

23rd October 2024

CYD Drink Spike Test Reports

Product Specifications

1. Product Identification

- **Product:** CYD Drink Spike Test
- **Product Codes:**
 - Sponsorship cards: CYDSPONS (previously CYD001)
 - Small Test Strips: CYDSML (previously CYD002)
 - Matchbooks: CYDMB8
 - Wristbands: CYDWB02
- **Manufacturer:** Checkyourdrink Ltd, 2 Rose Bank, Bollington, Cheshire, SK10 5JA, U.K.
- **Use:** For the detection of minimal standard dosages of GHB, Ketamine, Cocaine and Scopolamine in drinks to aid in identifying potential drink spiking.

2. Product Description, Physical Characteristics:

- **Sponsorship cards:** Size 70x60mm. Pale pink GHB test strip and yellow Ketamine, Cocaine and Scopolamine test strip on white card backing which can be printed on both sides.
- **Small Test Strips:** Size 8x60mm. Pale pink GHB test strip and yellow Ketamine, Cocaine and Scopolamine test strip on white plastic backing.
- **Matchbooks:** Size 40x83mm. Flip-top booklet containing Pale pink GHB test strips and yellow Ketamine, Cocaine and Scopolamine test strips on white card backing which can be torn out of the book. Total of 8 tests in booklet. Outside of booklet made with white card, printed on both sides.
- **Wristbands:** Size 19x250mm. 2 x Pale pink GHB test strips and 2 x yellow Ketamine, Cocaine and Scopolamine test strip test strips on white Tyvek wristband.

3. Test Methodology:

- The test strips change colour within 30 seconds when in contact with liquids containing GHB, Ketamine, Cocaine, Scopolamine.

3. Shelf Life and Storage Requirements

- Shelf Life: 7 years from the date of manufacture.
- Storage Conditions: Store in a cool, dry place, away from direct sunlight, chemicals, and moisture.

4. Warnings and Precautions

- The product does not detect all substances that could be used for spiking, and a negative result does not guarantee the drink is safe.
- The test is for personal use only and is not a substitute for professional toxicology tests.

5. Regulatory and Compliance Statements

- The product complies with the general product safety standards. CE marking and FDA approval are not required, as this product is not classified as a medical device and does not involve testing of bodily fluids or physiological processes.
- The manufacturer makes no representations or warranties, save as expressly stated on the packaging (copied in further down the report), and cannot be held responsible for the presence of substances other than those tested for. All liability for consequential and other losses is excluded to the fullest extent permitted by law. The manufacturer's liability for a defective product is limited to replacement or refund of the purchase price.

Regulatory Report Summary: Checkyourdrink Ltd. GHB & Ketamine Drink Spike Detection Tests

Background

Checkyourdrink Ltd. (previously CYD&CYDLtd) commissioned two separate tests to evaluate the effectiveness of their Ketamine and GHB drink spike detection methods. The Ketamine test was conducted in 2013 by Clinical Trails Laboratory Services, while the GHB test was conducted in 2014 by the Strathclyde Institute of Pharmacy & Biomedical Sciences.

The primary purpose of these tests was to confirm the efficacy and reliability of the detection methods for Ketamine and GHB when spiked into a range of beverages.

GHB Test

The original test protocol supplied by Checkyourdrink Ltd. for the GHB detection method produced inconsistent and unreliable results, with particular challenges observed in detecting GHB in white wine (see Table 2 of the report). As a result, further refinements were made to the lacmoid preparation to improve accuracy and consistency.

Dr. Ellis successfully revised the lacmoid preparation, leading to significant improvements in the test's sensitivity and stability. These improvements are documented in Table 3 of the report.

Key Test Details:

- **Tested concentrations:** 0, 3, 4, 5, 6, 7, 8, and 12 mg/ml.
- **Number of drinks tested:** 41.
- **Accuracy rate:**
 - Specificity 95.12%
 - Sensitivity: 95.12%
 - **Overall accuracy:** 95.12%
- **False positives:** Milk-based drinks (e.g., milk, Bailey's) and dark red beverages (e.g., blackcurrant cordial, red wine) showed potential for false positives due to the reaction of the test paper.
- **False negatives:** Highly acidic drinks (e.g., bitter lemon, lime cordial) did not show consistent results.

Notably, in conclusion, the revised lacmoid recipe demonstrated more reliable GHB detection in the majority of beverages tested.

Minimum dosage guidelines for GHB use:

- **Medical use:** 4.5g – 9g in adults (administered in two doses over 2-4 hours).
- **Recreational use (Crew guidelines):**
 - Light dose: 0.5–1.0g
 - Common dose: 1.0–2.5g

The analysed range of 3 to 12mg/mL sodium oxybate covers the potential dosages used for drink spiking.

Ketamine Test

The Ketamine test, developed in 2013, involved testing a range of concentrations to establish the sensitivity of the detection method. The test was run using concentrations of 0.625, 1.25, 2.5, 5, and 10 mg/ml, with results recorded after 30 seconds. The methodology used a comparative approach, with unspiked beverages tested alongside spiked beverages, the latter containing 50 micrograms of Ketamine in 5 microlitres of drink.

Key Test Details:

- **Number of drinks tested:** 85, including a wide range of alcoholic beverages with varying colours, sugar content, and potential cross-reactants.
- **Significant findings:** Most beverages did not interfere with the detection of Ketamine. Exceptions included red wine and dark red liqueurs (e.g., blackberry and raspberry liqueurs), where detection required higher concentrations.
- **Accuracy:** No false negatives were recorded across the beverages tested.
 - Specificity 100%%
 - Sensitivity: 97.67%
 - **Overall accuracy:** 98.84%
- **False positives:** Dark red beverages (e.g., blackcurrant cordial, red wine) showed potential for false positives due to the reaction of the test paper.
- **False negatives:** None.

Minimum dosage guidelines for recreational Ketamine use (based on BDP guidelines):

- Light dose: 15-30mg
- Common dose: 30-75mg
- Strong dose: 75-150mg
- Heavy dose ("K-hole"): 150+mg

The analysed range of 0.625 to 10 mg/mL ketamine covers the potential dosages used for drink spiking.

Updated Efficacy Testing: 2024

Background

In 2024, additional efficacy testing was conducted on the Ketamine and GHB test papers to verify the continued viability of the original formulations. This new phase of testing also **introduced the addition of Cocaine and Scopolamine to the Ketamine test patch.**

Testing Process

The new testing was carried out by **Lucideon, UK**, to ensure the Ketamine and GHB tests continue to perform as expected. Rather than retesting the entire range of beverages, a representative solution of **40:60 v/v% ethanol to deionised water** was used. This solution closely simulates high-alcohol-content beverages such as vodka, gin, rum, and whiskey. If there had been any degradation in the test formulations, it would have been detectable with this solution.

Key Findings

- **Observed colour changes:** Although both the test shows an instant colour change, the lab only officially records at 30 and 60 seconds. However, we have video evidence from the lab showing the immediate colour change.
- **GHB Test:** The GHB test paper continues to show reliable results, as expected.
- **Ketamine Test:** The Ketamine test paper continues to show high sensitivity and reliable results, as expected.

Conclusion of Updated Efficacy Testing

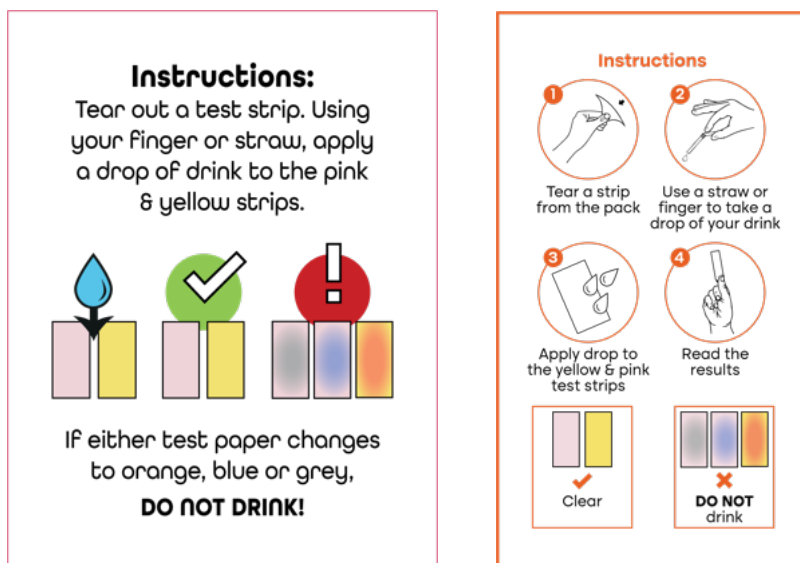
The results obtained from Lucideon are consistent with previous testing, reaffirming the efficacy of both the Ketamine and GHB detection methods.

Product Packaging Notice (Effective 23 October 2024)

All product packaging produced after 23 October 2024, will clearly state that bitter lemon and lime cordial may give a negative result. Packaging will also include the following warnings and conditions:

*CYD® tests for minimal standard dosages of Ketamine, Cocaine, Scopolamine, and GHB (gammahydroxybutyrate) in drinks. Smaller quantities may not be detected. Follow instructions exactly. Do not place the test in a drink. Some substances, such as those that are dark red in colour or milk-based, may produce a false positive. **Bitter lemon and lime cordial will produce a false negative.** A drink producing a negative result could still be unsafe as it may contain dangerous substances other than those tested for. If in doubt, do not drink. Store away from children, animals, chemicals, and moisture. The manufacturer makes no representations or warranties, save as expressly stated above, and cannot be held responsible for the presence of substances other than those tested for. All liability for consequential and other losses is excluded to the fullest extent permitted by law. The manufacturer's liability for a defective product is limited to replacement or refund of the purchase price.*

Instructions for Use examples for Matchbook:



The same examples are used for the other products minus the reference to 'tear out a test strip'.

Additional documents attached to this report:

- **Lucideon:** Ketamine, Cocaine & Scopolamine Analytical Report 2024
- **Lucideon:** GHB Analytical Report 2024
- **Clinical Trials Laboratory Services, Ltd:** Ketamine Analytical Report (original Efficacy testing)
- **Strathclyde University:** Ketamine Analytical Report (original Efficacy testing)
- **Safety Data Sheets:**
 - CYD Sponsorship Strips
 - CYD Indicator Strips (Small Test Strips)
 - CYD Matchbooks
 - CYD Wristbands (Johnson Analytica Ltd.)
 - CYD Wristbands (DuPont™ Tyvek®)
- **ISO Certificates:**
 - ISO/IEC 17025 – Lucideon
 - ISO 9001 – Johnson Analytica Ltd.
 - ISO 13485 – Johnson Analytica Ltd.
- Certificate of Accreditation – Lucideon - ISO/IEC 17025:2017

Signed by:



Amanda Friend

Chief Operations Officer

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Be safe, carry CYD

Safety Data Sheet

according to Directive 1907/2006/EC (REACH) and Regulation 2015/830/EU



Product Code: CYD001
Issued on: 27 October 2021

Check Your Drink Sponsorship Card, 2 pad, 70 x 25 mm

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product code CYD001

Product name Check Your Drink Sponsorship Card, 2 pad, 70 x 25 mm

REACH Registration numbers: see section 3.1/3.2 or
A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses

Product for analytical use.

Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0
The exposure scenario is integrated into sections 1-16.

If CE labelling: Product for in-vitro-diagnostic use (IVD) or Accessory for medical use

Uses advised against

Not described

1.3 Details of the supplier of the safety data sheet

Manufactured by:

Johnson Test Papers Ltd
Hainge Park, Hainge Road, Oldbury, B69 2NU, United Kingdom
Tel: +44 121 557 3883, Email: technical@jtp.uk.com

1.4 Emergency telephone number

Information not necessary

You can find our current versions of the SDS online at <http://www.johnsonstestpapers.com>

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Signal word -

No hazard class

Does not need labelling as hazardous

2.2 Label elements

Signal word -

Does not need labelling as hazardous

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Safety Data Sheet

according to Directive 1907/2006/EC (REACH) and Regulation 2015/830/EU



Product Code: CYD001
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2.3 Other hazards

Possible Hazards from physicochemical Properties
None.

Information pertaining to particular risks to human and possible symptoms
None.

Information pertaining to particular risks to the environment
None.

Other Hazards
None.

SECTION 3: Composition/Information on Ingredients

3.1 Substances or 3.2 Mixtures

Chemical:	Cellulose	CAS No.: 9004-34-6
Classification:	No criteria for classification or naming of chemical not required	
Formula:	$(C_6H_{10}O_5)_n$	
TSCA Inventory:	Listed	
REACH Reg. No.:	Exempt, Annex IV	
EC No.:	232-674-9	
RTECS:	FJ5691460	
KE No.:	KE-05339	
Concentrations:	1 - <10 %	
acc. CLP (GHS):	The criteria for classification are not fulfilled	

Chemical:	Mixed indicator	CAS No.: -
Classification:	No criteria for classification or naming of chemical not required	
TSCA Inventory:	All listed, <1%	
KE No.:	Listed	
Concentration:	0.1 - <1%	
acc. CLP (GHS):	The criteria for classification are not fulfilled	

Chemical:	PVC foil	CAS No.: 9002-86-2
Classification:	No criteria for classification or naming of chemical not required	
TSCA Inventory:	Listed	
Concentration:	95 - <100%	
acc. CLP (GHS):	The criteria for classification are not fulfilled	

3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%.

SECTION 4: First aid measures

4.1 Description of first aid measures

Place injured person out of danger zone and to fresh air immediately.

- 4.1.1 After SKIN contact**
Remove dust with wetted tissue. Not necessary
- 4.1.2 After EYE contact**
Rub dust with teardrops from eye. Not necessary
- 4.1.3 After INHALATION of vapours**

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After inhalation of dust, fresh air should be inhaled. Not necessary.

4.1.4 After ORAL intake

Not necessary

4.2 Most important symptoms and effects, both acute and delayed

None.

4.3 Indication of any immediate medical attention and special treatment needed

No additional recommendations

SECTION 5: Firefighting measures

5.1 Extinguishing media

Fire extinguishers appropriate to the fire classification and if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like Foam, Water Spray, Dry Powder, Carbon Dioxide can be used.

5.2 Special hazards arising from the substance or mixture

None

5.3 Advice for firefighters

Product burns like paper or plastic.

5.4 Additional information

None.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Not necessary

6.2 Environmental precautions

Not necessary

6.3 Methods and material for contamination and cleaning

Clean working area with water. Flush used water into drains

6.4 Reference to other sections

Not applicable.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in accordance with the test instruction supplied with the product.

7.2 Conditions for safe storage, including any incompatibilities

The original product packaging of Johnson Test Papers allows safe storage.

Storage Class (VCI): 11

7.2.1 Requirements for stock rooms and containers

Keep original product packaging tightly closed during handling and storage.

7.3 Specific end use(s)

Product for analytical use.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Chemical:	Cellulose	CAS No.: 9004-34-6
NIOSH:	TWA 10 (total)/5 (resp) mg/m ³ [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15 minute period	
OSHA:	TWA 15 (total)/5 (resp) mg/m ³	
Chemical:	Mixed indicator, <1%	CAS No.: -
Chemical:	PVC Foil	CAS No.: 9002-86-2

8.2 Exposure controls

Not necessary

8.2.1 Respiratory Protection

Not necessary

8.2.2 Hand Protection

Not necessary

8.2.3 Eye Protection

Not necessary

8.2.4 Skin Protection

Not necessary

8.2.5 Personal Hygiene

Information not necessary

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: Solid Colour: Yellow and Pink Odour: Odourless

9.2 Other information

Relevant Properties of Substance Group
None.

SECTION 10: Stability and reactivity

10.1 Reactivity

None.

10.2 Chemical stability

No known instability.

10.3 Possibility of hazardous reactions

None.

10.4 Conditions to avoid

Not known.

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10.5 Incompatible materials

Not known. Avoid contact with concentrated acids and oxidising agents.

10.6 Hazardous decomposition products

In the original packaging all parts/all reagents are safely and separately stored. Decompositions are not observed during the expiration period under the recommended conditions.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

The following information is valid for the pure substance. Quantitative data on the toxicity of this product is not available

Chemical:	Cellulose	CAS No.: 9004-34-6
TSCA Inventory:	listed	
California Proposition 65 List:	not listed	
Exposure Routes:	inhalation, skin, and/or eye contact	
Target Organs:	eyes, skin, respiratory system	
Symptoms:	irritation eyes, skin, mucous membrane	
Australia NICNAS:	not listed	
Canada CEPA 1999:	DSL yes	
Japan CSCL/PRTR:	not listed,	
Japan PDSCL:	not listed	
Japan IHSI:	not listed	
South Korea TCCA:	not listed	
Korea Exist. Chem. Inventory:	KE-05339	
LD50 _{oral rat} :	>5000 mg/kg	
LD50 _{inhal rat} :	>5800 _{4h} mg/m ³	
LD50 _{derm rabbit} :	>2000 mg/kg	
Chemical:	Mixed indicator	CAS No.: -
TSCA Inventory:	all listed, <1%	
Korea Exist. Chem. Inventory	listed	
Chemical:	PVC foil	CAS No.: 9002-86-2
TSCA Inventory:	listed	

SECTION 12: Ecological information

12.1 Toxicity

The following information is only valid for the pure substance

Chemical:	Cellulose	CAS No.: 9004-34-6
Storage class (VCI):	11	
Chemical:	Mixed indicator, <1%	CAS No.: -
Storage class (VCI):	12-13	
Chemical	PVC foil	CAS No.: 9002-86-2

12.2 Persistence and degradability

Not necessary.

12.3 Bioaccumulative potential

Not necessary.

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Check Your Drink Sponsorship Card, 2 pad, 70 x 25 mm

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12.4 Mobility in soil
Not necessary.

12.5 Results of PBT and vPVB assessment
No data available.

12.6 Other adverse effects
No additional data available.

SECTION 13: Disposal considerations

Not necessary.

13.1 Waste treatment methods
GENERAL: Empty solids into municipal waste and empty liquids into drains with dilution.

SECTION 14: Transport information

14.1 - 14.4
Not necessary.

14.5 Environmental hazards
Not necessary.

14.6 Special precautions for user
Not necessary.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
Not necessary.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
See www.johnsontestpapers.com/

Also look for your country specific regulations

15.2 Chemical safety assessment
Not necessary for these amounts.

SECTION 16: Other information

16.1 List of H and P phrases

16.1.1 List of relevant H phrases
Not necessary.

16.1.2 List of relevant P phrases
Not necessary.

16.2 Training Advice
Regular safety training.

16.3 Recommended Restriction on Use
None.

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16.4 Further information

Johnson Test Papers Ltd provides the information contained in this document in good faith and being up to date at the time of the revision. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving this information must exercise their own judgement in determining its appropriateness for a particular purpose.

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16.5 Sources of Key Data

Regulation 453/2010/EU REACH - Requirements for the compilation of Safety Data Sheets
Regulation 487/2013/EU, 4th adaptation of CLP regulation to technical and scientific progress
Regulation 669/2018/EU, 4th adaptation of CLP regulation to technical and scientific progress
Raw material supplier's safety data sheets where applicable

Revisions/Updates

New document

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Safety Data Sheet

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Product Code: CYD002
Issued on: 27 October 2021

Check Your Drink Indicator Strips, 2 pad, 8 x 60 mm

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product code CYD002

Product name Check Your Drink Indicator Strips, 2 pad, 8 x 60 mm

REACH Registration numbers: see section 3.1/3.2 or
A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses

Product for analytical use.

Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0
The exposure scenario is integrated into sections 1-16.

If CE labelling: Product for in-vitro-diagnostic use (IVD) or Accessory for medical use

Uses advised against

Not described

1.3 Details of the supplier of the safety data sheet

Manufactured by:

Johnson Test Papers Ltd
Hainge Park, Hainge Road, Oldbury, B69 2NU, United Kingdom
Tel: +44 121 557 3883, Email: technical@jtp.uk.com

1.4 Emergency telephone number

Information not necessary

You can find our current versions of the SDS online at <http://www.johnsonstestpapers.com>

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Signal word -

No hazard class

Does not need labelling as hazardous

2.2 Label elements

Signal word -

Does not need labelling as hazardous

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Product Code: CYD002
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Check Your Drink Indicator Strips, 2 pad, 8 x 60 mm

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2.3 Other hazards

Possible Hazards from physicochemical Properties
None.

Information pertaining to particular risks to human and possible symptoms
None.

Information pertaining to particular risks to the environment
None.

Other Hazards
None.

SECTION 3: Composition/Information on Ingredients

3.1 Substances or 3.2 Mixtures

Chemical:	Cellulose	CAS No.: 9004-34-6
Classification:	No criteria for classification or naming of chemical not required	
Formula:	$(C_6H_{10}O_5)_n$	
TSCA Inventory:	Listed	
REACH Reg. No.:	Exempt, Annex IV	
EC No.:	232-674-9	
RTECS:	FJ5691460	
KE No.:	KE-05339	
Concentrations:	1 - <10 %	
acc. CLP (GHS):	The criteria for classification are not fulfilled	

Chemical:	Mixed indicator	CAS No.: -
Classification:	No criteria for classification or naming of chemical not required	
TSCA Inventory:	All listed, <1%	
KE No.:	Listed	
Concentration:	0.1 - <1%	
acc. CLP (GHS):	The criteria for classification are not fulfilled	

Chemical:	PVC foil	CAS No.: 9002-86-2
Classification:	No criteria for classification or naming of chemical not required	
TSCA Inventory:	Listed	
Concentration:	95 - <100%	
acc. CLP (GHS):	The criteria for classification are not fulfilled	

3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%.

SECTION 4: First aid measures

4.1 Description of first aid measures

Place injured person out of danger zone and to fresh air immediately.

- 4.1.1 After SKIN contact**
Remove dust with wetted tissue. Not necessary
- 4.1.2 After EYE contact**
Rub dust with teardrops from eye. Not necessary
- 4.1.3 After INHALATION of vapours**

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Safety Data Sheet

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Product Code: CYD002
Issued on: 27 October 2021

Check Your Drink Indicator Strips, 2 pad, 8 x 60 mm

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After inhalation of dust, fresh air should be inhaled. Not necessary.

4.1.4 After ORAL intake

Not necessary

4.2 Most important symptoms and effects, both acute and delayed

None.

4.3 Indication of any immediate medical attention and special treatment needed

No additional recommendations

SECTION 5: Firefighting measures

5.1 Extinguishing media

Fire extinguishers appropriate to the fire classification and if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like Foam, Water Spray, Dry Powder, Carbon Dioxide can be used.

5.2 Special hazards arising from the substance or mixture

None

5.3 Advice for firefighters

Product burns like paper or plastic.

5.4 Additional information

None.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Not necessary

6.2 Environmental precautions

Not necessary

6.3 Methods and material for contamination and cleaning

Clean working area with water. Flush used water into drains

6.4 Reference to other sections

Not applicable.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in accordance with the test instruction supplied with the product.

7.2 Conditions for safe storage, including any incompatibilities

The original product packaging of Johnson Test Papers allows safe storage.

Storage Class (VCI): 11

7.2.1 Requirements for stock rooms and containers

Keep original product packaging tightly closed during handling and storage.

7.3 Specific end use(s)

Product for analytical use.

Johnson Test Papers Ltd
Hainge Park, Hainge Road
Oldbury, West Midlands
B69 2NU, United Kingdom

T: +44 (0)121 557 3883
F: +44 (0)121 557 8235
E: info@jtp.uk.com
W: www.johnsontestpapers.com

Registered in England
Company Reg No: 4112470
VAT No: GB 754 6913 04



Safety Data Sheet

according to Directive 1907/2006/EC (REACH) and Regulation 2015/830/EU



Product Code: CYD002
Issued on: 27 October 2021

Check Your Drink Indicator Strips, 2 pad, 8 x 60 mm

Page 4 of 7

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Chemical:	Cellulose	CAS No.: 9004-34-6
NIOSH:	TWA 10 (total)/5 (resp) mg/m ³ [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15 minute period	
OSHA:	TWA 15 (total)/5 (resp) mg/m ³	
Chemical:	Mixed indicator, <1%	CAS No.: -
Chemical:	PVC Foil	CAS No.: 9002-86-2

8.2 Exposure controls

Not necessary

8.2.1 Respiratory Protection

Not necessary

8.2.2 Hand Protection

Not necessary

8.2.3 Eye Protection

Not necessary

8.2.4 Skin Protection

Not necessary

8.2.5 Personal Hygiene

Information not necessary

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: Solid Colour: Yellow and Pink Odour: Odourless

9.2 Other information

Relevant Properties of Substance Group
None.

SECTION 10: Stability and reactivity

10.1 Reactivity

None.

10.2 Chemical stability

No known instability.

10.3 Possibility of hazardous reactions

None.

10.4 Conditions to avoid

Not known.

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Product Code: CYD002
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Check Your Drink Indicator Strips, 2 pad, 8 x 60 mm

Page 5 of 7

10.5 Incompatible materials

Not known. Avoid contact with concentrated acids and oxidising agents.

10.6 Hazardous decomposition products

In the original packaging all parts/all reagents are safely and separately stored. Decompositions are not observed during the expiration period under the recommended conditions.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

The following information is valid for the pure substance. Quantitative data on the toxicity of this product is not available

Chemical:	Cellulose	CAS No.: 9004-34-6
TSCA Inventory:	listed	
California Proposition 65 List:	not listed	
Exposure Routes:	inhalation, skin, and/or eye contact	
Target Organs:	eyes, skin, respiratory system	
Symptoms:	irritation eyes, skin, mucous membrane	
Australia NICNAS:	not listed	
Canada CEPA 1999:	DSL yes	
Japan CSCL/PRTR:	not listed,	
Japan PDSCL:	not listed	
Japan IHSI:	not listed	
South Korea TCCA:	not listed	
Korea Exist. Chem. Inventory:	KE-05339	
LD50 _{oral rat} :	>5000 mg/kg	
LD50 _{inhal rat} :	>5800 _{4h} mg/m ³	
LD50 _{derm rabbit} :	>2000 mg/kg	
Chemical:	Mixed indicator	CAS No.: -
TSCA Inventory:	all listed, <1%	
Korea Exist. Chem. Inventory	listed	
Chemical:	PVC foil	CAS No.: 9002-86-2
TSCA Inventory:	listed	

SECTION 12: Ecological information

12.1 Toxicity

The following information is only valid for the pure substance

Chemical:	Cellulose	CAS No.: 9004-34-6
Storage class (VCI):	11	
Chemical:	Mixed indicator, <1%	CAS No.: -
Storage class (VCI):	12-13	
Chemical	PVC foil	CAS No.: 9002-86-2

12.2 Persistence and degradability

Not necessary.

12.3 Bioaccumulative potential

Not necessary.

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Product Code: CYD002
Issued on: 27 October 2021

Check Your Drink Indicator Strips, 2 pad, 8 x 60 mm

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12.4 Mobility in soil
Not necessary.

12.5 Results of PBT and vPVB assessment
No data available.

12.6 Other adverse effects
No additional data available.

SECTION 13: Disposal considerations

Not necessary.

13.1 Waste treatment methods
GENERAL: Empty solids into municipal waste and empty liquids into drains with dilution.

SECTION 14: Transport information

14.1 - 14.4
Not necessary.

14.5 Environmental hazards
Not necessary.

14.6 Special precautions for user
Not necessary.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
Not necessary.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
See www.johnsontestpapers.com/

Also look for your country specific regulations

15.2 Chemical safety assessment
Not necessary for these amounts.

SECTION 16: Other information

16.1 List of H and P phrases

16.1.1 List of relevant H phrases
Not necessary.

16.1.2 List of relevant P phrases
Not necessary.

16.2 Training Advice
Regular safety training.

16.3 Recommended Restriction on Use
None.

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Product Code: CYD002
Issued on: 27 October 2021

Check Your Drink Indicator Strips, 2 pad, 8 x 60 mm

Page 7 of 7

16.4 Further information

Johnson Test Papers Ltd provides the information contained in this document in good faith and being up to date at the time of the revision. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving this information must exercise their own judgement in determining its appropriateness for a particular purpose.

Johnson Test Papers Ltd makes no representations or warranties, either expressed or implied, including without limitation any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly Johnson Test Papers Ltd will not be responsible for damages resulting from use of or reliance upon this information. See terms and conditions at the back of our catalogue for more information.

16.5 Sources of Key Data

Regulation 453/2010/EU REACH - Requirements for the compilation of Safety Data Sheets
Regulation 487/2013/EU, 4th adaptation of CLP regulation to technical and scientific progress
Regulation 669/2018/EU, 4th adaptation of CLP regulation to technical and scientific progress
Raw material supplier's safety data sheets where applicable

Revisions/Updates

New document

Johnson Test Papers Ltd
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Registered in England
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VAT No: GB 754 6913 04



Safety Data Sheet

according to Directive 1907/2006/EC (REACH) and Regulation 15/830/EU



Product Code: CYDMB8
Issued on: 15 September 2023

CYD 8-Test Matchbook, 40 x 75mm book

Page 1 of 7

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product code CYDMB8

Product name CYD 8-Test Matchbook, 40 x 75mm book

REACH Registration numbers: see section 3.1/3.2 or
A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses

Product for analytical use.

Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0
The exposure scenario is integrated into sections 1-16.

If CE labelling: Product for in-vitro-diagnostic use (IVD) or Accessory for medical use

Uses advised against

Not described

1.3 Details of the supplier of the safety data sheet

Manufactured by:

Johnson Test Papers Ltd
Hainge Park, Hainge Road, Oldbury, B69 2NU, United Kingdom
Tel: +44 121 557 3883, Email: technical@jtp.uk.com

1.4 Emergency telephone number

Information not necessary

You can find our current versions of the SDS online at <http://www.johnsonstestpapers.com>

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Signal word -

No hazard class

Does not need labelling as hazardous

2.2 Label elements

Signal word -

Does not need labelling as hazardous

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Safety Data Sheet

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Product Code: CYDMB8
Issued on: 15 September 2023

CYD 8-Test Matchbook, 40 x 75mm book

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2.3 Other hazards

Possible Hazards from physicochemical Properties

None.

Information pertaining to particular risks to human and possible symptoms

None.

Information pertaining to particular risks to the environment

None.

Other Hazards

None.

SECTION 3: Composition/Information on Ingredients

3.1 Substances or 3.2 Mixtures

Chemical:	Cellulose	CAS No.: 9004-34-6
Classification:	No criteria for classification or naming of chemical not required	
Formula:	$(C_6H_{10}O_5)_n$	
TSCA Inventory:	Listed	
REACH Reg. No.:	Exempt, Annex IV	
EC No.:	232-674-9	
RTECS:	FJ5691460	
KE No.:	KE-05339	
Concentrations:	1 - <10 %	
acc. CLP (GHS):	The criteria for classification are not fulfilled	

Chemical:	Mixed indicator	CAS No.: -
Classification:	No criteria for classification or naming of chemical not required	
TSCA Inventory:	All listed, <1%	
KE No.:	Listed	
Concentration:	0.1 - <1%	
acc. CLP (GHS):	The criteria for classification are not fulfilled	

Chemical:	PVC foil	CAS No.: 9002-86-2
Classification:	No criteria for classification or naming of chemical not required	
TSCA Inventory:	Listed	
Concentration:	95 - <100%	
acc. CLP (GHS):	The criteria for classification are not fulfilled	

3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%.

SECTION 4: First aid measures

4.1 Description of first aid measures

Place injured person out of danger zone and to fresh air immediately.

4.1.1 After SKIN contact

Remove dust with wetted tissue. Not necessary

4.1.2 After EYE contact

Rub dust with teardrops from eye. Not necessary

4.1.3 After INHALATION of vapours

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Product Code: CYDMB8
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CYD 8-Test Matchbook, 40 x 75mm book

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After inhalation of dust, fresh air should be inhaled. Not necessary.

4.1.4 After ORAL intake
Not necessary

4.2 Most important symptoms and effects, both acute and delayed
None.

4.3 Indication of any immediate medical attention and special treatment needed
No additional recommendations

SECTION 5: Firefighting measures

5.1 Extinguishing media
Fire extinguishers appropriate to the fire classification and if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like Foam, Water Spray, Dry Powder, Carbon Dioxide can be used.

5.2 Special hazards arising from the substance or mixture
None

5.3 Advice for firefighters
Product burns like paper or plastic.

5.4 Additional information
None.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Not necessary

6.2 Environmental precautions
Not necessary

6.3 Methods and material for contamination and cleaning
Clean working area with water. Flush used water into drains

6.4 Reference to other sections
Not applicable.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Handling in accordance with the test instruction supplied with the product.

7.2 Conditions for safe storage, including any incompatibilities
The original product packaging of Johnson Test Papers allows safe storage.

Storage Class (VCI): 11

7.2.1 Requirements for stock rooms and containers
Keep original product packaging tightly closed during handling and storage.

7.3 Specific end use(s)
Product for analytical use.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Chemical:	Cellulose	CAS No.: 9004-34-6
NIOSH:	TWA 10 (total)/5 (resp) mg/m ³ [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15 minute period	
OSHA:	TWA 15 (total)/5 (resp) mg/m ³	
Chemical:	Mixed indicator, <1%	CAS No.: -
Chemical:	PVC Foil	CAS No.: 9002-86-2

8.2 Exposure controls

Not necessary

8.2.1 Respiratory Protection

Not necessary

8.2.2 Hand Protection

Not necessary

8.2.3 Eye Protection

Not necessary

8.2.4 Skin Protection

Not necessary

8.2.5 Personal Hygiene

Information not necessary

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: Solid Colour: Yellow and Pink Odour: Odourless

9.2 Other information

Relevant Properties of Substance Group
None.

SECTION 10: Stability and reactivity

10.1 Reactivity

None.

10.2 Chemical stability

No known instability.

10.3 Possibility of hazardous reactions

None.

10.4 Conditions to avoid

Not known.

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CYD 8-Test Matchbook, 40 x 75mm book

Page 5 of 7

10.5 Incompatible materials

Not known. Avoid contact with concentrated acids and oxidising agents .

10.6 Hazardous decomposition products

In the original packaging all parts/all reagents are safely and separately stored. Decompositions are not observed during the expiration period under the recommended conditions.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

The following information is valid for the pure substance. Quantitative data on the toxicity of this product is not available

Chemical:	Cellulose	CAS No.: 9004-34-6
TSCA Inventory:	listed	
California Proposition 65 List:	not listed	
Exposure Routes:	inhalation, skin, and/or eye contact	
Target Organs:	eyes, skin, respiratory system	
Symptoms:	irritation eyes, skin, mucous membrane	
Australia NICNAS:	not listed	
Canada CEPA 1999:	DSL yes	
Japan CSCL/PRTR:	not listed,	
Japan PDSCL:	not listed	
Japan IHSI:	not listed	
South Korea TCCA:	not listed	
Korea Exist. Chem. Inventory:	KE-05339	
LD50 _{oral rat} :	>5000 mg/kg	
LD50 _{inhal rat} :	>5800 _{4h} mg/m ³	
LD50 _{derm rabbit} :	>2000 mg/kg	
Chemical:	Mixed indicator	CAS No.: -
TSCA Inventory:	all listed, <1%	
Korea Exist. Chem. Inventory	listed	
Chemical:	PVC foil	CAS No.: 9002-86-2
TSCA Inventory:	listed	

SECTION 12: Ecological information

12.1 Toxicity

The following information is only valid for the pure substance

Chemical:	Cellulose	CAS No.: 9004-34-6
Storage class (VCI):	11	
Chemical:	Mixed indicator, <1%	CAS No.: -
Storage class (VCI):	12-13	
Chemical	PVC foil	CAS No.: 9002-86-2

12.2 Persistence and degradability

Not necessary.

12.3 Bioaccumulative potential

Not necessary.

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CYD 8-Test Matchbook, 40 x 75mm book

Page 6 of 7

12.4 Mobility in soil
Not necessary.

12.5 Results of PBT and vPVB assessment
No data available.

12.6 Other adverse effects
No additional data available.

SECTION 13: Disposal considerations

Not necessary.

13.1 Waste treatment methods
GENERAL: Empty solids into municipal waste and empty liquids into drains with dilution.

SECTION 14: Transport information

14.1 - 14.4
Not necessary.

14.5 Environmental hazards
Not necessary.

14.6 Special precautions for user
Not necessary.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
Not necessary.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
See www.johnsontestpapers.com/

Also look for your country specific regulations

15.2 Chemical safety assessment
Not necessary for these amounts.

SECTION 16: Other information

16.1 List of H and P phrases

16.1.1 List of relevant H phrases
Not necessary.

16.1.2 List of relevant P phrases
Not necessary.

16.2 Training Advice
Regular safety training.

16.3 Recommended Restriction on Use
None.

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Issued on: 15 September 2023

CYD 8-Test Matchbook, 40 x 75mm book

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16.4 Further information

Johnson Test Papers Ltd provides the information contained in this document in good faith and being up to date at the time of the revision. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving this information must exercise their own judgement in determining its appropriateness for a particular purpose.

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16.5 Sources of Key Data

Regulation 453/2010/EU REACH - Requirements for the compilation of Safety Data Sheets
Regulation 487/2013/EU, 4th adaptation of CLP regulation to technical and scientific progress
Regulation 669/2018/EU, 4th adaptation of CLP regulation to technical and scientific progress
Raw material supplier's safety data sheets where applicable

Revisions/Updates

New document

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DuPont™ Tyvek® Datasheet 8740DL (Effective : April 2014)

Specification properties of DuPont™ Tyvek®

Property	Unit	Nominal	Low	High	Test Method
Basis Weight	g/m ²	68.0	65.0	71.0	DIN EN ISO 536 (96) 1)
Delamination	N/2.54cm	1.0	0.7	1.3	ASTM D2724-07 2)

Corona and Antistat treated on both sides

Miscellaneous properties of DuPont™ Tyvek®

Property	Unit	Typical value	Test Method
Thickness	μm	205	DIN EN ISO 534 (05) 3)
Opacity	%	min. 97.5	ISO 2471 (98) 4)
Tensile (MD)	N	145	DIN EN ISO 1924-2 (08) 5)
Elongation	%	14.0	
Tensile (XD)	N	152	DIN EN ISO 1924-2 (08) 5)
Elongation	%	17.0	
Elmendorf (MD)	N	9.8	DIN EN 21974 (94)
Elmendorf (XD)	N	8.3	DIN EN 21974 (94)
Mullenburst	kPa	850	ISO 2758 (01)

1) Sample size 100 cm²

2) Modified for : result interpretation – length of delamination = 116mm, width, speed = 127mm/min. & clamp distance = 60mm

3) Surface 2cm², pressure 100kPa

4) Modified for backing standards, measuring area (Ø = 50mm) & illumination = wide area (Ø = 53mm)

5) Modified for: speed = 100mm/min. width = 25.4mm & gauge length = 127mm

Notes : Specification properties are controlled to a nominal value and released within specifications. Miscellaneous properties represent typical values based on roll averages, except for thickness (individual), with samples taken uniformly across the sheet. Thickness (individual) typical values are based on a population of pooled individual data points from multiple rolls. Miscellaneous properties are not controlled in the process, and therefore, are subject to slight changes from “normal” process drift. Customers must conduct their own tests to ensure suitability for the intended application. These properties are representative for uncoated Tyvek® as sold by DuPont. Product safety information is available upon request. This information may be subject to revision as new knowledge and experience becomes available. Since we cannot anticipate all variations in actual end-use conditions, DuPont makes no warranties and assumes no liabilities in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights.

REGISTRATION CERTIFICATE

this is to certify that the management system of

Johnson Test Papers Ltd

have been assessed by AJA EUROPE and registered against the requirements of

ISO 9001:2015

scope of registration

Design, development, manufacture & distribution of indicator papers & strips. Supply of filtration paper products. Worldwide distribution into the commercial and public sectors including healthcare, laboratories, education institutions and the MOD.

Units 6-7 Hainge Park, Hainge Road, Oldbury, West Midlands, B69 2NU, United Kingdom

Sites Registered

13

EAC

10th May 2019

Date Original Registration

9th March 2025

Next Re-Audit Due Date

9th May 2022

Date Of Re-registration

N/A

Revision Date

AJAEU/20/16181

Certificate Number

9th May 2025

Expiry Date

N/A

Previous Expiry Date

Alfonso Pagliuca, President & Founder, AJA Europe Ltd



0273



This certificate is the property of AJA Europe Ltd Unit 5 Middle Bridge Business Park Bristol Road Portishead Bristol BS20 6PN UK and must be returned on request.

REGISTRATION CERTIFICATE

this is to certify that the management system of

Johnson Test Papers Ltd

have been assessed by AJA EUROPE and registered against the requirements of

BS EN ISO 13485:2016

scope of registration

Design, development, manufacture & distribution of indicator papers & strips. Supply of filtration paper products. Worldwide distribution into the commercial and public sectors including healthcare, laboratories, education institutions and the MOD.

Units 6-7 Hainge Park, Hainge Road, Oldbury, West Midlands, B69 2NU, United Kingdom

Sites Registered

13

AJAEU/19/15154

EAC

Certificate Number

10th May 2019

9th May 2022

9th May 2025

Date Original Registration

Date Of Re-registration

Expiry Date

9th March 2025

N/A

N/A

Next Re-Audit Due Date

Revision Date

Previous Expiry Date

Alfonso Pagliuca, President & Founder, AJA Europe Ltd



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*Joint ISO-ILAC-IAF
Communique on the
Management Systems Requirements of ISO/IEC 17025,
General Requirements for the competence of testing and
calibration laboratories*

*A laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid test results and calibrations. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.*

A handwritten signature in blue ink, appearing to read "L. Ndri".

ISO Acting Secretary General

A handwritten signature in black ink, appearing to read "Meh Metinogorist Nilsson".

ILAC Chair

A handwritten signature in black ink, appearing to be in Chinese characters.

IAF Chair

April 2017

Certificate of Accreditation



Lucideon Limited

Testing Laboratory No. 0013

**Is accredited in accordance with International Standard ISO/IEC 17025:2017
- General Requirements for the competence of testing and calibration
laboratories.**

This accreditation demonstrates technical competence for a defined scope specified in the schedule to this certificate, and the operation of a management system (refer joint ISO-ILAC-IAF Communiqué dated April 2017). The schedule to this certificate is an essential accreditation document and from time to time may be revised and reissued.

The most recent issue of the schedule of accreditation, which bears the same accreditation number as this certificate, is available from www.ukas.com.

This accreditation is subject to continuing conformity with United Kingdom Accreditation Service requirements.

A handwritten signature in black ink, appearing to read "M Gantley", is positioned above a horizontal line.

Matt Gantley, *Chief Executive Officer*
United Kingdom Accreditation Service

Initial Accreditation: 12 February 1982
Certificate Issued: 25 January 2024



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PHARMACEUTICAL ANALYSIS REPORT

This report supersedes the report dated 04/07/2024 Chemistry Analysis Report

Lucideon Sample Number: UK241588-10937

Sample Description: Test Strip

Lucideon Report Number: UK241588-10937/CS

Issue Number: 3

Client: Check Your Drink
2 Rose Bank
Bollington
Macclesfield
Cheshire
SK10 5JA

For the Attention of: Amanda Friend

Date Logged: 14-May-2024

Date of Tests: 18-Jun-2024 to 03-Jul-2024

Report Date: 17-Jul-2024

Purchase Order No.: Paid

Work Location: Lucideon UK

Tests carried out in accordance with cGMP

Signed by:

Tom Brazier

 Signer Name: Tom Brazier
Signing Reason: I am the author of this document
Signing Time: 17 July 2024 | 12:51 BST

846EA87A1F87492FB972807AB5A65FA2

Mr Tom Brazier

Analytical Chemist

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Lucideon is the trading name of Lucideon Limited. Registered in England No. 1960455.

Signed by:

Oliver Davies

 Signer Name: Oliver Davies
Signing Reason: I approve this document
Signing Time: 17 July 2024 | 13:01 BST

D465224B47AA4850BD9EAE9C4AAAD5D

Mr Oliver Davies

Chemistry Manager

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Reg. England 1960455

Lucideon Reference: UK241588/CS Issue 3
Report Number: UK241588-10937
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-KET Test Paper

1 TESTING

Check Your Drink approached Lucideon Ltd to assess the efficacy of their KET Test Paper, the material developed for their drink spiking kits to indicate the presence of Ketamine. The indication for the presence of Ketamine is a colour change from yellow to orange/red. Check Your Drink also requested for the KET test paper to be assessed against two more amine-based substances; Cocaine and Scopolamine.

The efficacy of the CYD-KET Test Paper was determined using a series of Ketamine Hydrochloride, Cocaine Hydrochloride, and Scopolamine Hydrobromide standards, prepared by dissolving each substance in deionised water, 100% Ethanol and an ethanol: deionised water mix (40:60 %v/v). Note that only ketamine and scopolamine standards were prepared using the ethanol: deionised water (40:60 %v/v). Each set of standards were prepared and diluted to the approximate concentrations of 0.625, 1.25, 2.5, 5.0 and 10 mg/mL. 5 µL of each standard was spiked onto the test paper, equating to approximately 3.125, 6.25, 12.5, 25 and 50 µg of Ketamine, Cocaine, or Scopolamine. Negative control spikes of Deionised Water, 100% Ethanol and ethanol: deionised water (40:60 %v/v) were also performed. Once spiked, the test paper was left for 5 minutes to dry, and photos were taken of the spiked test paper.

The work is recorded in laboratory notebook NB0443 pages 1 to 16.

2 RESULTS

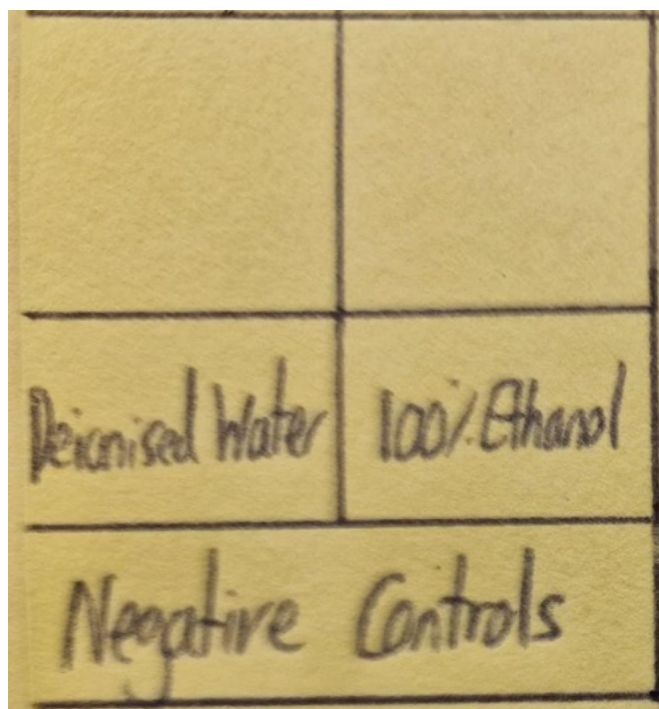


Figure 1 – Pre-spike Negative Controls

Lucideon Reference: UK241588/CS Issue 3
Report Number: UK241588-10937
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-KET Test Paper

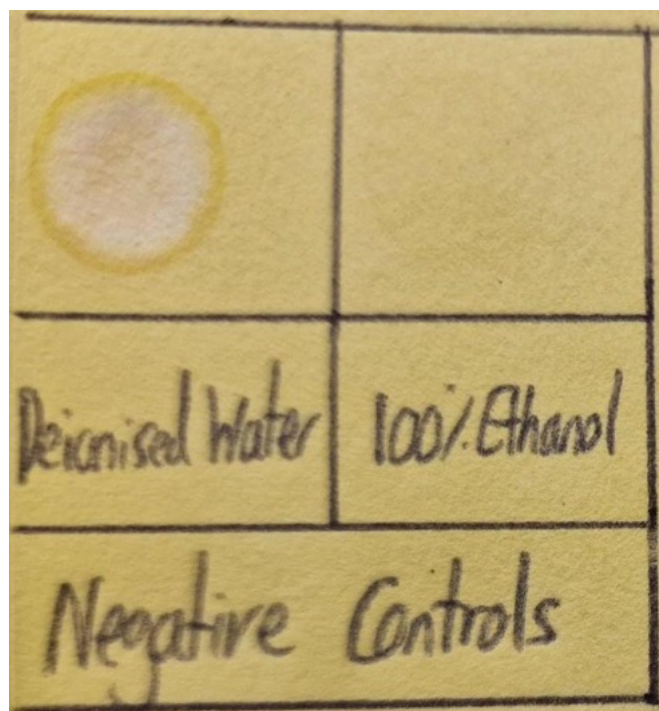


Figure 2 – Negative Controls Spiked with 5 µL of Deionised Water and 5 µL 100% Ethanol

The deionised water caused a slight whitening of the spiked area. Once dry, the Ethanol left a very faint outline covering the spiked area. Neither of the negative control spikes caused the positive result colour change of yellow to orange/red.

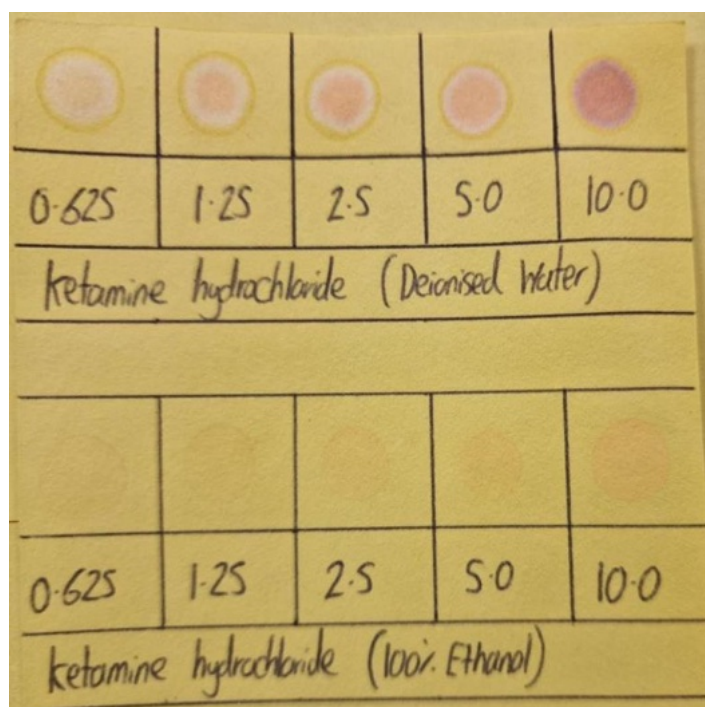


Figure 3 – Results of Ketamine Standard Spiking

Lucideon Reference: UK241588/CS Issue 3
Report Number: UK241588-10937
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-KET Test Paper

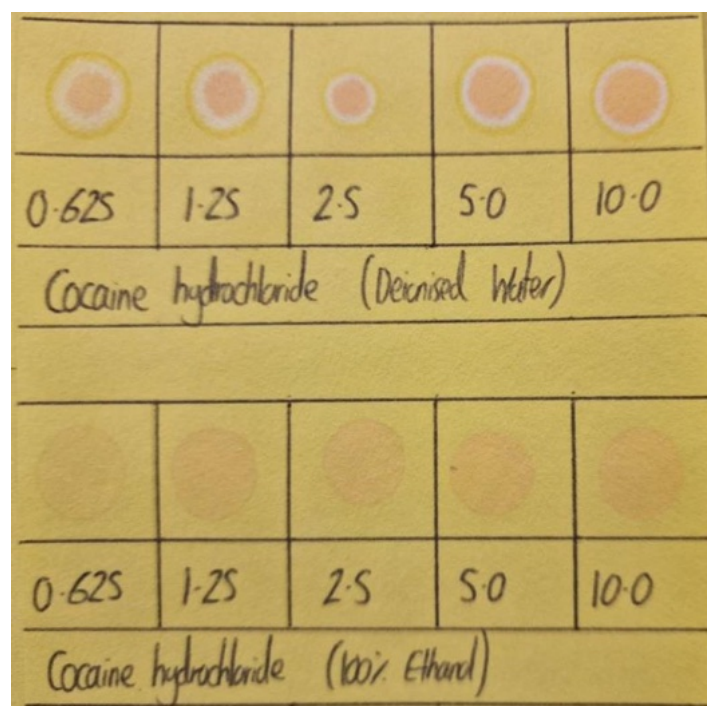


Figure 4 – Results of Cocaine Standard Spiking

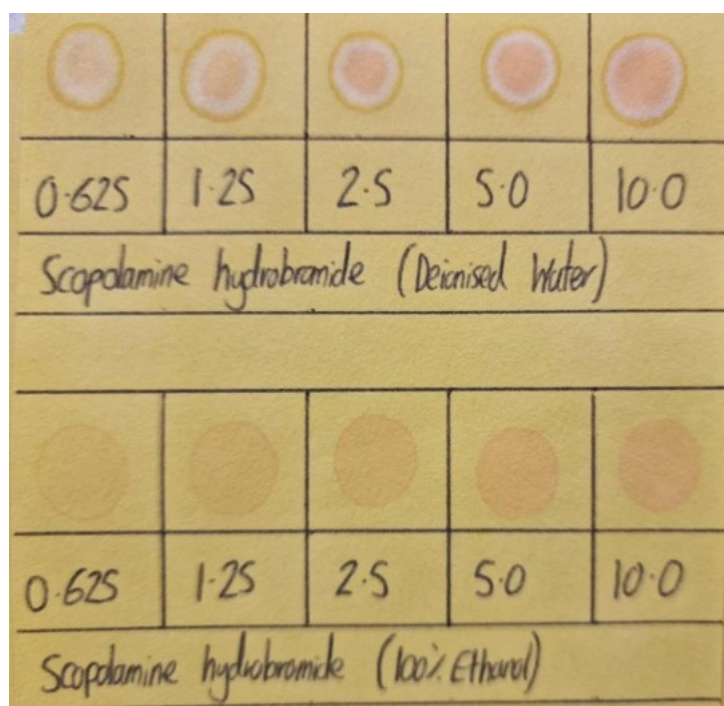


Figure 5 – Results of Scopolamine Standard Spiking

Lucideon Reference: UK241588/CS Issue 3
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Description: Test Strip Efficacy Assessment
Customer Reference: CYD-KET Test Paper

After 5 minutes of allowing each spike to dry, the deionised water Ketamine standard spikes over the concentration range of 1.25 to 10.0 mg/mL resulted in a clear colour change from yellow to orange, indicating a positive test. There appeared to be no significant difference between the deionised water negative control and the 0.625 mg/mL Ketamine spike. A similar trend was observed for the deionised water Scopolamine spikes, shown in Figure 5. The deionised water Cocaine standard spikes resulted in a positive test for the whole concentration range of 0.625 to 10.0 mg/mL. The results of this spiking experiment indicate that the KET Test Paper can detect Cocaine Hydrochloride dissolved in deionised water over a concentration range of 0.625 to 10.0 mg/mL. The KET Test Paper could detect Ketamine Hydrochloride and Scopolamine Hydrobromide dissolved in deionised water over a concentration range of 1.25 to 10.0 mg/mL.

The colour of the positive tests for the 100% Ethanol spikes was less intense than that observed for the corresponding deionised water standards of a similar concentration. After 5 minutes, the results of the 0.625 to 10.0 mg/mL 100% Ethanol Cocaine and Scopolamine spikes could be differentiated from the 100% Ethanol negative control. The 100% Ethanol Ketamine spikes began to give a positive test colour change with the 2.5 mg/mL standard.

The spiked test papers were left uncovered on the laboratory bench overnight and photos of the test papers were taken.

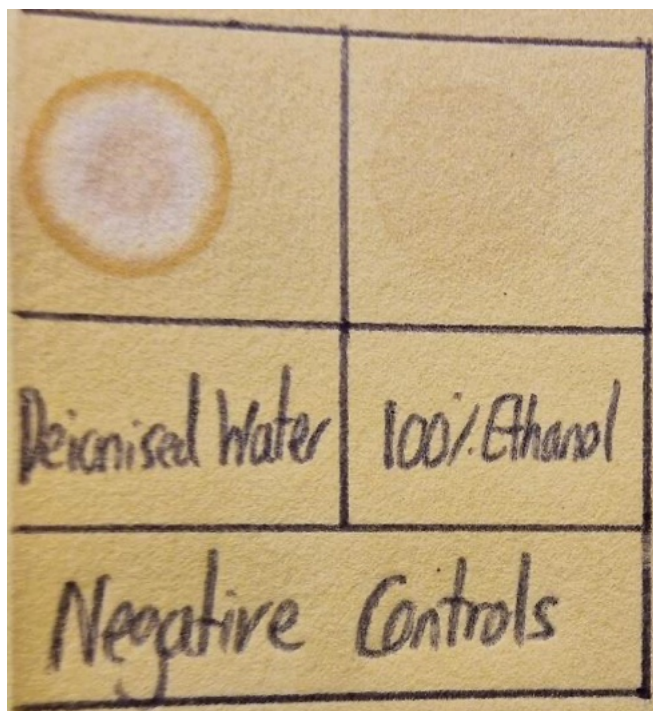


Figure 6 – Negative Control Spikes After 16 Hours

Lucideon Reference: UK241588/CS Issue 3
Report Number: UK241588-10937
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-KET Test Paper

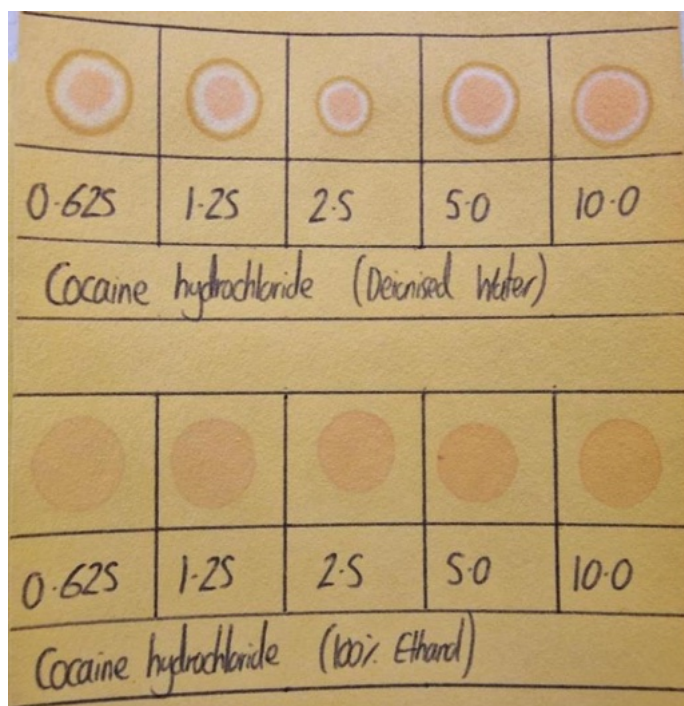


Figure 7 – Ketamine Standard Spikes After 16 Hours

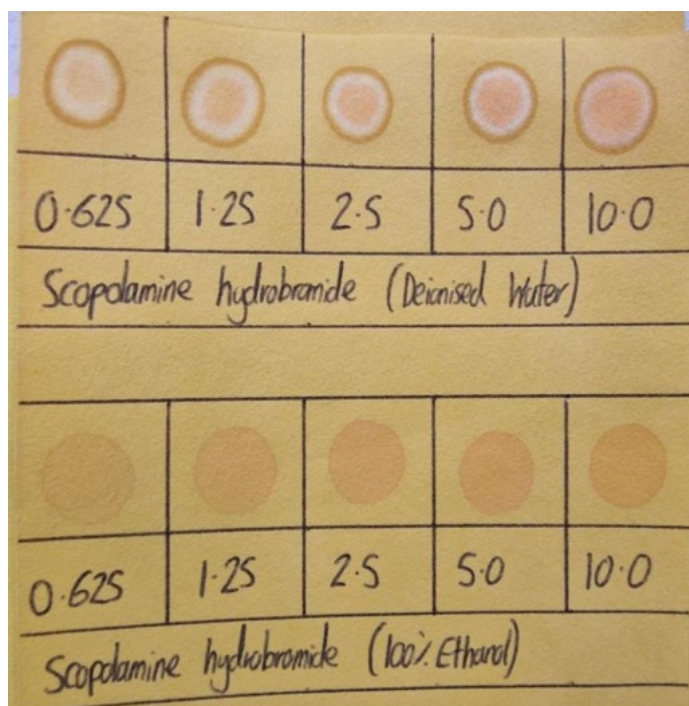


Figure 8 – Cocaine Standard Spikes After 16 Hours

Lucideon Reference: UK241588/CS Issue 3
Report Number: UK241588-10937
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-KET Test Paper

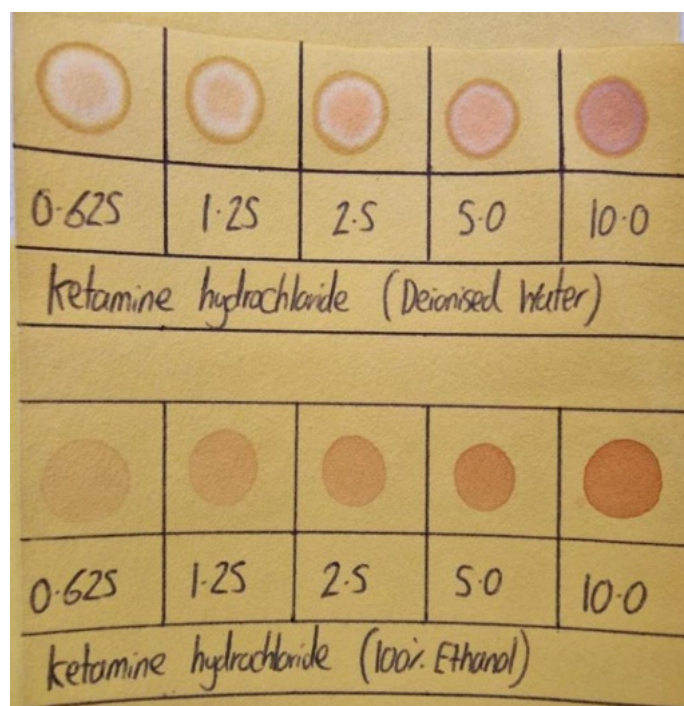


Figure 9 – Scopolamine Standard Spikes After 16 Hours

After 16 hours, the deionised water spikes for all three substances remained unchanged. The colour of the 100% Ethanol spikes deepened to give a more distinctive positive result than that observed 5 minutes after spiking. All three compound spikes across the analysed concentration range of 0.625 to 10.0 mg/mL could be clearly differentiated from the 100% Ethanol negative control. It is suspected that the reaction which causes the Ketamine test paper to change colour benefits from the presence of moisture. It is possible that the test papers absorbed moisture after being left exposed overnight to the laboratory environment, causing the colour of the 100% ethanol positive test results to improve.

Testing using ketamine and scopolamine standards diluted with ethanol: deionised water (40:60 %v/v) solution resulted in both compounds causing a positive test colour change from 1.25 to 10.0 mg/mL. The 0.625 mg/mL spike for both compounds is visually too similar to the negative control. Therefore, it is not possible to confidently confirm that the CYD-KET Test Paper can detect ketamine and scopolamine at concentrations below 1.25 mg/mL when diluted in an ethanol: deionised water (40:60 %v/v) solution. However, it was noticeable that the positive test colour changes began to occur approximately between 30 and 60 seconds after spiking, this rate of colour change is significantly faster than the approximate 16 hours observed with the 100% ethanol spikes. Also, the ethanol: deionised water solution spikes did not cause the whitening effect seen when spiking a deionised water only standard.

Lucideon Reference: UK241588/CS Issue 3
Report Number: UK241588-10937
Description: Test Strip Efficacy Assessment
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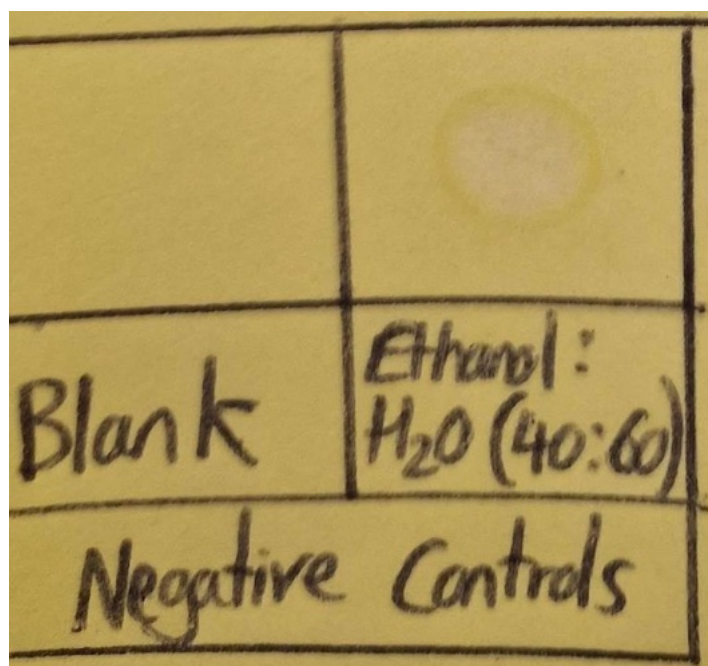


Figure 10 – Ethanol: Deionised water (40:60 %v/v) Negative Control

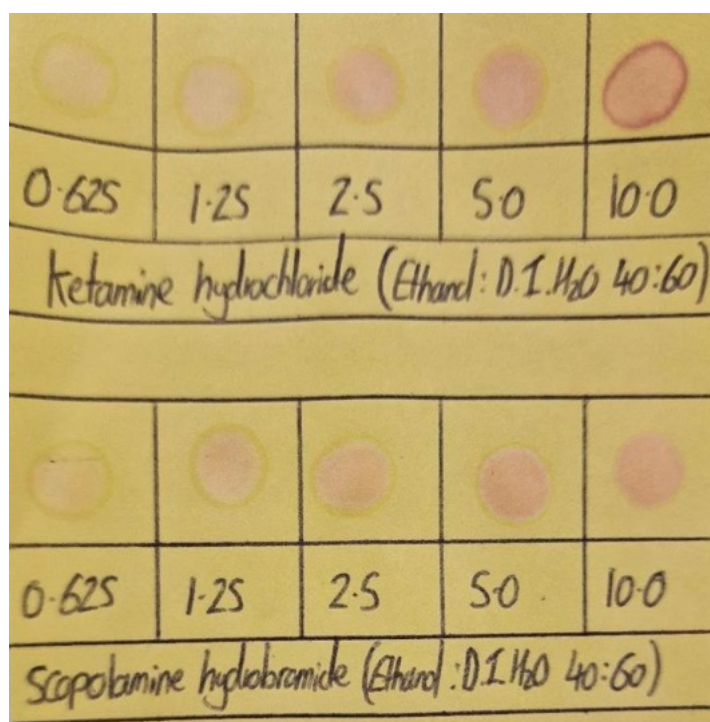


Figure 11 – Results of Ketamine and Scopolamine Standard Spiking

Lucideon Reference: UK241588/CS Issue 3
Report Number: UK241588-10937
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-KET Test Paper

3 CONCLUSION

Lucideon Limited can verify that the CYD-KET Test Paper (Sample UK241588-10937) can detect Cocaine Hydrochloride dissolved in deionised water over a concentration range of 0.625 to 10.0 mg/mL. The KET Test Paper can detect Ketamine Hydrochloride and Scopolamine Hydrobromide dissolved in deionised water and ethanol: deionised water (40:60 %v/v) over a concentration range of 1.25 to 10.0 mg/mL. The Ketamine and Scopolamine standards dissolved in ethanol: deionised water (40:60 % v/v) produced a positive test colour change within 30 to 60 seconds of spiking, without causing the whitening effect seen with the deionised water standard spikes. After allowing the spikes to dry for 5 minutes, the KET Test Paper could detect Cocaine Hydrochloride and Scopolamine Hydrobromide dissolved in 100% ethanol over the 0.625 to 10.0 mg/mL concentration range. The KET Test Paper can detect Ketamine Hydrochloride dissolved in 100% ethanol from 2.5 to 10.0 mg/mL. Ketamine, Cocaine and Scopolamine dissolved in 100% Ethanol can be detected by the KET Test Paper over the concentration range of 0.625 to 10.0 mg/mL but only if given sufficient time for the result on the test paper to develop (from the experiments performed this time must be at least 16 hours).

4 CHANGE HISTORY

Issue	Comments
1	New Pharmaceutical Analysis Report
2	Report updated to include information and results relating to use of ethanol: deionised water (40:60 %v/v) as the standard diluent
3	Incorrect address on the cover of the previous report. No change to report content

END OF TEST REPORT

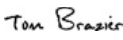
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Certificate Pages: 5	Initials: 0
AutoNav: Enabled	Envelope Originator:
EnvelopeId Stamping: Disabled	Tracy Wheeler
Time Zone: (UTC) Dublin, Edinburgh, Lisbon, London	Queens Road
	Stoke-on-Trent, Staffordshire ST4 7LQ
	Tracy.Wheeler@uk.lucideon.com
	IP Address: 86.188.245.148

Record Tracking

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17-Jul-24 10:20	Tracy.Wheeler@uk.lucideon.com	

Signer Events

Signer Events	Signature	Timestamp
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tom.brazier@uk.lucideon.com		Viewed: 17-Jul-24 12:50
Placeholder		Signed: 17-Jul-24 12:51
Lucideon Limited		
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	With Signing Reasons (on each tab):	
	I am the author of this document	

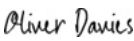
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 Result: passed
 Vendor ID: TeleSign
 Type: SMSAuth
 Performed: 17-Jul-24 | 12:50
 Phone: +44 7853 146300

Electronic Record and Signature Disclosure:

Not Offered via DocuSign

Oliver Davies		Sent: 17-Jul-24 12:51
oliver.davies@uk.lucideon.com		Viewed: 17-Jul-24 13:00
GMP Chemistry Lead		Signed: 17-Jul-24 13:01
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	(See Authentication Details)	
	With Signing Reasons (on each tab):	
	I approve this document	

Authentication Details

Signer Events	Signature	Timestamp
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Payment Events	Status	Timestamps
Electronic Record and Signature Disclosure		

PHARMACEUTICAL ANALYSIS REPORT

Lucideon Report Reference: UK242544/CM

Issue Number: 1

Client: Check Your Drink
2 Rose Bank
Bollington
Macclesfield
Cheshire
SK10 5JA

For the Attention of: Amanda Friend

Date Logged: 29-Jul-2024

Date of Tests: 01-Aug-2024 to 07-Oct-2024

Report Date: 23-Oct-2024

Purchase Order No.: to follow

Tests carried out in accordance with cGMP

Signed by:
Tom Brazier

Signer Name: Tom Brazier
Signing Reason: I am the author of this document
Signing Time: 23 October 2024 | 15:18 BST
846EA87A1F87492FB972807AB5A65FA2

Signed by:
Oliver Davies

Signer Name: Oliver Davies
Signing Reason: I approve this document
Signing Time: 23 October 2024 | 15:20 BST
D465224B47AA4850BD9EAE9C4AAAD5D

Mr Tom Brazier
Analytical Chemist

Page 1 of 10

Mr Oliver Davies
Chemistry Manager

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Brooms Road, Stone	www.lucideon.com
Staffordshire, ST15 0SH, UK	Reg. England 1960455

Lucideon Reference: UK242544/CS Issue 1
Report Number: UK242544-20927
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-GHB Test Paper

1 SAMPLES

Description	Customer Reference	Lucideon Sample Reference
GHB Test Strip	Plastic Backed	UK242544-20927

2 TESTING

Check Your Drink approached Lucideon Ltd to assess the efficacy of their GHB Test Paper, the material developed for their drink spiking kits to indicate the presence of GHB, Gamma-hydroxybutyrate.

The efficacy of the CYD-GHB Test Paper was determined using the medicinal product Xyrem. The active ingredient present in Xyrem is sodium oxybate (500 mg/mL), which is the sodium salt of GHB.

Sample UK242544-20927 is a pale pink coloured GHB Test Strip with a plastic backing, which is representative of the final product. A series of standards were prepared by diluting the 500 mg/mL (Neat) Xyrem product with appropriate volumes of 40:60 v/v% ethanol: deionised water solution to give a concentration range of 10 to 250 mg/mL sodium oxybate. The 40:60 v/v% ethanol: deionised water solution is representative of high alcohol content drinks such as vodka, gin, rum, and whiskey.

For adults, the recommended daily dose of Xyrem ranges from 4.5 g to 9 g. This equates to approximately a sodium oxybate concentration range of 38 to 75 mg/mL. It is known that the effects of Xyrem are also enhanced when taken with alcohol. The analysed range of 10 to 250 mg/mL sodium oxybate covers the potential dosages used for drink spiking. 5 μ L of each standard was spiked onto sample UK242544-20927. Photographs were taken 30 seconds and 1 minute after each spike. Check Your Drink were provided with extra photos and videos of the spiking process and resulting colour changes to supplement this report.

The work is recorded in Laboratory Notebook NB0443 pages 23 to 34.

3 RESULTS

Figures 1 to 15 are photographs that were taken immediately after spiking onto sample UK242544-20927, plastic backed GHB Test Strip.

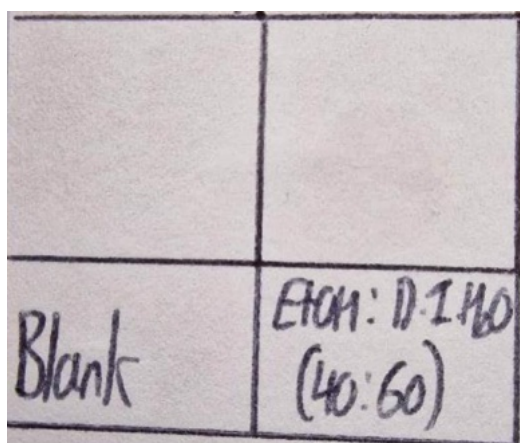


Figure 1 – UK242544-20927; Un-Spiked Negative Control

Lucideon Reference: UK242544/CS Issue 1
Report Number: UK242544-20927
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-GHB Test Paper

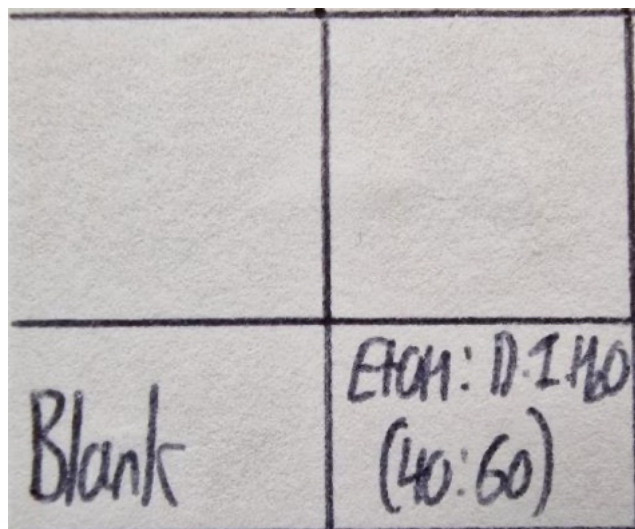


Figure 2 – UK242544-20927; Spiked Negative Control

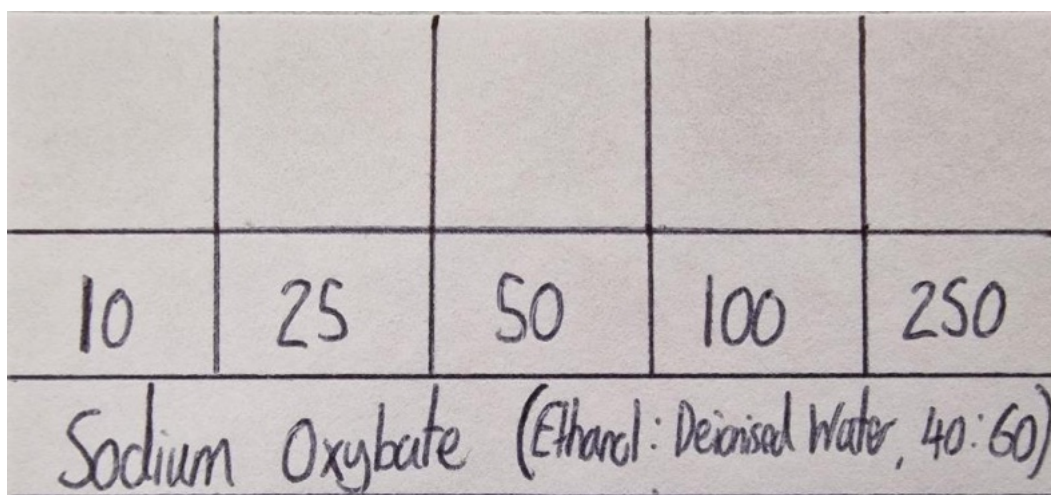


Figure 3 – UK242544-20927; Un-Spiked GHB Test Paper

Lucideon Reference: UK242544/CS Issue 1
Report Number: UK242544-20927
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-GHB Test Paper

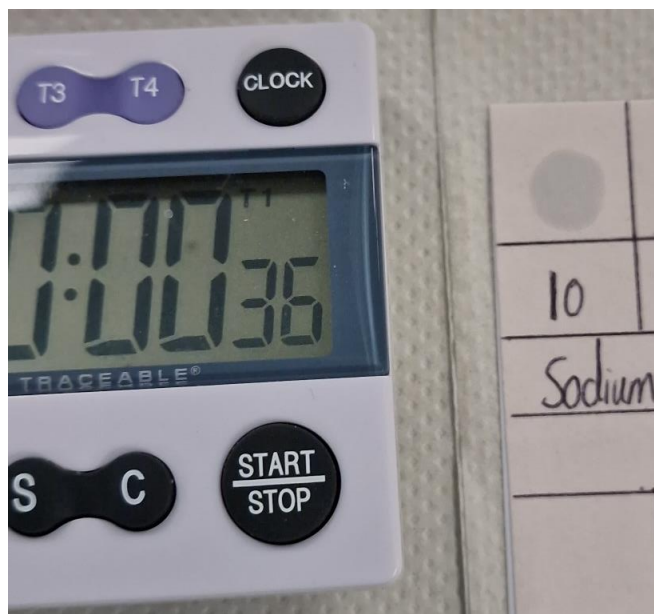


Figure 4 – UK242544-20927; 10 mg/mL Spike
Photo taken 36 seconds after spiking

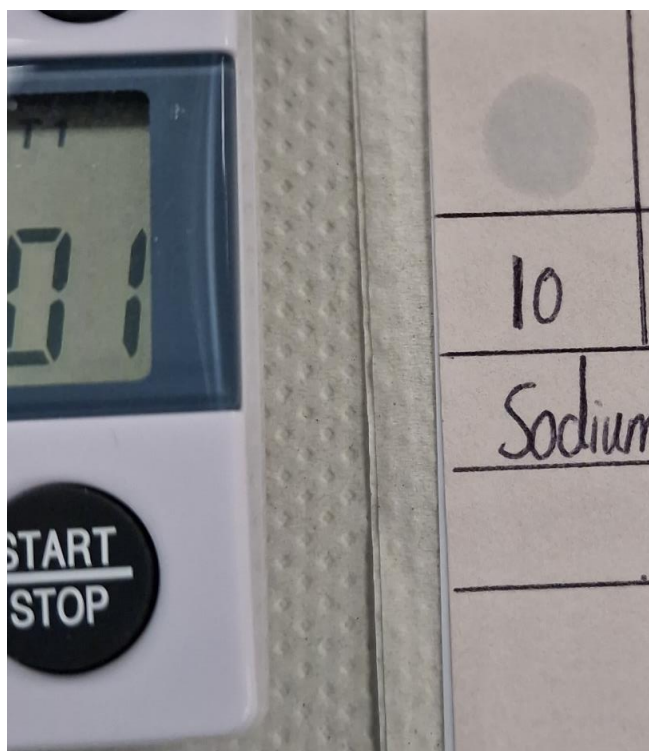


Figure 5 – UK242544-20927; 10 mg/mL Spike
Photo taken 61 seconds after spiking

Lucideon Reference: UK242544/CS Issue 1
Report Number: UK242544-20927
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-GHB Test Paper

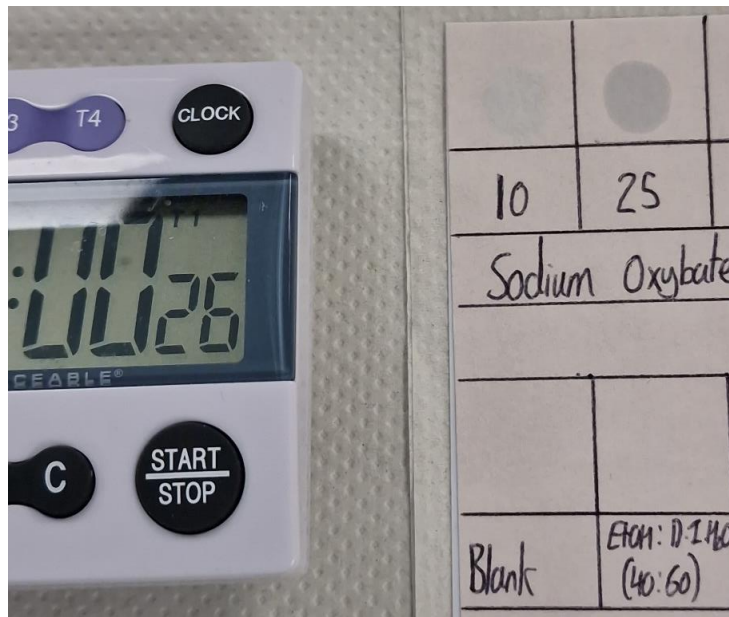


Figure 6 – UK242544-20927; 25 mg/mL Spike
Photo taken 26 seconds after spiking.

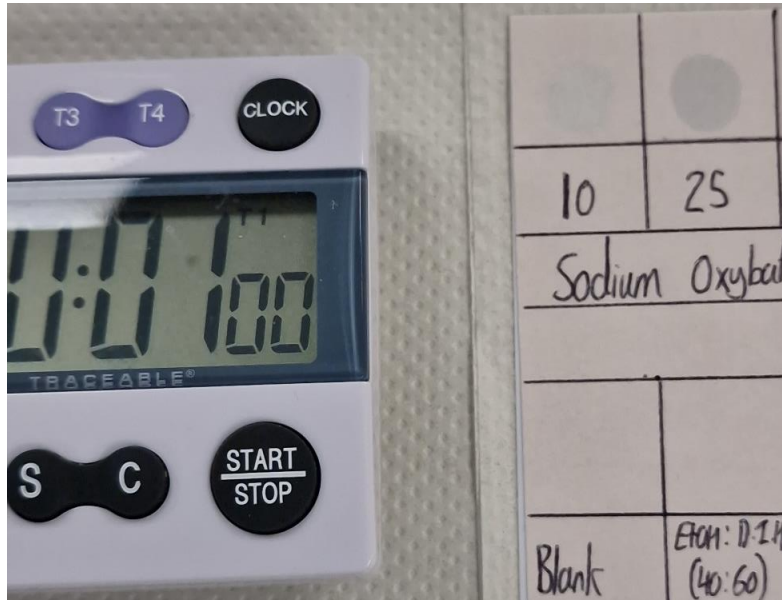


Figure 7 – UK242544-20927; 25 mg/mL Spike
Photo taken 60 seconds after spiking.

Lucideon Reference: UK242544/CS Issue 1
Report Number: UK242544-20927
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-GHB Test Paper

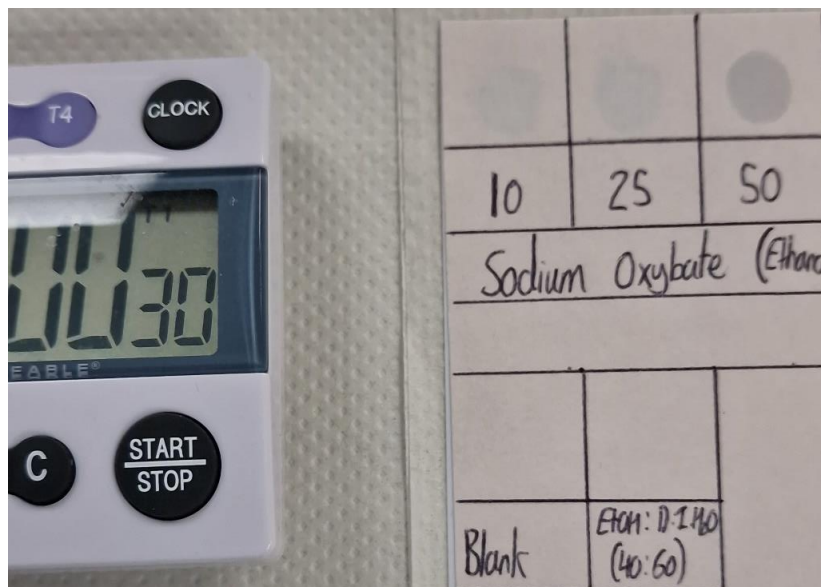


Figure 8 – UK242544-20927; 50 mg/mL Spike
 Photo taken 30 seconds after spiking

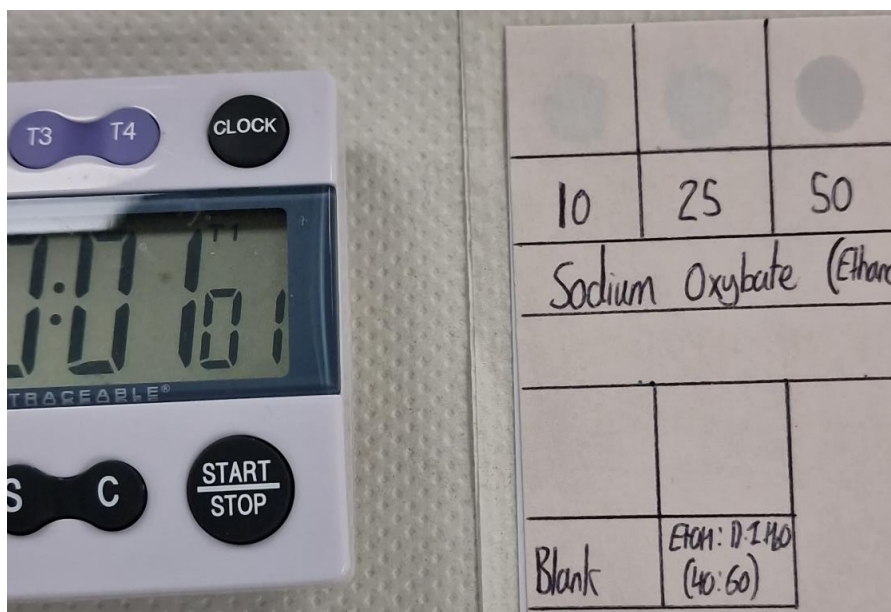


Figure 9 – UK242544-20927; 50 mg/mL Spike
 Photo taken 61 seconds after spiking

Lucideon Reference: UK242544/CS Issue 1
Report Number: UK242544-20927
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-GHB Test Paper

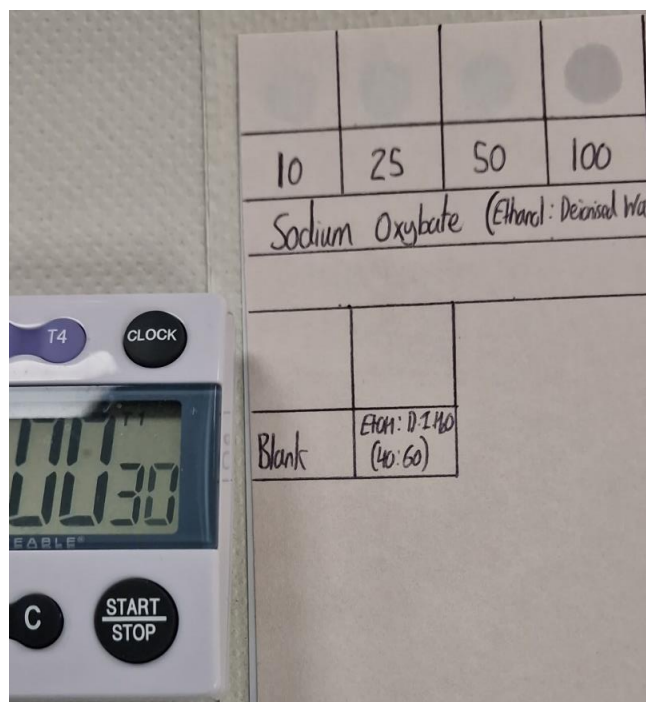


Figure 10 – UK242544-20927; 100 mg/mL Spike
Photo taken 30 seconds after spiking

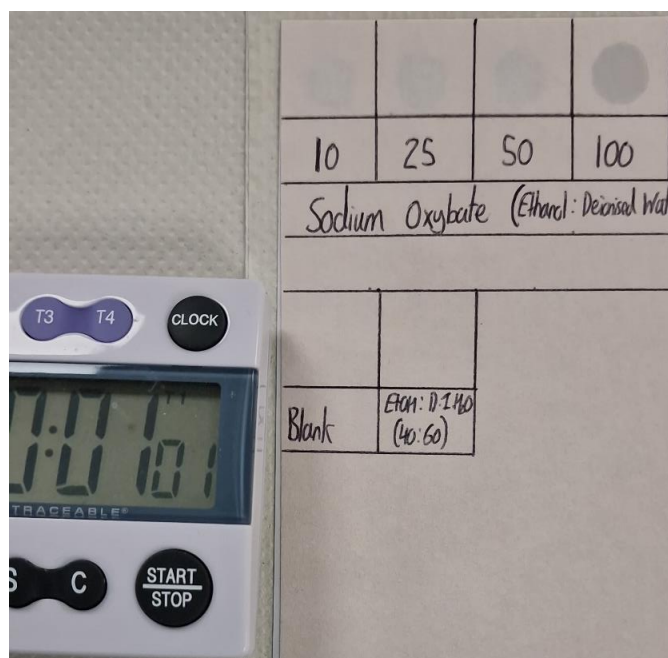


Figure 11 – UK242544-20927; 100 mg/mL Spike
Photo taken 61 seconds after spiking

Lucideon Reference: UK242544/CS Issue 1
Report Number: UK242544-20927
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-GHB Test Paper

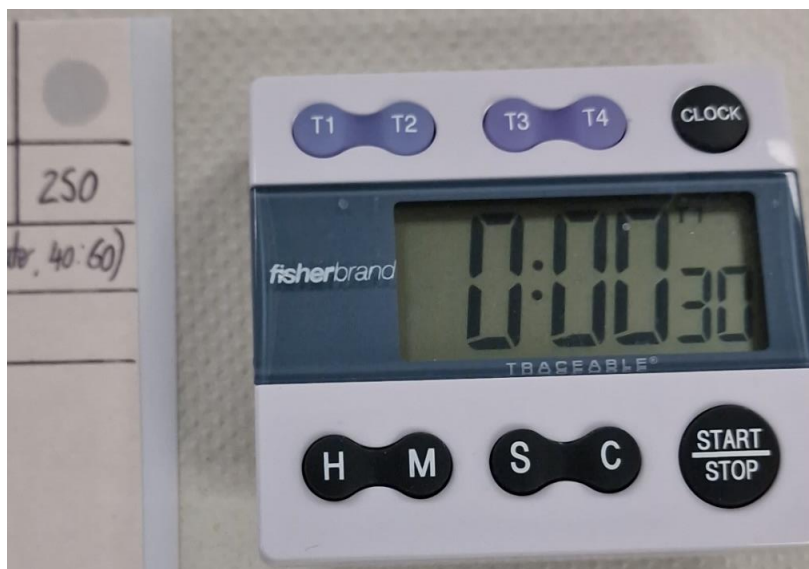


Figure 12 – UK242544-20927; 250 mg/mL Spike
Photo taken 30 seconds after spiking

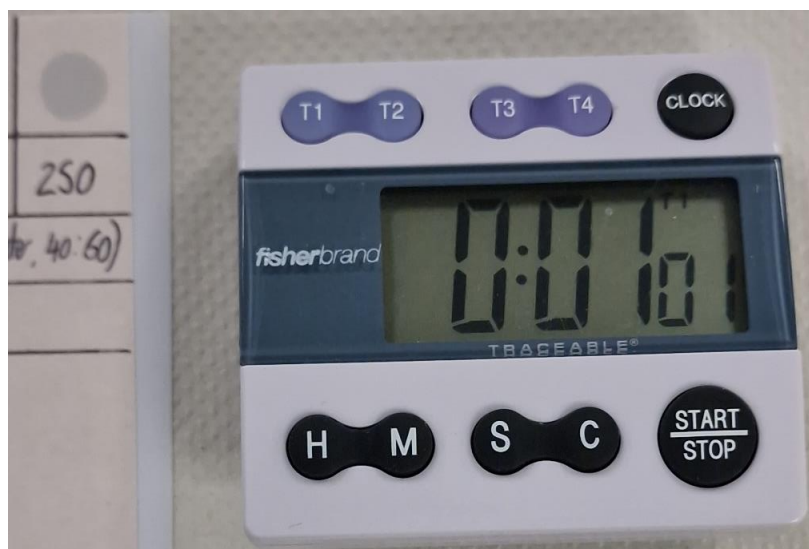


Figure 13 – UK242544-20927; 250 mg/mL Spike
Photo taken 61 seconds after spiking

Lucideon Reference: UK242544/CS Issue 1
Report Number: UK242544-20927
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-GHB Test Paper

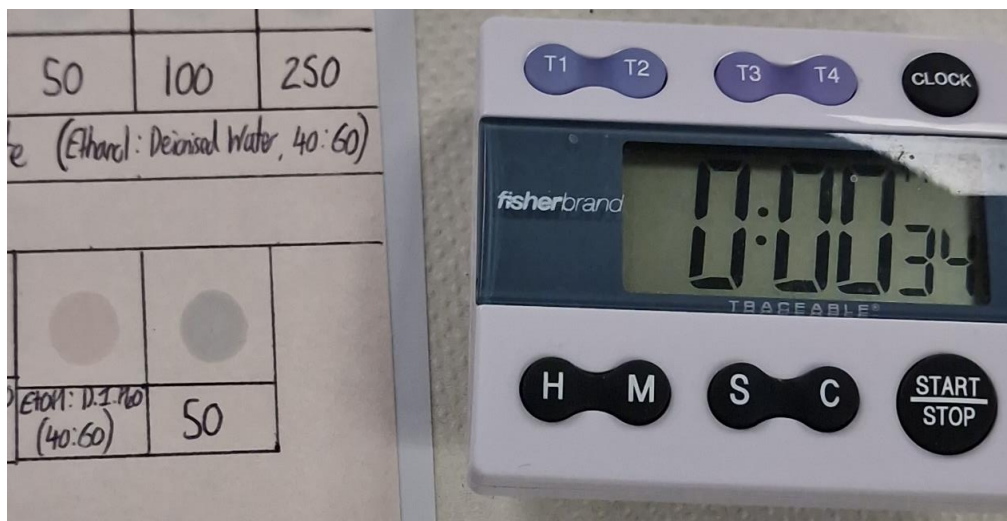


Figure 14 – UK242544-20927; Comparison between Ethanol: Deionised Water (40:60 %v/v) and 50 mg/mL Spikes
 Photo taken 34 seconds after spiking

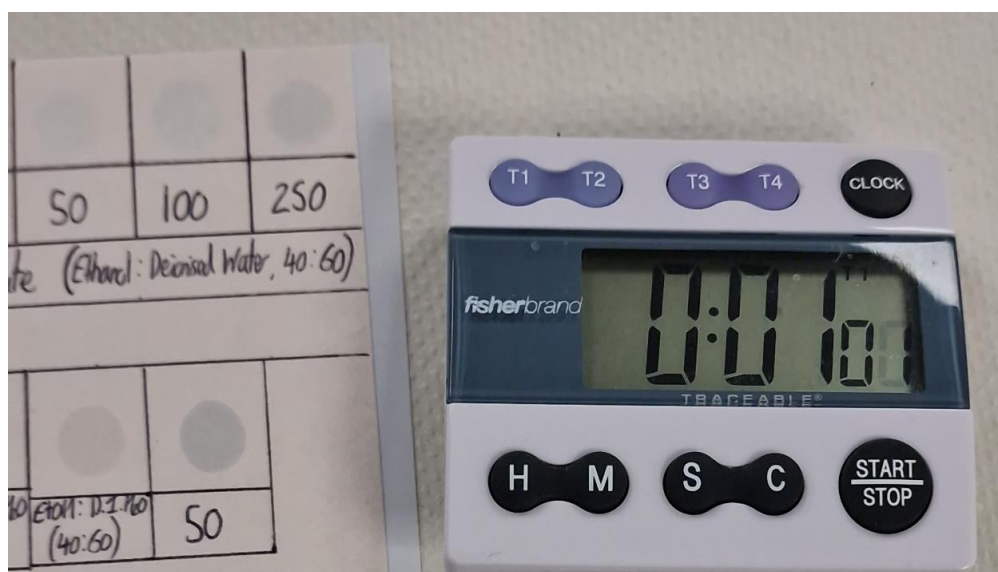


Figure 15 – UK242544-20927; Comparison between Ethanol: Deionised Water (40:60 %v/v) and 50 mg/mL Spikes
 Photo taken 61 seconds after spiking

Lucideon Reference: UK242544/CS Issue 1
Report Number: UK242544-20927
Description: Test Strip Efficacy Assessment
Customer Reference: CYD-GHB Test Paper

3 CONCLUSION

A solution of ethanol: deionised water (40:60 v/v%) did not interfere with the colour change observed for sample UK242544-20927.

A pale pink to grey colour change was observed within 30 seconds for sample UK242544-20927 when spiked with sodium oxybate standards ranging in concentration from 10 to 250 mg/mL. The grey colour would then turn to a light blue once the spiked spot had dried.

The results described in this report are consistent with previous testing.

4 CHANGE HISTORY

Issue	Comments
1	New Pharmaceutical Analysis Report

END OF TEST REPORT

Certificate Of Completion

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Certificate Pages: 5	Initials: 0
AutoNav: Enabled	Envelope Originator:
EnvelopeId Stamping: Disabled	Natalie Boot
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	Natalie.Boot@uk.lucideon.com
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Record Tracking

Status: Original	Holder: Natalie Boot	Location: DocuSign
23-Oct-24 15:02	Natalie.Boot@uk.lucideon.com	

Signer Events	Signature	Timestamp
Tom Brazier tom.brazier@uk.lucideon.com Placeholder Lucideon Limited Security Level: Email, Account Authentication (Required), Authentication	 Signature Adoption: Pre-selected Style Signature ID: 846EA87A-1F87-492F-B972-807AB5A65FA2 Using IP Address: 86.188.222.148 With Signing Authentication (See Authentication Details) With Signing Reasons (on each tab): I am the author of this document	Sent: 23-Oct-24 15:04 Viewed: 23-Oct-24 15:06 Signed: 23-Oct-24 15:19

Authentication Details

SMS Auth:

- Transaction: ca023973-4536-4896-8306-a662cbb90c
- Result: passed
- Vendor ID: TeleSign
- Type: SMSAuth
- Performed: 23-Oct-24 | 15:05
- Phone: +44 7853 146300

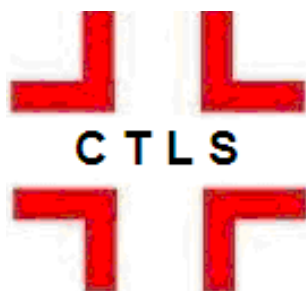
SMS Auth:

- Transaction: 32cdb672-10bf-49ac-8f29-4cdcf6888595
- Result: passed
- Vendor ID: TeleSign
- Type: SMSAuth
- Performed: 23-Oct-24 | 15:17
- Phone: +44 7853 146300

Electronic Record and Signature Disclosure:

Not Offered via DocuSign

Signer Events	Signature	Timestamp
Oliver Davies oliver.davies@uk.lucideon.com GMP Chemistry Lead Security Level: Email, Account Authentication (Required), Authentication	 Signature Adoption: Pre-selected Style Signature ID: D465224B-47AA-4850-BD9E-AEC9C4AAAD5D Using IP Address: 86.188.245.148 With Signing Authentication (See Authentication Details) With Signing Reasons (on each tab): I approve this document	Sent: 23-Oct-24 15:19 Viewed: 23-Oct-24 15:19 Signed: 23-Oct-24 15:20
Authentication Details SMS Auth: Transaction: 553d9eef-e58a-4417-835c-71abd45b2133 Result: passed Vendor ID: TeleSign Type: SMSAuth Performed: 23-Oct-24 15:19 Phone: +44 7964 991499 Electronic Record and Signature Disclosure: Accepted: 26-Apr-23 12:28 ID: ba386cc1-9693-4e32-80aa-021ff09ebd2b		
In Person Signer Events	Signature	Timestamp
Editor Delivery Events	Status	Timestamp
Agent Delivery Events	Status	Timestamp
Intermediary Delivery Events	Status	Timestamp
Certified Delivery Events	Status	Timestamp
Carbon Copy Events	Status	Timestamp
Witness Events	Signature	Timestamp
Notary Events	Signature	Timestamp
Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	23-Oct-24 15:04
Envelope Updated	Security Checked	23-Oct-24 15:15
Certified Delivered	Security Checked	23-Oct-24 15:19
Signing Complete	Security Checked	23-Oct-24 15:20
Completed	Security Checked	23-Oct-24 15:20
Payment Events	Status	Timestamps
Electronic Record and Signature Disclosure		



CLINICAL TRIALS LABORATORY SERVICES

ANALYTICAL REPORT

Development & Validation of A Portable Method for the Detection of the Drug, Ketamine

STUDY NUMBERS: MS 377

STATUS: FINAL

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ANALYTICAL REPORT FOR

**Development & Validation of A Portable Method for the Detection of the Drug,
Ketamine.**

ORIGINAL: CYD & CYD UK LIMITED

COPY: CLINICAL TRIALS LABORATORY SERVICES

Study Number: MS 377

Prepared for: Ms. Katie Burrington

Status: Final

Date: 24th April 2013

Author: Rukhsana Ahsan, Ph.D.

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1. DETAILS OF FACILITY, PERSONNEL AND ARCHIVE

Master Schedule Number:	MS 377
Sponsor Study Number:	001
Analytes:	Ketamine
Matrix:	Drinks for Human Consumption.
Study Personnel:	Rukhsana Ahsan, Ph.D, MRQA Jake Micallef, Ph.D, MBA
Test Facility Director:	Dr. Rukhsana Ahsan, PhD
Study conducted at:	Clinical Trials Laboratory Services Ltd. Unit 3, Acorn Centre, 30-34 Gorst Road London NW10 6LE, UK Homerton University Hospital NHS Foundation Trust, Homerton Row, London E9 6SR.
Sponsor:	CYD & CYD Limited, Keepers, 30 Church Road, Burgess Hill, West Sussex, RH15 9AW.
Sponsor's Responsible Person:	Ms. Katie Burrington Chief Executive Officer, CYD & CYD Limited.
Study Start / End	27 th November 2012 to 24 th April 2013

Archive of Raw Data and Report:

All raw data will be retained in the archives of Clinical Trials Laboratory Services Ltd. A copy of the analytical report is held at Clinical Trials Laboratory Services Ltd. The original of the report is held by the Sponsor.

Raw data are documented in Lab Book CTLS/13/90 and Study File No. MS 377-13-ARN/1. These will be archived at the Clinical Trials Laboratory Services Limited for an agreed period. After discussion with the sponsor this period can be extended.

2. INTRODUCTION

Ketamine is a widely abused recreational drug, added to spike beverages. It can be implicated with theft, rape & associated crime. A reliable sensitive, specific, cheap and a quick and easy to use test is sought both by individuals who are concerned that their drinks may be spiked and by the police to control substance abuse.

The tests used for drink tests currently on the market are not easy to use or interpret. The present test is an improved specific test which is both quick & easy to use. The solid reddish pink spot is clear to interpret. The spot does not fade quickly or easily providing the user with a record of the spiked drink. The test needs further robustness testing for manufacturing testing devices on a large scale.

The pharmacological properties of Ketamine itself are well documented as it is an intravenously and intramuscularly delivered rapid acting surgical dissociative (separating perception from sensation), anaesthetic & analgesic. The dosage for diagnostic manoeuvres and procedures not involving intense pain is usually 4mg/kg and doses of 6.5-13mg/kg by intramuscular injection are used for short surgical procedures (10mg/kg usually produces 12-25 minutes of surgical anaesthesia). When absorbed in a drink, the onset of effects is in 5 to 20 minutes with a duration of 4 to 6 hours. 24-48 h are generally required to feel completely normal. At lower doses ketamine results in a mild, dreamy, floating feeling. Higher doses produce a hallucinogenic effect and may cause the user to feel an out of body/near death experience. This experience is often referred to as entering a K-hole (100mg is usually enough to enter a 'K-hole'). Physical effects include numbness, loss of coordination, muscle rigidity, slurred or blocked speech, a blank stare and depression of respiratory function. Central nervous system function and cardiovascular function is maintained). Where drinks are being spiked to achieve a state of compliance from the victim, a drink (volume of 150- 200mL) may contain approximately 200 to 250 mg of ketamine. The testing regime employed in the testing was targeted at these concentrations.

The data presented in this report is based on the actual detection of ketamine with prototype devices, using a large variety of alcoholic & non alcoholic beverages. The drinks were randomly selected by an independent purveyor of drinks. The drinks samples were anonymised and randomised and tested simultaneously with and without ketamine. The stability, sensitivity and specificity of the CYD ketamine devices was evaluated.

3. METHODS

3.1. Analytical Methods

3.1.1. Dragendorff Reagent is a test for alkaloids.

Amines and basic heterocyclics produce orange-brown spots at room temperature.

Phosphines and Crown ethers can also be detected by this reagent.

The reagent for assay development was made as follows:

[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED] This ready to use [REDACTED] reagent is stable for one week.

3.1.2 [REDACTED] Reagent referred to as the

CYD Reagent.

2. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

3.1.3. [REDACTED]

The CYD reagent was poured into a shallow dish . The filter paper, Whatman No 1 is carefully immersed into the reagent for a few seconds, such that it is fully coated.

The paper was hung to dry at room temperature inside the fume hoods using paper clips to ensure that the paper does not make contact with any metal object as the reagent is very corrosive.

The papers were left to dry overnight in a well ventilated fumehood. The coated papers were cut to 2 sq cm. and mounted on CYD cards with a double sided adhesive pad.

3.2 Calibration Range

The detection range & sensitivity of the ketamine test on CYD device was established using solutions of 0.625 , 1.25, 2.5, 5 and 10mg/mL of ketamine.in water

This range was tested in red wine and one other alcoholic beverage.

0.005 mL of test solution was applied to each pad. The solution spreads to form a brightly coloured spot . The result was read after 30 seconds. The result was stable for several days and the device can be stored for further forensic inspection

3.3 Analytical Run Sequence

3.3.1. Each analytical panel consisted of 10 alcoholic drinks which were fully anonymised at the time of testing and identified only with a barcode.

3.3.2. The control samples were the unspiked drinks which were tested at the same time prior to addition of ketamine.and represent a true blank value for each beverage tested

3.3.3. Where possible, an ambiguous result was repeated.

3.3.4. The results obtained from experimental work were reported as positive or negative.

4. CALIBRATION STANDARDS

460mg of ketamine hydrochloride solid (Sigma , Product Code 2753) was weighed and added to 2mL of uHPLC water to give a stock solution. This solution was further diluted to the required potency for testing.

5. QUALITY CONTROL

5.1 Quality Control Criteria

The quality control criteria for the CYD test device are under consideration and as this is a qualitative test, the interpretation can be occasionally affected by the colour of the drink for example red wine, crème de cassis, blackberry liqueur. The dim light prevailing in recreational facilities will also have some impact on the ease with which results are read. The stability of the coloured complex point lends itself to a number of solutions to minimise the subjective interpretation of results and these ideas will be developed further when funding for future work has been obtained.

The testing for quality control parameters has been limited by the fact that Ketamine is a schedule 4 Drug and can only be used by approved laboratories. An application will be made to the Home Office for its possession and use to fully develop the quality control aspects of the CYD device. To date a solution of N-Ethylpiperidine) has been used as a surrogate compound for monitoring quality and development purposes. The validation of the prototype CYD device has been carried with ketamine itself.

6. Quantitative Aspects of the Test.

6.1 Sensitivity and Specificity of CYD Test for Ketamine

The assay has a sensitivity of 0.625 mg/mL of ketamine in water when read with the naked eye and 1.25mg/mL of ketamine in an alcoholic solution. The assay sensitivity is reduced by the staining qualities of red wine with a 2.5mg/mL solution of ketamine readily discernable. As 5 microlitre aliquot of solution was applied to the test paper, this represents an actual amount of 3.125microgram, 6.25microgram and 12.5 ug of ketamine, respectively making it a very sensitive detection device.

The assay shows remarkable specificity. A range of 85 different alcohols, independently collected and sampled represented an enormous variety of colours, sugars and unspecified cross reactants. These failed to have any significant impact on the test results. The exception were three alcohols, the most significant of these being red wine. Ketamine was detected but at a raised concentration.

6.2 The stability of the coloured spot itself shows that the colour once developed is stable with no deterioration in the signal for up to 10 days (up to the writing of this report). Further monitoring will continue but the indication is that the assay will be stable for forensic purposes for several weeks or months.

7. STUDY SAMPLES

7.1 Sample Quality

All study samples which are represented were received in acceptable condition, and stored at 2-8Degrees Celsius . They were allowed to come to room temperature before testing. .

7.2. Study Sample Analysis

The operators tested samples identified only with a barcode The results from experimental work (CTLS raw data) were generated at the Clinical Biochemistry Department of Homerton Hospital who are licensed to use Ketamine by the UK Home Office.

At the time of testing 0.005mL of unspiked drink was pipetted onto the left square. Ketamine was spiked into the drink and a 0.005 mL aliquot was placed on the right hand test square of the CYD device.

A total of 95 spiked drinks were tested. Some of the drinks were tested more than once to check on the reproducibility of the test. Subsequent decoding showed that the following drinks were tested for reproducibility

0339547: | Simpsmith Vodka; 0339553: Simpsmith Vodka;

0339549: Simpsmith Gin, 0339550 : Simpsmith Gin;

The data was recorded as positive or negative. A photographic record of the devices was retained. A scanned copy of the results was also taken. However it must be noted that while variations in colour intensity to the original may be apparent in photographs they do not impact the interpretation of the test itself.

8. RESULTS

- Figure 1.1** Detection of Ketamine in Drinks 0339455 to 0339464
Figure 1.2 Detection of Ketamine in Drinks 0339465 to 0339474
Figure 1.3 Detection of Ketamine in Drinks 0339475 to 0339484
Figure 1.4 Detection of Ketamine in Drinks 0339485 to 0339494
Figure 1.5 Detection of Ketamine in Drinks 0339495 to 0339504
Figure 1.6 Detection of Ketamine in Drinks 0339505 to 0339514
Figure 1.7 Detection of Ketamine in Drinks 0339515 to 0339524
Figure 1.8 Detection of Ketamine in Drinks 0339546 to 0339555
Figure 1.9 Detection of Ketamine in Drinks 0339556 to 0339558
0339525 , 0339526 and Repeat of 0339465.

Table 1.1 Ketamine Results Summary Report

9. ADDITIONAL DOCUMENTS

- 9.1** Quality Assurance Statement
9.2 Study Director Statement

Figure1.1



Key : The left Square on each device bears unspiked drink. The right Square on each device bears spiked drink. 5 microlitre of drink contains 50 microgram of ketamine. 0339455: Hidori, 0339456: Ginger Liqueur; 0339457: TapatioExtra; 0339458: Haigdor Anejo, 0339459: Koko Kanu; 0339460: Chiva Regal; 0339461: Crème de Peche; 0339462: Crown Jewel; 0339463:Heno Banks Gin; 0339464: Stolichnaya Elite

Figure 1.2



Key : The left Square on each device bears unspiked drink. Right Square on each device bears spiked drink. 5 microlitre of drink contains 50 microgram of ketamine. 0339465: Krupnik Liqueur, 0339466: Konik's Tail; 0339467: Belvedere Pink Grapefruit; 0339468: Contreau, 0339469: Wild Turkey Whisky; 0339470: Mount Gay Rum; 0339471: Plymouth Gin; 0339472: Tanqueray No. 10 Gin; 0339473: Campari; 0339474: Limoncello

Figure 1.3



Key : The left Square on each device bears unspiked drink. Right Square on each device bears spiked drink. 5 microlitre of drink contains 50 micrograms of ketamine. 0339475: Bailie Nicol Whisky, **0339476: Crème de Cassis (False Positive)** ; 0339477: Bepentol; 0339478: Hennessy Cognac, 0339479: Stolchnaya Vanilla; 0339480: Belvedere; 0339481: Corralego; 0339482: Maker Marks; 0339483: Macallen Whisky; 0339484: Passoa, Passion Fruit Liqueur.

Figure 1.4



Key : The left Square on each device bears unspiked drink. The right Square on each device bears spiked drink. 5 microlitre of drink contains 50 micrograms of ketamine. 0339485: Sazarak Whisky, 0339486: Smphsmith Gin ; 0339487: Lychee Liqueur; 0339488: Juniper Gin, 0339489: Snow Queen; 0339490: Amaretto; 0339491: Middleton Whisky; 0339492: Stoll peach; 0339493: Famous Grouse Whisky 0339494: Belvedere Vodka.

Figure 1.5



Key : The left Square on each device bears unspiked drink. The right Square on each device bears spiked drink. 5 microlitre of drink contains 50 micrograms of ketamine. 0339495: Jose Query farm reserve, 0339496: Watermelon Liqueur ; 0339497: Zubrovka; 0339498: Charmans Spicy Rum, 0339499: Parson Tequila; 0339500: Crème de Cacao; 0339501: Van Winkle Whisky; 0339502: Tanqueray; 0339503: Jim Bean Whisky 0339504: Glenmorange Whisky.

Figure 1.6



Key : The left Square on each device bears unspiked drink. The right Square on each device bears spiked drink. 5 microlitre of drink contains 50 micrograms of ketamine. 0339505: Crème Mose Blackberry Liqueur, 0339506: Millas Gin ; 0339507: Jack Daniel Single ; 0339508: Hibiki Whisky, 0339509: Woodford Reserve; 0339510: Ciroc Vodka 0339511: Jameson Whisky; 0339512: Orange Coraco; 0339513: Sahbuca 0339514: Strawberry Liqueur

Figure 1.7



Figure 1.8



Key : The left Square on each device bears unspiked drink. The right Square on each device bears spiked drink. 5 microlitre of drink contains 50 micrograms of ketamine. 0339546: The Yamaza Whisky, 0339547: |SimpSmith Vodka; 0339548 :Belvedere Citrus ; 0339549:SimpSmith Gin, 0339550 :SimpSmith Gin; 0339551: Wyborowa Exquisite 0339552:Herrndosin Blavco; 0339553: Sipsmith Vodka; 0339554:Herrudin Reposado 0339555:Kellwe Coffee Liqueur.

Figure 1.9



Key : The left Square on each device bears unspiked drink. The right Square on each device bears spiked drink. 5 microlitre of drink contains 50 micrograms of ketamine. 0339556: Bushmills Whisky, 0339557: | Crème de Menthe; 0339558 :Captains Morgans Rum ; 0339525:Red Wine, 0339526 Diet Coke; 0339465 repeat for Krupnik Liqueur

TABLE 1.1. Results Report Summary

No	Name of Beverage	Barcode	Ketamine	Control	User Comment
1	Hidori	0339455	Positive	Negative	Easy to Read
2	Ginger Liqueur	0339456	Positive	Negative	Easy to Read
3	Tapatio Extra	0339457	Positive	Negative	Easy to Read
4	Haigdor Anejo	0339458	Positive	Negative	Easy to Read
5	Koko Kanu	0339459	Positive	Negative	Easy to Read
6	Chivas Regal	0339460	Positive	Negative	Easy to Read
7	Crème de Peche	0339461	Positive	Negative	Easy to Read
8	Crown Jewel	0339462	Positive	Negative	Easy to Read
9	Heno Banks Gin	0339463	Positive	Negative	Easy to Read
10	Stolichnaya Elite	0339464	Positive	Negative	Easy to Read
11	<i>Krupnik Liqueur* Repeat see No 86</i>	0339465	<i>Negative</i>	<i>Negative</i>	<i>Easy to Read</i>
12	Konik's Tail	0339466	Positive	Negative	Easy to Read
13	Belvedere Pink Grapefruit	0339467	Positive	Negative	Easy to Read
14	Contreau	0339468	Positive	Negative	Easy to Read
15	Wild Turkey Whisky	0339469	Positive	Negative	Easy to Read
16	Mount Gay Rum	0339470	Positive	Negative	Easy to Read
17	Plymouth Gin	0339471	Positive	Negative	Easy to Read
18	Tanqueray No 10 Gin	0339472	Positive	Negative	Easy to Read
19	Campari	0339473	Positive	Negative	Easy to Read
20	Lemoncello	0339474	Positive	Negative	Easy to Read
21	Bailie Nicol Whisky	0339475	Positive	Negative	Easy to Read
22	Crème de Cassis	0339476	Positive	Positive	Indeterminate
23	Beptentol	0339477	Positive	Negative	Easy to Read

24	Hennessy Cognac	0339478	Positive	Negative	Easy to Read
25	Stolchnaya Vanilla	0339479	Positive	Negative	Easy to Read
26	Belvedere	0339480	Positive	Negative	Easy to Read
27	Corralejo	0339481	Positive	Negative	Easy to Read
28	Maker Marks	0339482	Positive	Negative	Easy to Read
29	Macallen Whisky	0339483	Positive	Negative	Easy to Read
30	Passoa, Passion Fruit Liqueur	0339484	Positive	Negative	Easy to Read
31	Sazarak Whisky	0339485	Positive	Negative	Easy to Read
32	Smphsmith Gin	0339486	Positive	Negative	Easy to Read
33	Lychee Liqueur	0339487	Positive	Negative	Easy to Read
34	Juniper Gin	0339488	Positive	Negative	Easy to Read
35	Snow Queen	0339489	Positive	Negative	Easy to Read
36	Amaretto	0339490	Positive	Negative	Easy to Read
37	Middleton Whisky	0339491	Positive	Negative	Easy to Read
38	Stoll Peach	0339492	Positive	Negative	Easy to Read
39	Famous Grouse Whisky	0339493	Positive	Negative	Easy to Read
40	Belvedere Vodka	0339494	Positive	Negative	Easy to Read
41	Jose Farm Reserve	0339495	Positive	Negative	Easy to Read
42	Watermelon Liqueur	0339496	Positive	Negative	Easy to Read
43	Zubrovka	0339497	Positive	Negative	Easy to Read
44	Charmans Spicy Rum	0339498	Positive	Negative	Easy to Read
45	Parson Tequila	0339499	Positive	Negative	Easy to Read
46	Crème de Cacao	0339500	Positive	Negative	Easy to Read
47	Van Winkle Whisky	0339501	Positive	Negative	Easy to Read
48	Tanquery	0339502	Positive	Negative	Easy to Read
49	Jim Bean Whisky	0339503	Positive	Negative	Easy to Read

50	Glenmorange Whisky	0339504	Positive	Negative	Easy to Read
51	Crème Mose Blackberry Liqueur	0339505	Positive	Positive	Indeterminate
52	Millas Gin	0339506	Positive	Negative	Easy To Read
53	Jack Daniel Single	0339507	Positive	Negative	Easy To Read
54	Hibiki Whisky	0339508	Positive	Negative	Easy To Read
55	Woodford Reserve	0339509	Positive	Negative	Easy To Read
56	Ciroc Vodka	0339510	Positive	Negative	Easy To Read
57	Jameson Whisky	0339511	Positive	Negative	Easy To Read
58	Orange Coraco	0339512	Positive	Negative	Easy To Read
59	Sahbuca	0339513	Positive	Negative	Easy To Read
60	Strawberry Liqueur	0339514	Positive	Negative	Easy To Read
61	Kauffman	0339515	Positive	Negative	Easy To Read
62	Lephaig Whisky	0339516	Positive	Negative	Easy To Read
63	Martini Dry Vermouth	0339517	Positive	Negative	Easy To Read
64	Rose Petal Liqueur	0339518	Positive	Negative	Easy To Read
65	Belvedere Black Raspberry	0339519	Positive	Negative	Easy To Read
66	Lanique Rose Petal Liqueur	0339520	Positive	Negative	Easy To Read
67	Raspberry Crème de Froices	0339521	Positive	Negative	Negative Control Less Clear
68	42 Below Passion Fruit	0339522	Positive	Negative	Easy To Read
69	Crème De Peche	0339523	Positive	Negative	Easy To Read
70	Tap Water, CTLS	0339524	Positive	Negative	Easy To Read
71	The Yamaza Whisky	0339546	Positive	Negative	Easy To Read
72	Simpsmith Vodka	0339547	Positive	Negative	Easy To Read
73	Belvedere Citrus	0339548	Positive	Negative	Easy To Read

74	Simpsmith Gin (1)	0339549	Positive	Negative	Easy To Read
75	Simpsmith Gin (2)	0339550	Positive	Negative	Easy To Read
76	Wyborowa Exquisite	0339551	Positive	Negative	Easy To Read
77	Herrndosin Blavco	0339552	Positive	Negative	Easy To Read
78	Sipsmith Vodka	0339553	Positive	Negative	Easy To Read
79	Herrudin Reposedo	0339554	Positive	Negative	Easy To Read
80	Kellwe Coffee Liqueur	0339555	Positive	Negative	Easy To Read
81	Bushmills Whisky	0339556	Positive	Negative	Easy To Read
82	Crème de Menthe	0339557	Positive	Negative	Easy To Read
83	Captains Morgan Rum	0339558	Positive	Negative	Easy To Read
84	Red Wine	0339525	Positive	Negative	Negative Control Less Clear
85	Diet Coke	0339526	Positive	Negative	Easy To Read
86	Krupnik Liqueur (Repeat Test)	0339465	Positive	Negative	Easy To Read

9.1 QUALITY ASSURANCE STATEMENT

Study Number: Master schedule No. 377

Title: Development & Validation of A Drink Detection Assay for Ketamine

The Quality Assurance of Clinical Trials Laboratory Services Ltd. Inspected the study described in the above-identified report and the finding of these inspections were reported to the management on the dates given below:

Phase Inspected	Date of Inspection	Date of Reporting
Facility Audit Balances, Pipette Calibration,	21 November 2012 21 March 2013	21 January 2013; 21 April 2013
Facility Audit (Fridges and Freezers), Calibration of Thermometers	02 January 2013 15 January 2013	21 January 2013
Data Audit	19 April 2013	19 April 2013
Report Audit	22 April 2013	22 April 2013

This report has been audited and is considered to be a true and accurate account of the procedures followed and the results obtained during the conduct of the study.

All procedures were performed according to the Standard Operating Procedures of Clinical Trials Laboratory Services Limited (CTLs) unless otherwise stated.



Signed:

Date: 22nd April 2013

Jake Micallef, Ph.D, MBA

Director, Borlaug Limited.

9.2 STUDY DIRECTOR STATEMENT

Study Director: Rukhsana Ahsan, Ph.D.

Study Director Statement

All procedures were performed according to the Standard Operating Procedures of Clinical Trials Laboratory Services Limited (CTLS) unless otherwise stated.



Signed:

Date: 24th April 2013

Rukhsana Ahsan, Ph.D.

hcpcUK Registered Clinical Scientist.

Membership Number: CS10849 for the period 01October 2011- 30 September2013.

GHB Detection Assay Results

1. Initial test results

The premade Johnson's test strips were tested with varying concentrations of GHB (0 to 12 mg/ml) in tap water and in red wine. The results (see Table 1) showed detection at GHB concentrations of 4 to 12 mg/ml in tap water but in red wine only above 8 mg/ml GHB.

Drink	Initial pH	Concentration range detected
Tap water	7	Positive results at 4, 7 and 12mg/ml GHB
Red wine	3	8 – 12mg/ml

Table 1: Results of Johnson's GHB assay, including initial pH values and detectable GHB concentrations.

Changes were made to the lacmoid solution and paper preparation method and compared to the original method.

2. Protocol for alternative Buffered Lacmoid Test

1. [REDACTED]
2. [REDACTED]
[REDACTED]
[REDACTED]
3. [REDACTED]
[REDACTED]
4. [REDACTED]
[REDACTED]
5. [REDACTED]
[REDACTED]

3. Results

3.1 Results using Original Lacmoid Preparation

The results of the GHB assay using the original lacmoid preparation method are shown in **Table 2**. The initial pH is included as the assay itself relies on the detection of the alkaline nature of GHB (pH 10) and is therefore affected by the starting pH of the drink. As can be seen from the results, this pH effect made the results of the test very inconsistent and in some cases prevented GHB from being detected at even the highest concentration (i.e. 12 mg/ml).

3.2 Results using Buffered Lacmoid Preparation

The results recorded using the buffered lacmoid preparation described above are shown in **Table 3**. Although the highly acidic drinks (i.e. lime cordial, bitter lemon) still gave all negative results and the highly alkaline drinks (i.e. Bailey's, milk) still gave all positive results, there is a more consistent

detection of GHB throughout the other drink types tested. Even at the lowest concentration of GHB most drinks now produce a positive result. **Figures 3** shows what is defined as a 'positive' and 'negative' result. **Figures 4– 9** provide a visual representation of the results in **Table 3**.

Figure 10 provides a visual representation of the relationship between the pH value at the detectable GHB concentration, and the minimum GHB detection value recorded. Unlike in the initial test without the buffered solution, **the Buffer Lacmoid Preparation produces more consistent results across a range of pH levels**. This makes it less liable to give false positives or false negatives, except in the cases of highly acidic or highly alkaline drinks as mentioned above.

Table 2: Results using Original Lacmoid Preparation, including pH values.

Drink	Initial pH	pH at minimum detection level	Concentration range detected
Amaretto	5	8	3 --- 12mg/ml
Apple juice	4	7	5 --- 12mg/ml
Bailey's	8	N/A	All positive
Bitter	4.5	7	5 --- 12mg/ml
Blackcurrant cordial	N/A	N/A	8 --- 12mg/ml
Bourbon	4.5	8	5 --- 12mg/ml
Bitter lemon	3	N/A	All negative
Campari	3	N/A	All negative
Cointreau	5	8	7 --- 12mg/ml
Coke	4	7	5 --- 12mg/ml
Cranberry juice	3	N/A	All negative
Dark rum	4.5	8	3 --- 12mg/ml
Diet coke	4	7	4 --- 12mg/ml
Drambuie	4.5	8	4 --- 12mg/ml
Gin	5	8	4 --- 12mg/ml
Ginger ale	3	7	5 --- 12mg/ml
Jägermeister	4.5	8	3 --- 12mg/ml
Lager	4.5	7	3 --- 12mg/ml
Lemonade	6	7	8 --- 12mg/ml
Lime cordial	3	N/A	All negative
Milk	8	N/A	All positive
Orange juice	4	7	6 --- 12mg/ml
Pimm's	4	7	3 --- 12mg/ml
Pineapple juice	4	7	3 --- 12mg/ml
Red Bull	6	7	4 --- 12mg/ml
Red wine	3	8	8 --- 12mg/ml
Sambuca	5	8	4 --- 12mg/ml
Soda water	7	8	4 --- 12mg/ml
Sparkling water	7	8	3 --- 12mg/ml
Sparkling wine	3	7	12mg/ml
Stout	4.5	7	6 --- 12mg/ml
Tap water	7	8	3 --- 12mg/ml
Tequila	5	8	4 --- 12mg/ml
Tia Maria	4.5	7	4 --- 12mg/ml
Tomato juice	5?		All positive
Tonic water	4	8	7 --- 12mg/ml
Vodka	5	7	5 --- 12mg/ml
Whisky	4.5	7	4 --- 12mg/ml
White rum	5	8	3 --- 12mg/ml
White vermouth	4	7	6 --- 12mg/ml
White wine	4	N/A	All negative

An 'all positive' result indicates that the test gave a positive result even without GHB being present in solution. An 'all negative' result means that GHB was undetectable, even at the highest concentration of 12mg/ml.

Table 3: Results using Buffered Lacmoid Preparation, including pH values.

Drink	Initial pH	pH at minimum detection level	Concentration range detected
Amaretto	5	5	3 --- 12mg/ml
Apple juice	4	4.5	3 --- 12mg/ml
Bailey's	8	N/A	All positive
Bitter	4.5	6	3 --- 12mg/ml
Blackcurrant cordial	N/A	N/A	N/A
Bourbon	4.5	5	3 --- 12mg/ml
Bitter lemon	3	N/A	All negative
Campari	3	6	3 --- 12mg/ml
Cointreau	5	5.5	3 --- 12mg/ml
Coke	4	5	3 --- 12mg/ml
Cranberry juice	3	4.5	3 --- 12mg/ml
Dark rum	4.5	7	3 --- 12mg/ml
Diet coke	4	5	3 --- 12mg/ml
Drambuie	4.5	5.5	3 --- 12mg/ml
Gin	5	6	3 --- 12mg/ml
Ginger ale	3	5	3 --- 12mg/ml
Jägermeister	4.5	6	3 --- 12mg/ml
Lager	4.5	5	3 --- 12mg/ml
Lemonade	6	5	3 --- 12mg/ml
Lime cordial	3	N/A	All negative
Milk	8	N/A	All positive
Orange juice	4	4.5	3 --- 12mg/ml
Pimm's	4	6	3 --- 12mg/ml
Pineapple juice	4	4.5	3 --- 12mg/ml
Red Bull	6	4.5	3 --- 12mg/ml
Red wine	3	4.5	3 --- 12mg/ml
Sambuca	5	5.5	3 --- 12mg/ml
Soda water	7	7	3 --- 12mg/ml
Sparkling water	7	8	3 --- 12mg/ml
Sparkling wine	3	4.5	4 --- 12mg/ml
Stout	4.5	6	3 --- 12mg/ml
Tap water	7	7	3 --- 12mg/ml
Tequila	5	8	3 --- 12mg/ml
Tia Maria	4.5	5.5	3 --- 12mg/ml
Tomato juice	4	4.5	3 --- 12mg/ml
Tonic water	4	4.5	3 --- 12mg/ml
Vodka	5	6	3 --- 12mg/ml
Whisky	4.5	7	3 --- 12mg/ml
White rum	5	6	3 --- 12mg/ml
White vermouth	4	4.5	3 --- 12mg/ml
White wine	4	4.5	3 – 12mg/ml

An 'all positive' result indicates that the test gave a positive result even without GHB being present in solution. An 'all negative' result means that GHB was undetectable, even at the highest concentration of 12mg/ml.

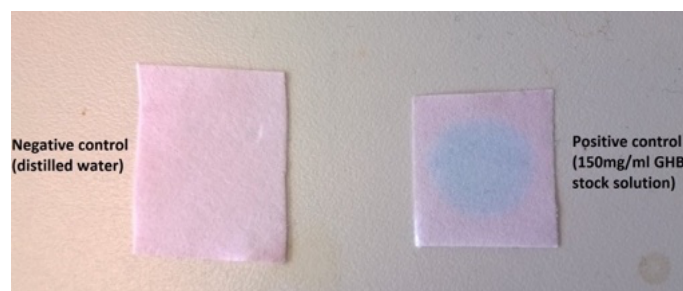


Figure 3: Positive and negative control test papers. Positive control changes from Pink to blue in the presence of GHB. When no GHB is present, no colour change occurs as seen in the negative control (distilled water only).

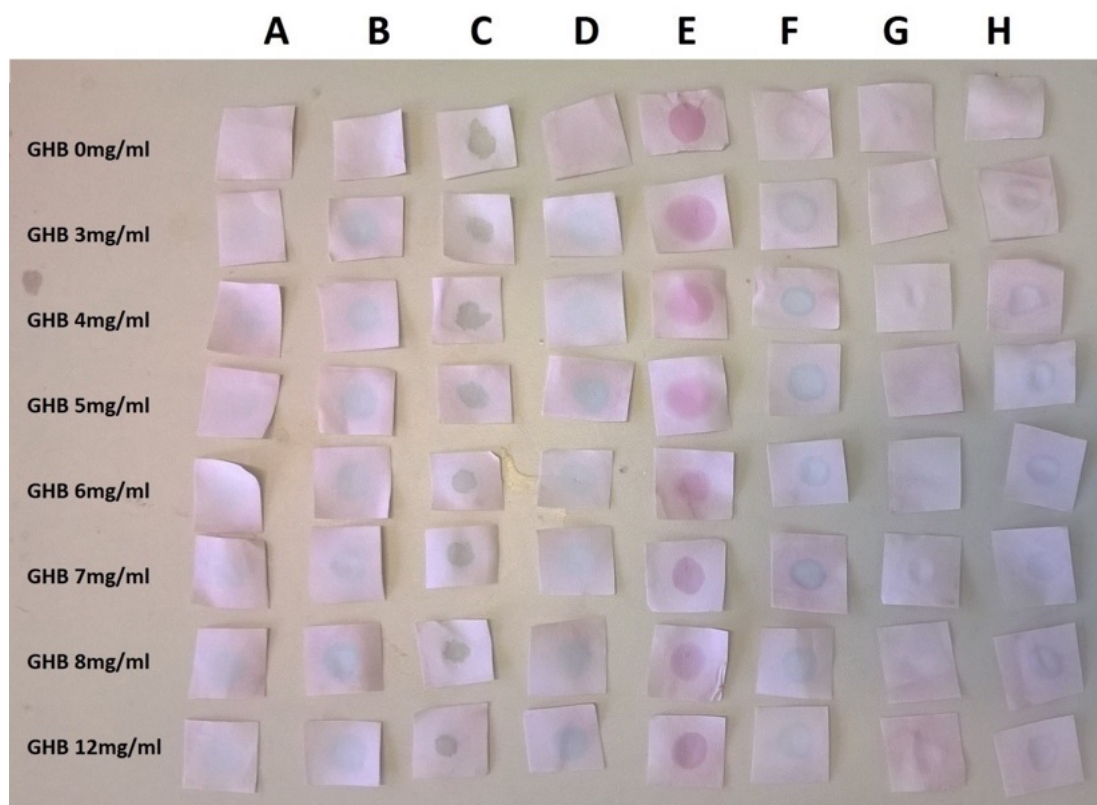


Figure 4: Test results from drinks spiked with different concentrations of GHB. Drink types are as follows:

- | | | |
|-----------------|--------------------------|------------------|
| (A) Amaretto | (D) Bitter | (G) Bitter lemon |
| (B) Apple juice | (E) Bourbon | (H) Campari |
| (C) Bailey's | (F) Blackcurrant cordial | |

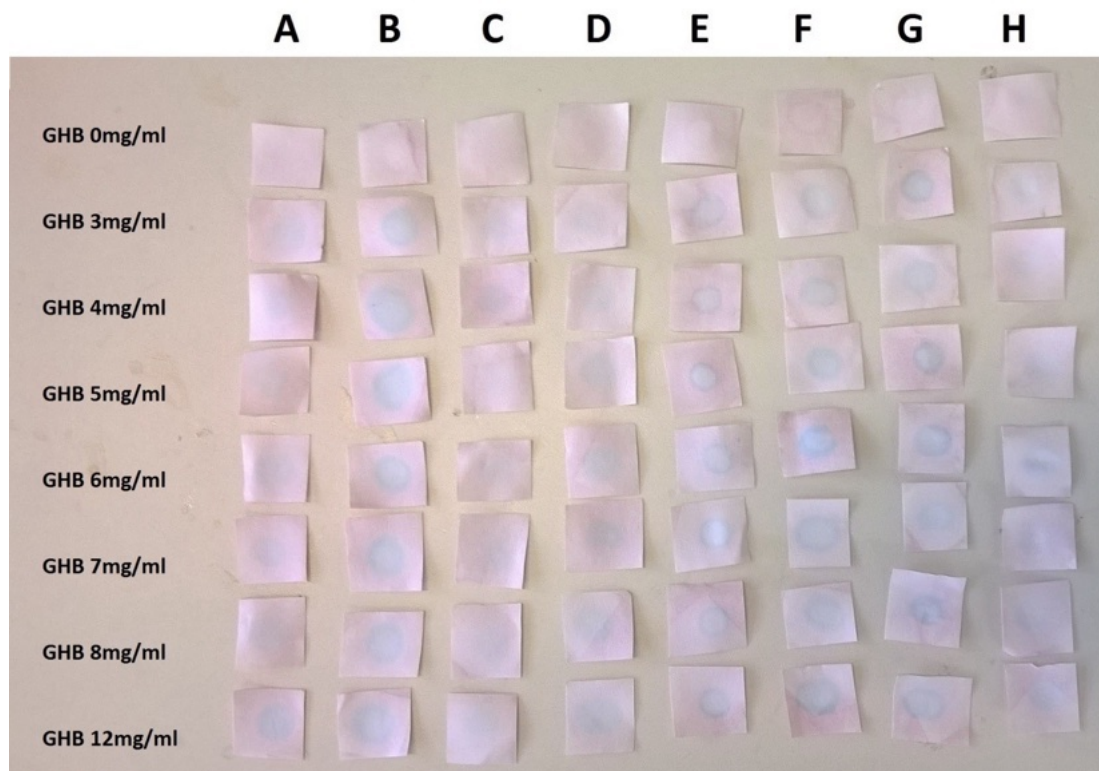


Figure 5: Test results from drinks spiked with different concentrations of GHB. Drink types are as follows:

- | | | |
|---------------------|---------------|----------------|
| (A) Cointreau | (D) Dark rum | (G) Gin |
| (B) Coke | (E) Diet coke | (H) Ginger ale |
| (C) Cranberry juice | (F) Drambuie | |

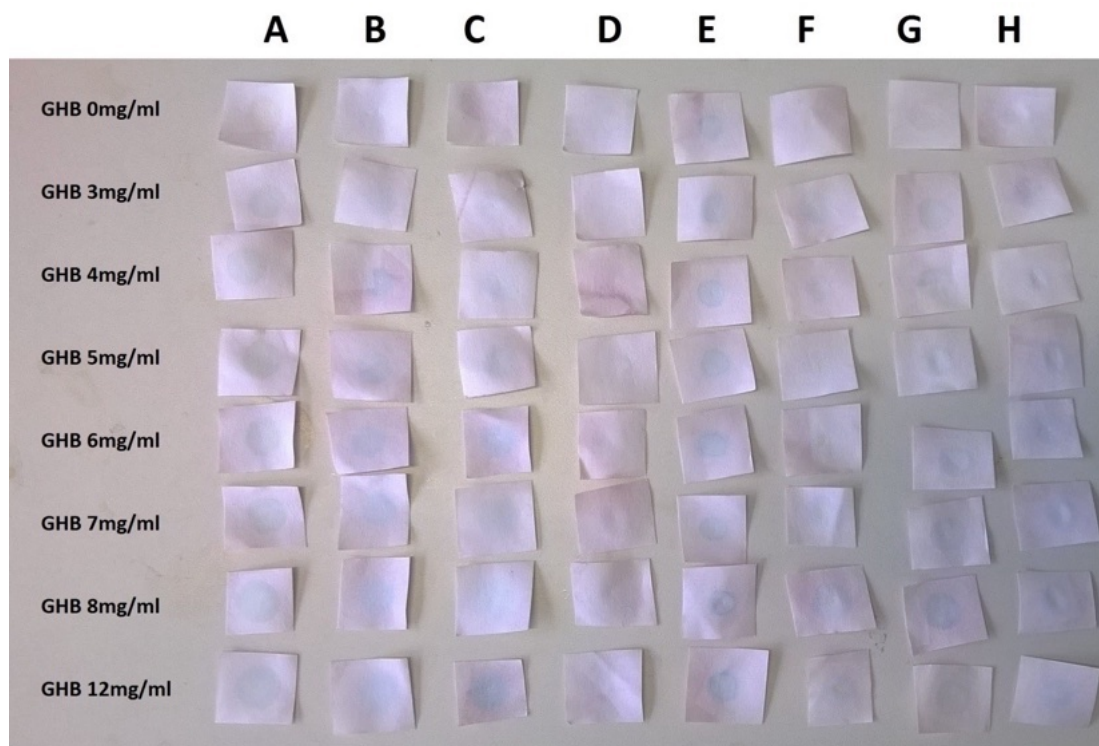


Figure 6: Test results from drinks spiked with different concentrations of GHB. Drink types are as follows:

- | | | |
|------------------|------------------|---------------------|
| (A) Jägermeister | (D) Lime cordial | (G) Pimm's |
| (B) Lager | (E) Milk | (H) Pineapple juice |
| (C) Lemonade | (F) Orange juice | |

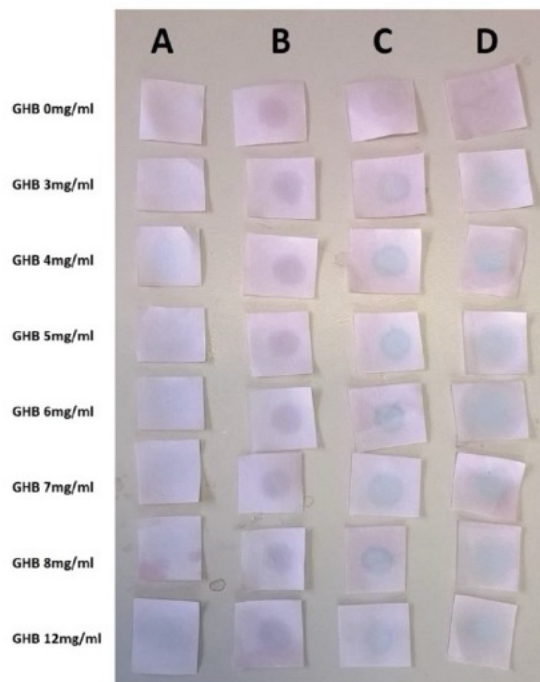


Figure 7: Test results from drinks spiked with different concentrations of GHB. Drink types are as follows:

- | | |
|--------------|----------------|
| (A) Red bull | (C) Sambuca |
| (B) Red wine | (D) Soda water |

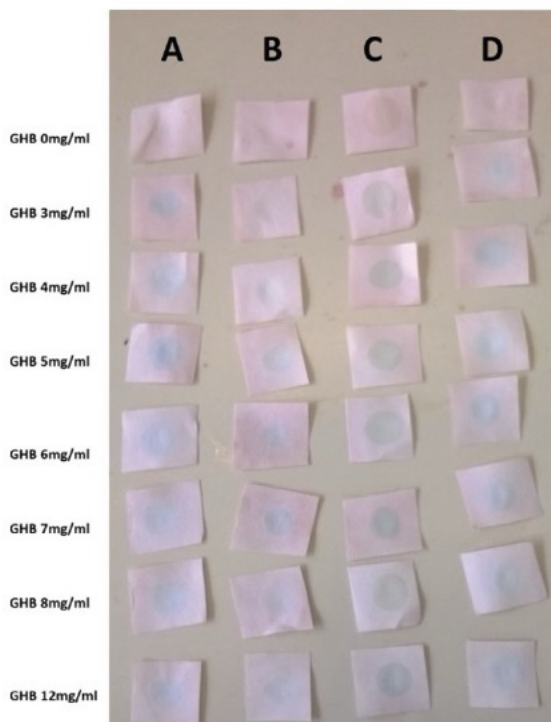


Figure 8: Test results from drinks spiked with different concentrations of GHB. Drink types are as follows:

- | | |
|---------------------|---------------|
| (C) Sparkling water | (C) Stout |
| (D) Sparkling wine | (D) Tap water |

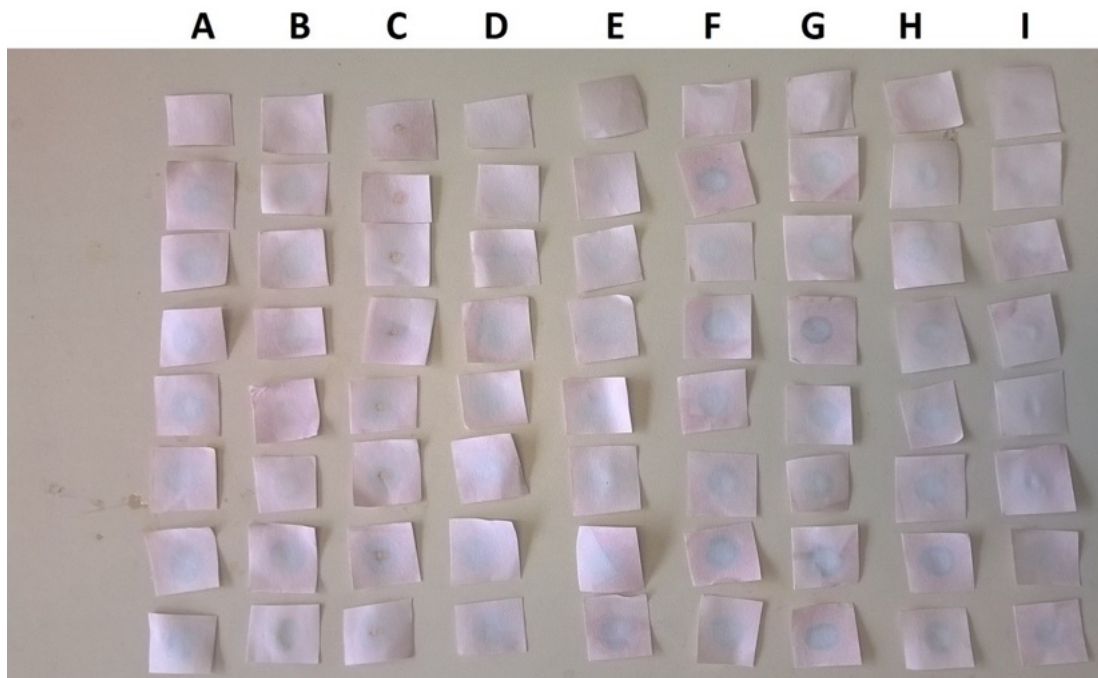


Figure 9: Test results from drinks spiked with different concentrations of GHB. Drink types are as follows:

- | | | |
|------------------|-----------------|--------------------|
| (A) Tequila | (D) Tonic water | (G) White rum |
| (B) Tia Maria | (E) Vodka | (H) White vermouth |
| (C) Tomato juice | (F) Whiskey | (I) White wine |

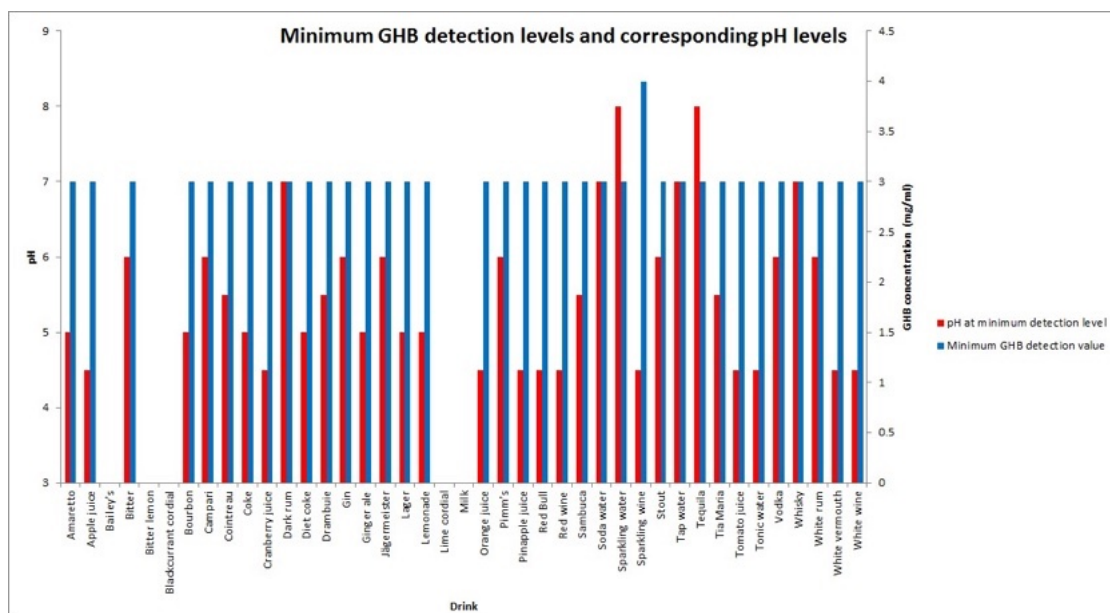


Figure 10: Graph of the minimum GHB detection values (blue) and the corresponding pH value at this GHB concentration (red). Drinks which displayed all positive or all negative results are included in the table but no data can be plotted for these drinks.