Rapid Response™

3-in-1 Spiked Drink Drug Test Kit

(GHB, Ketamine and Benzo)

REF D3.39-8C29 -10 Product Insert

WARNING: THIS TEST DOES NOT EVALUATE BEVERAGE SAFETY OR PURITY

A rapid test for the qualitative detection of BZO/KET/GHB in beverages.

For drug testing in beverages only.

Intended Use

The Rapid Response™ 3-in-1 Spiked Drink Drug Test Kit detects multiple drugs in beverages at the following cutoff concentrations:

Test	Calibrator	Cut-off (µg/mL)
Benzodiazepines (BZO)	Flunitrazepam	2
Ketamine (KET)	Ketamine	10
γ-Hydroxybutyric acid (GHB)	γ-Hydroxybutyric acid	500

This assay provides only a qualitative, preliminary analytical test result. A more specific alternate chemical method must be used in order to obtain a confirmed analytical result. Gas chromatography mass spectrometry (GC/MS) or Liquid Chromatography mass spectrometry (LC/MS) are the preferred confirmatory method.

Summary

Benzodiazepines (BZO)

Benzodiazepines are medications that are frequently prescribed for the symptomatic treatment of anxiety and sleep disorders. They produce their effects via specific receptors involving a neurochemical called γ aminobutyric acid (GABA). Because they are safer and more effective, benzodiazepines have replaced barbiturates in the treatment of both anxiety and insomnia. Benzodiazepines are also used as sedatives before some surgical and medical procedures, and for the treatment of seizure disorders and alcohol withdrawal.

At higher doses, benzodiazepines can produce dissociation effects and anterograde amnesia during the effects. Benzodiazepines also have little to no taste or odor. Because of this, benzodiazepines can be unknowingly slipped into drinks and ingested. Due to the combination of properties, benzodiazepines are commonly associated with drug-facilitated sexual assault, known as a “date rape” drug.

Ketamine (KET)

Ketamine is a dissociative anesthetic developed in 1963 to replace PCP (Phencyclidine). While Ketamine is still used in human anesthesia and veterinary medicine, it is becoming increasingly abused as a street drug. Ketamine is molecularly similar to PCP and thus creates similar effects including numbness, loss of coordination, sense of invulnerability, muscle rigidity, aggressive / violent behavior, slurred or blocked speech, exaggerated sense of strength, and a blank stare. There is depression of respiratory function but not of the central nervous system, and cardiovascular function is maintained. The effects of Ketamine generally last 4-6 hours following use [1]. Ketamine is colorless and odorless. Due to this property, Ketamine can be unknowingly slipped into drinks and ingested. In combination with the dissociative effects, Ketamine is usually associated with drug-facilitated sexual assault.

γ-Hydroxybutyric acid (GHB)

γ-Hydroxybutyric acid (GHB) is an endogenous metabolite in the brain and peripheral organs. It has many characteristics of a neurotransmitter and has been studied for potential therapeutic use in the treatment of narcolepsy, drug addiction, and symptoms of withdrawal and to induce anesthesia. However, GHB also is widely abused. At higher doses, GHB produces sedation and a trance-like state with loss of memory. Because it has little smell or taste, it can be ingested un-knowingly.

This combination of properties has made GHB a drug used for drug-facilitated sexual assault, often administered to victims in beverages. [2,3]

Principle

During testing, the specimen migrates upward by capillary action. A drug, if present in the specimen below its cut-off concentration, will not saturate the binding sites of its specific antibody. The antibody will then react with the drug-protein conjugate and a visible colored line will show up in the test region of the specific drug strip. The presence of drug above the cut-off concentration will saturate all the binding sites of the antibody. Therefore, the colored line will not form in the test region. A drug-positive specimen will not generate a colored line in the specific test region of the strip because of drug competition, while a drug-negative specimen will generate a line in the test region because of the absence of drug competition. To serve as a procedural control, a colored line will always appear at the control region, indicating that proper volume of specimen has been added and membrane wicking has occurred.

A qualitative assay for GHB requires the dehydrogenase reaction to be pulled to completion by coupling to another reaction. GHB-DH catalyzes the reaction of GHB and NAD to produce NADH, and a diaphorase couple tetrazolium dye reaction results in the production of a purple dye complex.

Reagents

Each test line contains anti-drug antibody and corresponding drug-protein conjugates. The control line contains goat anti-rabbit IgG polyclonal antibodies and rabbit IgG.

The test contains GHB-DH, NAD, Diaphorase, Tetrazolium Dye and other additives.

Precautions

- For beverage drug testing use only.
- Do not use the test after the expiration date printed on the package.
- The test should remain in the sealed pouch until use.
- All specimens should be considered potentially hazardous and handled in the same manner as an infectious agent.
- The used test should be discarded according to local regulations.
- Users of beverage test kits accept all responsibility for any injury or death that may occur after consuming beverages, whether they have been tested for contaminants or not.
- Please read all the information in this package insert before performing the test.

Materials

Materials provided

- Test cassettes
- Quick reference guide (when applicable)
- Product insert
- Sample dilution buffer tubes
- Droppers

Materials required but not provided

- Specimen collection container
- Timer

Storage and Stability

Store as packaged in the sealed pouch at room temperature or refrigerated (35.6-86°F; 2-30°C). However, enzyme-based tests work best when stored at 35.6-46.4°F (2-8°C). Therefore, even though the kit is stable up to 86°F (30°C), storage at 35.6-46.4°F (2-8°C) range is advised for enhanced performance.

The test is stable through the expiration date printed. **DO NOT FREEZE.** Do not use beyond the expiration date.

Collection and Storage of Specimens

Beverages Assay

The beverage specimen could be collected in a clean and dry container.

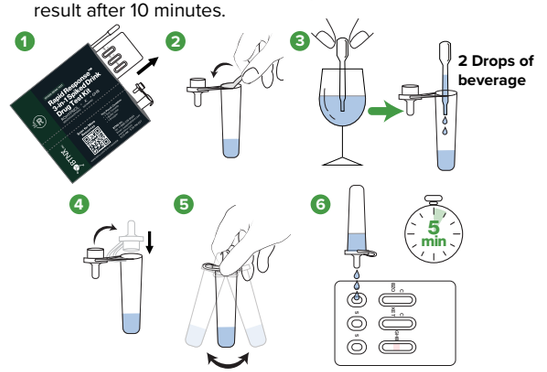
Specimen Storage

Beverage specimens may be stored at 35.6-46.4°F (2-8°C) for up to 48 hours prior to testing. For prolonged storage, specimens may be frozen and stored below -4°F (-20°C). Frozen specimens should be thawed and mixed before testing.

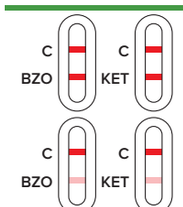
Test Procedure

Allow the test, beverage specimen, and/or controls to reach room temperature (59-86°F; 15-30°C) prior to testing.

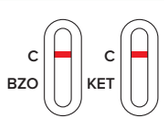
1. Remove all the test components from the sealed foil pouch. Perform the test within one hour. **Do not use the test if the reaction pad of the GHB test has a purple color before applying beverage specimen.**
2. Peel open the aluminum foil on the buffer tube.
3. Use the dropper to draw up some of the beverage you wish to test. Transfer 2 drops of beverage (approx. 80µL) to the buffer tube.
4. Close the lid of buffer tube.
5. Shake the buffer tube from side to side 5-8 times.
6. Place the test cassette on a clean and level surface. Hold the tube vertically and **transfer 3 drops of diluted beverage (approx. 120µL)** to the specimen well (S) of the test cassette, and then start the timer. Avoid trapping air bubbles in the specimen well (S).
7. Read the drug test results at 5 minutes. Do not interpret the result after 10 minutes.
8. **Read the GHB pad result at 5 minutes by observing any color change on the reaction pad.** Do not interpret the result after 10 minutes.



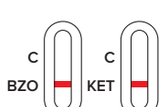
Results Interpretation



NEGATIVE: Two lines appear. A colored line appears in the Control region (C) and a colored line appears in the Test region. This negative result means that the concentrations in the sample are below the designated cut-off levels for a particular drug tested.



POSITIVE: A colored line appears in the Control region (C) and NO line appears in the Test region. The positive result means that the drug concentration in the sample is greater than the designated cut-off for a specific drug.



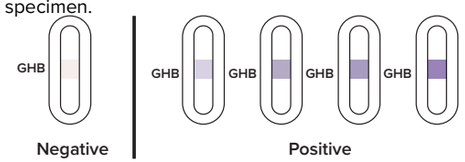
INVALID: No line appears in the Control region (C). Insufficient specimen volume or incorrect procedural techniques are the most likely reasons for Control line failure. Read the directions again and repeat the test with a new test cassette. If the result is still invalid, contact your manufacturer.

NOTE: The shade of the colored lines(s) in the Test region may vary. The result should be considered negative whenever there is even a faint line.

Document Number: RP5611600
Effective Date: 2024-10-10

For GHB pad

NEGATIVE: No color change appears or the color is lighter than positive (500 µg/mL) color pad, it should be interpreted as a negative result indicating that GHB concentration in the beverage is below 500 µg/mL.
POSITIVE: A dark purple color greater than or equal to the color of positive (500 µg/mL) of GHB. It should be interpreted as a positive result indicating that GHB concentration in the beverage exceeds 500 µg/mL.
INVALID: If the color pad has a purple color before applying beverage sample, do not use the test.
NOTE: A result where the outer edges of the color pad produce a slight color but the majority of the pad remains colorless the test should be repeated to ensure complete saturation of the pad with specimen.



Quality Control

BZO/KET: A procedural control is included in the test. A line appearing in the control region (C) is considered an internal procedural control. It confirms adequate membrane wicking. Control standards are not supplied with this kit; however, it is recommended that positive and negative controls be tested as good laboratory testing practice to confirm the test procedure and to verify proper test performance.

Limitations

1. The Rapid Response™ 3-in-1 Spiked Drink Drug Test Kit provides only a qualitative, preliminary analytical result. A secondary analytical method must be used to obtain a confirmed result. Gas chromatography mass spectrometry (GC/MS) or Liquid Chromatography mass spectrometry (LC/MS) are the preferred confirmatory method [4].
2. Dark condensed juice or syrup may affect the background color of the GHB pad and the performance of BZO and KET product, thus affecting the interpretation of the results. If the concentration of grenadine juice is less than or equal to 10%, it has no effect on the product.
3. It is possible that technical or procedural errors, as well as other interfering substances in the beverages specimen may cause erroneous results.
4. A positive result does not indicate level or intoxication, administration route or concentration in beverage.
5. A negative result may not necessarily indicate drug-free beverage. Negative results can be obtained when the drug is present but below the cut-off level of the test.
6. This test does not distinguish between drugs of abuse and certain medications.

Expected Values

This negative result indicates that the drug concentration is below the detectable level. Positive result means the concentration of drug is above the detectable level.

Performance Characteristics

Analytical Sensitivity

A drug-free beverage buffer pool was spiked with drugs at the following concentrations. The results are summarized below.

Drug Concentration	n	BZO		KET		GHB	
		-	+	-	+	-	+
0% cutoff	30	30	0	30	0	30	0
-50% cutoff	30	30	0	30	0	30	0
-25% cutoff	30	30	0	30	0	30	0
Cut-off	30	13	17	16	14	13	17
+25% cutoff	30	0	30	0	30	0	30
+50% cutoff	30	0	30	0	30	0	30
3X cutoff	30	0	30	0	30	0	30

Analytical Specificity

The following table lists compounds that are positively detected in beverages by the Rapid Response™ 3-in-1 Spiked Drink Drug Test Kit at 5 minutes.

Compound	Concentration (µ g/mL)
Benzodiazepines (BZO2)	
Flunitrazepam	2
Chlordiazepoxide	1.3
Diazepam	3.4
Temazepam	2.7
Desalkylflurazepam	8.4
Estazolam	4
Oxazepam	2
Lorazepam	67
Lorazepam glucuronide	6.7
Sulindac	>100
Etizolam	33.5
Nitrazepam	1.7
Norchlordiazepoxide	1.3
Nordiazepam	25.1
Triazolam	16.8
Alprazolam	2.3
Bromazepam	2.3
Clobazam	2.3
a-Hydroxyalprazolam	10
Clonazepam	>100
Bromazolam	2
Meclonazepam	1.3
Ketamine (KET10)	
Ketamine	10
(R)-Ketamine	100
(±)-Norketamine	400
(S)-Ketamine	2.5
γ-Hydroxybutyric acid (GHB500)	
γ-Hdroxybutyrate acid	500
4-Aminobutanoic acid	>10,000
3-Hydroxybutyric acid	>10,000
Gabapentin	>5,000
2-Hydroxybutanoic acid	>10,000
Ascorbic acid	5,000

Interference Substance

A study was conducted to determine the interference of the test with compounds in drug-free beverages. The following compounds showed no interference when tested with the BZO and KET test at the concentration of 100 µg/mL.

Non-Interfering Compounds

Acetaminophen	Acetone
Acetophenetidin	Aspirin
Albumin	Amoxapine
Amoxicillin	Ampicillin
Ascorbic acid	Aspartame
Atropine	Benzoic acid
Bilirubin	(+/-) Brompheniramine
Benzocaine	Buspirone
Caffeine	Chloramphenicol
Chloroquine	(+/-)-Chlorpheniramine
S-(+)-Chlorpheniramine maleate salt	Chlorpromazine
Chlorprothixene	Cimetidine
Clomipramine	Clonidine
Creatine	Cyclobenzaprine
Dextromethorphan	Diclofenac
Dicyclomine	Diflunisal
Digoxin	4-Dimethylaminoantipyrine
Diphenhydramine	5,5-Diphenylhydantoin
Disopyramide	Doxylamine
Dopamine	(1R, 2S) - (-)-Ephedrine
Erythromycin	Ethanol
Etodolac	Famprofazone
Fenoprofen	Fluoxetine Hydrochloride
Furosemide	Gentisic acid
D (+) Glucose	Guaiacol Glyceryl Ether
Hemoglobin	Hydralazine
Hydrochlorothiazide	Hydroxyzine
Imipramine	Isoproterenol hydrochloride
Isoxsuprine	Kanamycin
Ketoprofen	Labetalol
Lidocaine	Lindane
Loperamide	Meperidine
Methoxyphenamine	Metoprolol
Nalidixic acid	(+)-Naproxen
Nimesulide	Norethindrone
Noscapine	Niacinamide
Norephedrine	Orphenadrine
Oxalic acid	Oxolinic acid
Oxymetazoline	Papaverine
Pemoline	Penicillin-G
Perphenazine	Phenelzine
Pheniramine	Phenothiazine
β-Phenylethylamine	Procaine
Promethazine	Quinacrine
Quinidine	Ranitidine
Riboflavin	Sodium chloride
Sulfamethazine	Sulindac
Temazepam	Tetracycline
Tetrahydrozoline	Thebaine
Theophylline	Thiamine
Thioridazine	Tolbutamide
Trazodone	Triamterene
Trifluoperazine	Trimethoprim
Trimipramine	Tryptamine
Tyramine	Uric acid
Verapamil	Zomepirac

The following compounds that may be present in beverages showed no interference when tested with the Rapid Response™ 3-in-1 Spiked Drink Drug Test Kit at the corresponding concentration.

Compound	Concentration (µg/mL)	Compound	Concentration (µg/mL)
Sucrose	200,000	Glucose	200,000
Aspartame	1,000	Acesulfame potassium	1,000
Sucralose	1,000	Steviol glycosides	1,000
Alcohol	100%		

Bibliography

1. Baselt RC. Disposition of Toxic Drugs and Chemicals in Man. 6th Ed. Biomedical Publ., Foster City, CA 2002.
2. Bravo D T, Harris D O, Parsons S M. Reliable, Sensitive, Rapid and Quantitative Enzyme-Based Assay for Gamma-Hydroxybutyric Acid(GHB)[J].Journal of Forensic Sciences, 2004, 49(2):379-387.
3. Ureda N, Ruan W, French D, et al. Lack of gamma-hydroxybutyrate prevalence among an urban emergency department population[J]. Journal of Analytical Toxicology, 2010, 34(2):110-111.
4. Parsons S M, Harris D O, Bravo D T. Methods, compositions and apparatuses for detection of gamma-hydroxybutyric acid (GHB):US10098811[P]. US06703216 B2 [2023-11-03].

Glossary of Symbols

Consult instructions for use
Test per Kit
Do Not Reuse
Store between 35.6°F to 86°F
Use by
REF Catalogue #
LOT Lot Number

BTNX Inc.
722 Rosebank Road,
Pickering, ON L1W 4B2
Canada
Technical Support: 1-888-339-9964

Document Number: RP5611600
Effective Date: 2024-10-10