Performance Test Report

- AngelGuard GHB Drug Test Sticker

(*Detection Limit and Beverage Reactivity*)

Approval	
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Written by:	Sign
Reviewed by:	Sign
Approved by:	Sign

1. Purpose

This report aims to verify the performance of AngelGuard GHB Drug Test sticker product and to evaluate the validity of its detection capability.

- Key Test Item 1: Detection Limit

- Key Test Item 2: Beverage Reactivity

2. Experimental Design

- The AngelGuard™ GHB drug test sticker (hereinafter "the product") was evaluated for detection performance using GHB (Gamma-Hydroxybutyric acid) as the standard substance.
- The buffer for diluting GHB consisted of 13 types of beverages. Positive samples were prepared by adding GHB standard solution at 1% concentration; negative samples contained no GHB.
- The detection limit of the product was determined.
- To confirm improvements in detection ink performance, beverage-specific tests were conducted.

During beverage-specific tests, it was also observed whether color changes of positive samples occurred within the waterproof layer.

3. Materials

3.1. GHB Standard Substance

3.2. Buffer Standard Substance (20% ethanol in DW)

3.3. Nail sticker product

3.4. 13 types of beverages (tap water, 20% ethanol in DW, vodka, makgeolli, beer, whiskey, red wine, white wine, orange juice, cola, cider, ion beverage, Red Bull)

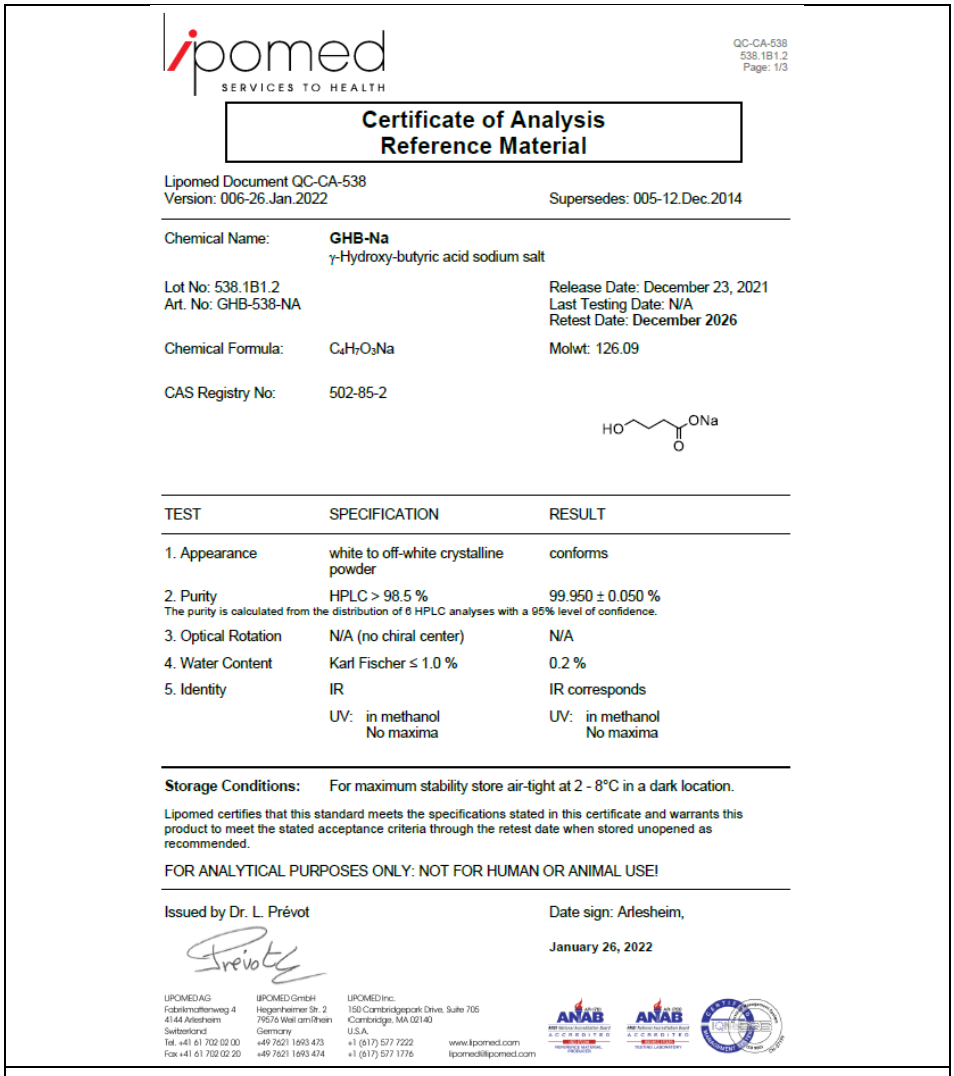
4. Methods

4.1. Storage Conditions

- Temperature: 2 ~ 30 ℃ (room temperature)
- Environment: Stored inside OPP pouch, outer paper packaging
- Storage place: Philmedi Desiccator (PG-E-2022-07)

4.2. Preparation of Samples

- Gamma-hydroxy-butyric acid sodium salt Standard (GHB CoA attached)



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QC-CA-538
538.1B1.2
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Certificate of Analysis
Reference Material

Lipomed Document QC-CA-538
Version: 006-26.Jan.2022 Supersedes: 005-12.Dec.2014

Chemical Name: **GHB-Na**
γ-Hydroxy-butyric acid sodium salt

Lot No: 538.1B1.2
Art. No: GHB-538-NA

Release Date: December 23, 2021
Last Testing Date: N/A
Retest Date: **December 2026**

Chemical Formula: $C_4H_7O_3Na$ Molwt: 126.09

CAS Registry No: 502-85-2

TEST	SPECIFICATION	RESULT
1. Appearance	white to off-white crystalline powder	conforms
2. Purity	HPLC > 98.5 %	99.950 ± 0.050 %
	The purity is calculated from the distribution of 6 HPLC analyses with a 95% level of confidence.	
3. Optical Rotation	N/A (no chiral center)	N/A
4. Water Content	Karl Fischer ≤ 1.0 %	0.2 %
5. Identity	IR	IR corresponds
	UV: in methanol No maxima	UV: in methanol No maxima

Storage Conditions: For maximum stability store air-tight at 2 - 8°C in a dark location.

Lipomed certifies that this standard meets the specifications stated in this certificate and warrants this product to meet the stated acceptance criteria through the retest date when stored unopened as recommended.

FOR ANALYTICAL PURPOSES ONLY: NOT FOR HUMAN OR ANIMAL USE!

Issued by Dr. L. Prévot

Date sign: Arlesheim,

January 26, 2022

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GHB Certificate of analysis(CoA)

4.2.1. Preparation of Positive Samples with 13 Beverages

- Dispense 1,000 μL of each beverage and add GHB standard to achieve 1% concentration.

4.3. Method 1 – Detection Limit Test for GHB

- Prepare positive samples with 1% GHB in 20% ethanol.
- Leave for 1 minute, wipe off, and observe changes in waterproof ink region.
- Apply identical positive samples to stickers of different shapes to check consistency of color change.
- Record results by photographs

4.4. Method 2 – Detection of GHB in 13 Beverages

- Detect positive and negative samples according to product instructions.
- Record results by photographs.

4.5. Product Usage Procedure

1) Each kit contains 10 test spots (stickers)
2) Detach one sticker from the release PET film and attach it to a fingernail.
3) If a beverage is suspected to contain GHB, apply it to the sticker using a hand or a straw.
4) After 30 seconds (or 1 minute), shake or wipe off the applied sample.
5) Determine positive/negative result according to interpretation criteria.

5. Test Conditions

5.1. Location: Philmedi Corporate Research Institute (33 Sagimakgol-ro 62beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, Korea)

5.2. Date: September 10, 2025 (1 day)

5.3. Environment

-Temperature 26.3 ± 5 ℃, Humidity 46 ± 2 %

5.4. Performed by: Researcher Sejin Kim

6. Interpretation of results

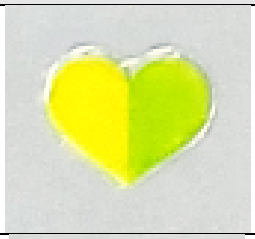
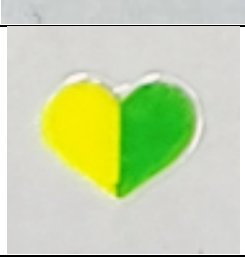
Visual inspection criteria - Naked eye		
Detection schematic	**Result**	**Mark**
	Positive	(++) (+)
	Negative	(-)

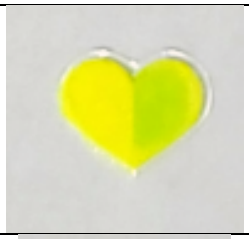
7.	Results

7.1. Detection Limit Test

No.	Sample Type	Result	Mark
1	20% ethanol 1% GHB (Positive)		++
2	20% ethanol 0% GHB (Nagative)		-
- All sticker designs showed identical positive color change.			

7.2. GHB Detection Test with 13 Beverages

No.	Beverage	Positive Sample	Negative Sample	Positive Reactivity	Negative Reactivity	Waterproof Ink Damage
1	Tap Water			++	-	N/A
2	20% ethanol			++	-	N/A
3	Vodka			++	-	N/A
4	Makgeolli			++	-	N/A
5	Beer			++	-	N/A
6	Whiskey			++	-	N/A

7	Red Wine			+	-	N/A
8	White Wine			+	-	N/A
9	Orange Juice			-	-	N/A
10	Cola			+	-	N/A
11	Cider			++	-	N/A
12	Ion Beverage			+	-	N/A
13	Red Bull			-	-	N/A

8. Interpretation

8.1. Detection Limit

- Positive response confirmed at 1% GHB concentration in 20% ethanol
- Stickers of different shapes showed identical color change at detection limit concentration
- Therefore, beverage-specific tests were standardized to one sticker shape.

8.1. Beverage-Specific Detection

- False negatives occurred with orange juice and Red Bull
  (False negative = when positive sample was applied but negative result observed)
- Red wine showed coloration in negative samples, but positive/negative distinction was still possible by naked eye.

9. Conclusion

- The product showed positive color change from 1% (10 mg/mL) GHB concentration
- In the 13-beverage GHB detection test, false negatives were observed in orange juice and Red Bull
- All other beverages showed normal positive detection
- Although the intensity of color change varied by beverage, positive/negative results were distinguishable by naked eye