V / 65W max.
- Only use with compatible battery.

7.3. Safety Warnings

- Do not disassemble, crush, or short-circuit the battery.
- Keep away from fire, heat, and continuous direct sunlight.
- Do not expose the battery to water or other liquids.
- Store out of reach of children.

7.4. Charging Instructions

- Green light flashes while charging, stays on when fully charged.
- New or long-unused batteries reach full capacity after ~5 charge/discharge cycles.
- Charge only with manufacturer-specified charger in a dry, ventilated area.
- Do not charge damaged or swollen batteries.
- Do not charge the BCU unattended or on flammable surfaces.
- Disconnect when fully charged.

7.5. Usage and Handling

- Insert and remove the battery by holding the casing – avoid touching the terminals.
- Do not use the battery if it shows signs of damage, leaking, or overheating.
- Allow the battery to cool before recharging if it feels warm after extended use.

7.6. Storage

- Store 10–30°C (50–86°F).
- For long-term storage, keep ~50% charged and recharge every 3–6 months.
- Keep away from metal objects.

7.7. Disposal

- Do not dispose in household waste. Follow local battery recycling regulations.

7.8. Emergency Measures

- Battery fluid leakage may cause skin irritation or chemical burns.
- If battery liquid contacts skin, wash thoroughly with water. If it enters eyes, rinse with clean water for at least 15 minutes and seek medical attention. If swallowed or inhaled, seek immediate medical attention.

8. Breath Kit Storage and Stability

- Store the Breath Kit in 10–30°C / 50–86°F. Store the collected samples in freezer if possible.
- See the packaging for expiration date and lot number.

9. Test Limitations

- Proper specimen collection, storage and processing are critical to the performance of the test. Carefully read and follow the instructions prior to testing. Failure to follow operating instructions or training guidance, misuse of the device, or improper sample handling, storage, or shipment may result in inaccurate, invalid, or false test result.
- This test is used to detect cannabinoid molecules at specific cut-off levels in a breath specimen. The detection window for the cannabinoids in breath is relatively short compared to other biological samples (e.g., urine or blood) reflecting the recency of use.
- Passive exposure to cannabinoids (e.g., smoke residue or nearby drug use) during breath sample collection with the BCU may cause false positives. To address this, an Ambient Air sample is collected before the breath sample to assess potential background contamination.

10. Sample Collection

10.1. Materials Provided

The Breath Kit contains the following items:

- Sample collection instructions
- A Breath Cartridge and caps for sealing the cartridge after collection (blue parts)
- An Ambient Air Cartridge for collecting background sample and caps for sealing the cartridge after collection (white parts)
- Mouthpiece
- Transport bag

10.2. Materials Required

- Cannabix Breath Collection Unit (BCU)
- Non-Federal Drug Testing Custody and Control Form (CCF, a physical copy or an online form)
- Gloves
- Pen
- Other personal protective equipment (based on preference)

10.3. Getting BCU ready for the sample collection

10.3.1. Turning the BCU On

To turn on the BCU, press the power button until it clicks and latches; the red light on the button will remain on.

Follow the instructions on the screen. Use the function button to proceed on the sample collection flow. Pushing and holding the button skips the sample collection steps and moves to the next section. BCU can be powered off at any stage if needed.

10.3.2. Power On Self-Test

- At every startup, the BCU firmware runs an internal device self-test to make sure the pump and the flow sensor are working correctly. If an unexpected value is recorded during the testing, the self-test will fail, an error message is displayed on the screen. In this case, the BCU will not allow breath sample collection.
- If the device self-test fails, turn the BCU off, wait 30 seconds, and restart.
- If the device self-test fails due to the "airflow" error, confirm there is no cartridge or any other items blocking or inserted into the BCU socket.

10.4. Troubleshooting

- If any other error messages are displayed, or the BCU doesn't allow sample collection, or if the test fails for any reason, turn off the unit, wait 30 seconds, and restart.
- If the issue persists, contact product support. Do not modify, disassemble, or attempt to repair the BCU.

10.5. Sample Collection Procedure

Please read these instructions carefully before starting the collection procedure. **Always wear disposable rubber gloves on both hands before opening the kit or handling the cartridges.** Recommended temperature for usage: 5°C to 55°C (41°F–131°F).

10.5.1. Collecting Ambient Air Sample

- After the BCU self-test has passed, open the Breath Kit. Do not use the Breath Kit if the bag is punctured or if the Breath Kit is not properly sealed.
- Before the breath sample collection, the BCU will collect an ambient air sample. Ambient air collection can be skipped by holding the function button (in the back of the BCU) for ~3 seconds.
- Make sure the BCU is ready for collection, and the screen shows "Insert Ambient Air Cartridge" message indicating that the unit is ready for collection. Remove the caps from the white Ambient Air Cartridge (Figure 4). Do not discard the caps.
- Note that the cartridge caps are tightly sealed. This is intentional to maintain cartridge integrity. Gloves provide adequate grip for opening cartridges and help reduce contamination. To remove the caps, hold the larger cap securely while gently wiggling the smaller cap side to side and pulling it off. Then, use the lip of the cartridge to remove the larger cap.
- Insert the cartridge into the BCU (Figure 4) pushing it all the way in to establish proper sealing. For the ambient air collection, mouthpiece is not needed.

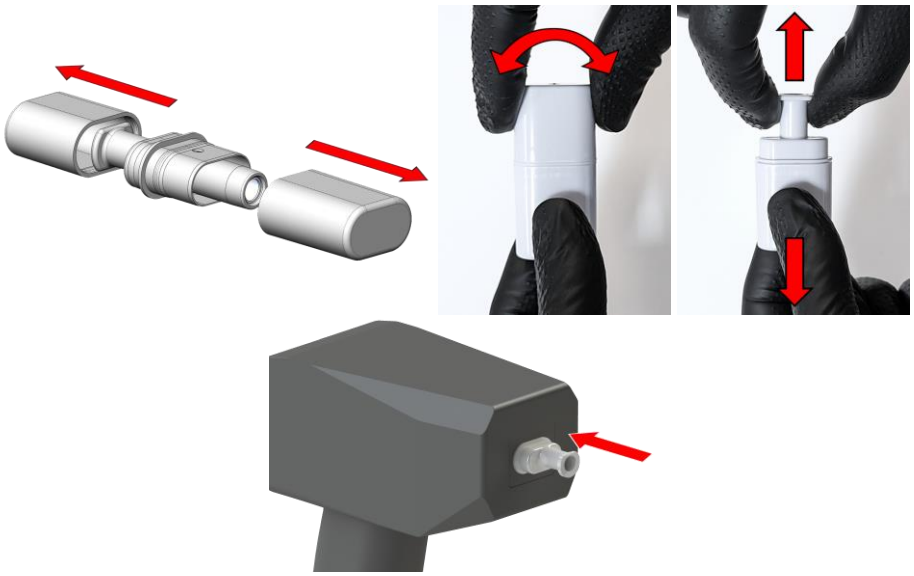

Figure 4. Opening Ambient Air Cartridge (top), inserting Ambient Air Cartridge into the BCU (bottom)

- Position the BCU approximately 1m (3ft) from the donor. Place the BCU on a desk if the donor is seated, or hold it at chest height if the donor is standing.
- Push the function button once to start the collection. The pump will start and collect the volume needed. The collection progress can be followed on the screen. Pressing the function button during collection pauses the process if needed. Pressing the button again resumes the collection. Pressing and holding the button will cancel the collection and skip directly to the breath sample collection.
- If collection doesn't start and the text "Check cartridge" is displayed, make sure the Ambient Air Cartridge is properly attached to the unit. Resume the collection by pushing the function button.
- Once adequate volume is collected the device beeps, and the pump stops. A message indicating the finished sample collection is displayed on the screen.
- After the ambient air sample has been collected remove the cartridge from the BCU and cap the cartridge using the same caps (Figure 5). Peel the "Ambient Air Sample" label and wrap it securely as shown on the Figure 5. Make sure the specimen number on the sticker matches the sample number on the CCF. Have the donor date and initial the seal. Signing and dating can be done before attaching the labels.

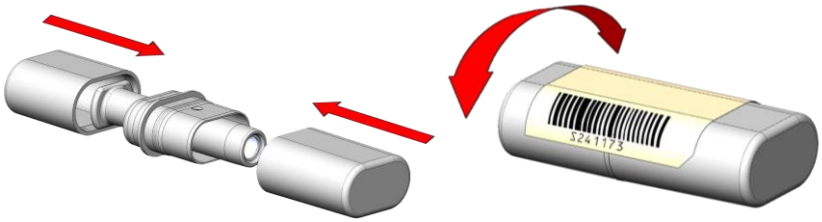

Figure 5. Capping the Ambient Air Cartridge (left) and sealing the cartridge (right).

10.5.2. Collecting Breath Sample

- After the ambient air collection is completed proceed to the breath sample collection by pushing the function button. The screen displays "Insert Breath Cartridge".

- Remove the caps from the blue Breath Cartridge (Figure 6) and insert the cartridge into the BCU. Cartridge caps are tightly sealed. This is intentional to maintain cartridge integrity. To remove the caps, hold the larger cap securely while gently wiggling the smaller cap side to side and pulling it off. Then, use the lip of the cartridge to remove the larger cap.
- Push the cartridge all the way in to establish proper sealing. Insert the mouthpiece, pushing it securely all the way in (Figure 6).

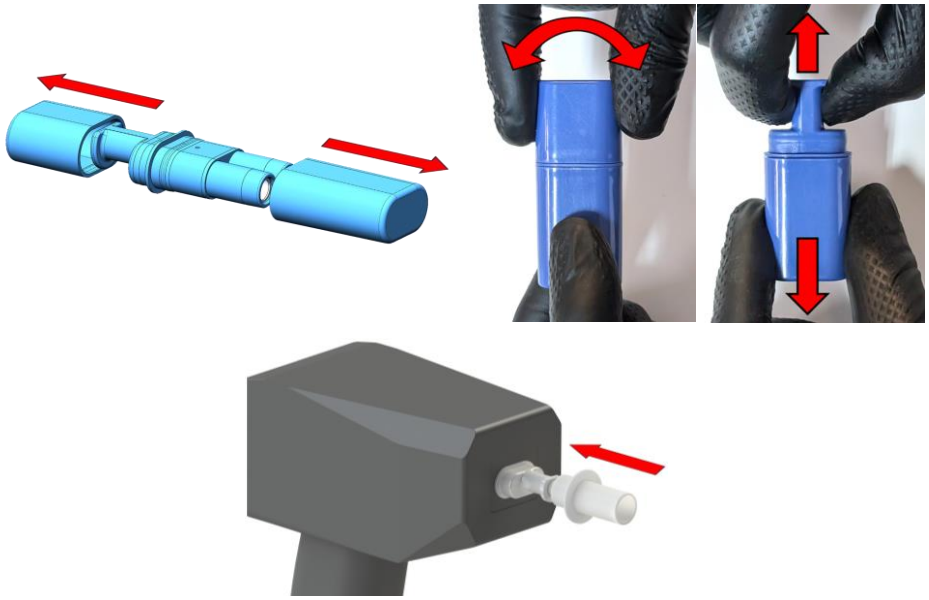

Figure 6. Removing transportation caps (top), inserting the Breath Cartridge into the BCU and attaching the mouthpiece (bottom).

- Push the function button once. Screen displays “Collecting breath sample” indicating the unit is ready for the sample collection.
- Instruct the donor to take a deep breath in and perform a slow and steady exhale into the BCU until their lungs are completely empty – no forceful exhale is needed. The exhale should match the pump flow.
- Hold the BCU in front of the donor to allow them to blow into it easily. Once the donor starts exhaling into the BCU and generates enough pressure, the BCU’s pump automatically starts.
- The sample collection progress can be followed on the screen. Once adequate volume is collected the device beeps, and the pump stops. Completion message is displayed on the screen. If needed, collection can be paused by pushing the button. Resume the collection by pushing the function button again.

10.5.3. Breath Cartridge Removal and Capping

- Once the sample collection is completed, discard the mouthpiece and remove the cartridge from the BCU. Transfer the collection tubes one at a time from the cartridge to the (transport) blue dual transport cap (Figure 7), and cap them with blue individual tube caps. Ensure caps are secure and collection tubes are fully covered.

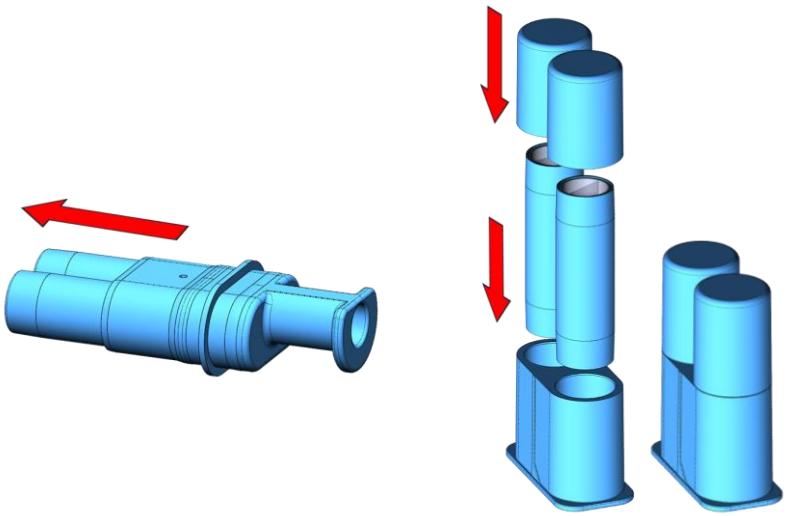

Figure 7. Removing the collection tubes from the cartridge (left), putting the tubes to the dual cap, and capping the tubes (right).

- Peel the "*Sample A"* label, align the cut corner of the label with the triangle and ridge on the dual cap so that the barcode aligns with the longitudinal axis of the collection tube, and wrap the sticker around the cap (Figure 8). Repeat with "*Sample B*" label and the other sample collection tube.
- Make sure the specimen number on the labels matches with the number on the CCF. Have the donor date and initial both seals. Signing and dating can be done before attaching the labels.

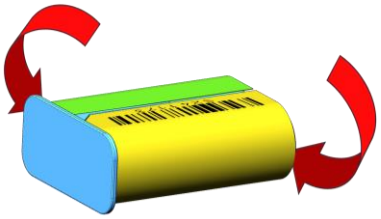

Figure 8. Sealing the capped breath sample. Notice how the bar code aligns with the longitudinal axis of the collection tube.

10.5.4. Sample Shipping / Storing

- Take Copy 1 of the CCF and insert it into the Transport Bag with the capped, sealed, initialed, and dated samples. Fold and seal the Transport Bag. Once closed show the donor the bag is properly sealed.
- Place the specimen bag into the shipping envelope and send it to the laboratory for testing. The shipping address is printed on the transport bag.
- If the sample cannot be shipped right away store the specimen bag in a freezer if possible.

10.6. Problems During Sample Collection

- Use CCF's "Remark" field to disclose any unexpected behavior before, during, and/or after sample collection.

- BCU can be reset at any point of breath sample collection by holding the function button for 3 seconds. Text "*BCU RESET*" appears on the screen and BCU goes back to the beginning of the ambient air collection.

Note: Detailed collection protocols may be provided separately by the testing program or receiving laboratory.

11. Cleaning and Maintenance of the BCU

- Clean exterior surfaces only using a soft cloth lightly dampened with water or mild detergent.
- Do not immerse BCU or allow liquid to enter openings.

12. Disposal

Dispose of the BCU and battery in accordance with local electronic waste and battery recycling regulations.

13. Troubleshooting

13.1. The pump doesn't turn on when performing breath collection

Make sure the Breath Cartridge is fully inserted and the seal between the cartridge and the socket is not leaking. Make sure the BCU socket is clean of any debris that could interfere with sealing.

13.2. The ambient air collection is not starting

If the ambient air collection stops immediately and display shows "check cartridge" message, make sure the collection tube is properly inserted in the cartridge. If the tube has dislodged or become loose, the sealing may be compromised and the BCU recognizes this.

13.3. Error messages

In case of an error message is displayed, or the BCU doesn't allow sample collection, turn off the unit, wait 30 seconds, and restart. If the issue persists, contact product support. Do not modify, disassemble, or attempt to repair the BCU

14. Customer Service

AlcoPro

Phone: 800.227.9890
Email: orders@alcopro.com
Web: alcopro.com

15. Disclaimer

The Cannabix BCU and Breath Kit are intended to detect recent marijuana use. It does not measure whether, or how much, a person is impaired. It is intended solely for use in employment, law enforcement, and insurance settings. It should not be used for any medical or therapeutic purposes, or for any Federal drug testing programs, such as programs run by the Substance Abuse and Mental Health Services Administration (SAMHSA), the Department of Transportation (DOT), and the U.S. military. See full Disclaimer, Terms and Conditions, and Warranty Policy at www.cannabixtechnologies.com

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