FTS

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2025 Clandestine Laboratory Chemical Proficiency Test
FTS-25-CLAN Summary Report

The Submission Deadline for this test was July 25, 2025

The test was manufactured by FTS at the FTS Laboratory Facility (127 W. Grand River Avenue, Williamston, MI 48895) and all activities were coordinated by Rebecca Smith (rsmith@forsci.com), Proficiency Test Program Manager. Ms. Smith is also authorizing the release of this report. This is the summary report issued on 8/12/25. FTS considers all reports confidential and does not release information regarding participant's results without authorization from that participant.

Summary

Test results were received in 34 of 37 tests distributed (92% response rate). Of the 34 respondents:

Item 1 (L-Tryptophan)
31 of 34 (91%) reported that Item 1 contained L-Tryptophan/Tryptophan.
2 of 34 (6%) also reported that Item 1 contained D-Tryptophan.
1 of 34 (3%) also reported that Item 1 contained Tryptamine.

3 of 34 (9%) reported that Item 1 contained Tryptamine.

Item 2 (Methanol)
31 of 34 (91%) reported that Item 2 contained Methanol.
3 of 34 (9%) reported that Item 2 contained No Controlled Substances/Negative.

Item 3 (Diphenylmethane)
33 of 34 (97%) reported that Item 3 contained Diphenylmethane.
1 of 34 (3%) also reported that Item 3 contained Benzophenone.

1 of 34 (3%) reported that Item 3 contained Diphenylmethanol.

Manufacturer's Information

All items were produced at separate times. The area was cleaned and the item was stored before another item was produced.

Item 1 was produced by weighing ~0.5g L-Tryptophan (BulkSupplements.com Lot# 2411604, UPC X0001VXQSP) using a calibrated Mettler PB1502 balance. The material was transferred into a Qorpak 1-dram glass vial (Lot# 02022022144, GLC-05185) and labeled. The item was further packaged into a small coin manila envelope, sealed and labeled per FTS guidelines.

Item 2 was produced by filling a Qorpak 4-dram glass vial (Lot# 12112015144, GLC-00993) full (~15mL) of Methanol (VWR Chemicals Lot# 21J1956907, Item VWRVK977-4L). The vial was wrapped in paper

towel and further packaged into a 125mL wide mouth sample vial (Berlin Packaging Lot# 1371432, Item# 1181126), sealed and labeled per FTS guidelines.

Item 3 was produced by pipetting ~1mL of Diphenylmethane (Sigma Aldrich Lot# STBL1051, Item D209317-25G) into a Qorpak 1-dram glass vial (Lot# 02022022144, GLC-05185). The vial was wrapped in paper towel and further packaged into a 60mL wide mouth sample vial (Thermo Scientific Lot# 1149512, Item# 312189-0002), sealed and labeled per FTS guidelines.

All items with matching UTICs were packaged together in a cardboard box, sealed and labeled per FTS guidelines.

Assigned Value

Proficiency tests under ISO 17043:2023 are assessed via comparison of the participant result to the assigned value of a proficiency test item or items. For quantitative tests, FTS determines the assigned value based on statistical methods described in ISO 13528:2022. For qualitative tests, the FTS study coordinator determines the assigned value based on a number of factors, including product source information, internal and/or external pre-distribution laboratory analysis, and consensus of responses (consensus value).

Quality systems and laboratory reporting guidelines vary greatly from laboratory to laboratory, therefore participating laboratories and their accrediting bodies are responsible for the assessment of whether a reported result is an outlying result.

For this proficiency test, the following assigned values are based on source information which was then confirmed by laboratory analysis:

Item 1: L-Tryptophan
Item 2: Methanol
Item 3: Diphenylmethane

Please examine the questioned items to identify any chemical(s) present.

Items Submitted

Item 1: Sample of questioned material recovered from clandestine laboratory.
Item 2: Sample of questioned liquid recovered from clandestine laboratory.
Item 3: Sample of questioned liquid recovered from clandestine laboratory.

3) Indicate all methods used for analysis (select all that apply):

A) ☐ Macro/Microscopic Examinations

B) ☐ Chemical Spot Tests

C) ☐ GC/FID/TEA/ECD

D) ☐ GC/MS

E) ☐ IC

F) ☐ SEM/EDS

G) ☐ Thin Layer Chromatography

H) ☐ PLM

I) ☐ HPLC

J) ☐ IR/FTIR Analysis

K) ☐ ICP-MS

L) ☐ CE

M) ☐ XRD

N) ☐ XRF

O) ☐ HPLC/MS

P) ☐ DART TOF-MS

Q) ☐ UV Fluorescence

R) ☐ pH

S) ☐ Raman Spectroscopy

T) ☐ ICP-AES

U) ☐ Commercial Test Strips

UTIC	Webcode	Indicate all methods used for analysis (select all that apply)
p2025401	W182	GC/MS; IR/FTIR Analysis
p2025402	W158	Chemical Spot Tests; GC/MS; IR/FTIR Analysis; HPLC/MS; pH
p2025403	W061	HPLC/MS; pH; Raman Spectroscopy; GC/MS; IR/FTIR Analysis
p2025404	W061	pH; Raman Spectroscopy; GC/MS; IR/FTIR Analysis; HPLC/MS
p2025405	W061	Raman Spectroscopy; GC/MS; IR/FTIR Analysis; pH
p2025406	W061	pH; HPLC/MS; IR/FTIR Analysis; GC/MS
p2025407	W061	Raman Spectroscopy; GC/MS; IR/FTIR Analysis; pH
p2025408	W061	GC/MS; IR/FTIR Analysis; pH
p2025409	W061	Chemical Spot Tests; GC/MS; IR/FTIR Analysis; XRF; pH; Raman Spectroscopy
p2025410	W061	IR/FTIR Analysis; pH; Raman Spectroscopy

UTIC	Webcode	Indicate all methods used for analysis (select all that apply)
p2025411	W061	Raman Spectroscopy; Chemical Spot Tests; GC/MS; IR/FTIR Analysis; pH
p2025412	W061	pH; Chemical Spot Tests; GC/MS; IR/FTIR Analysis
p2025413	W061	IR/FTIR Analysis; pH; Chemical Spot Tests; GC/MS
p2025414	W039	pH; Chemical Spot Tests; GC/MS; IR/FTIR Analysis
p2025416	W193	GC/MS; Raman Spectroscopy
p2025417	W163	pH; Chemical Spot Tests; GC/MS; IR/FTIR Analysis
p2025418	W163	GC/MS; IR/FTIR Analysis
p2025419	W132	pH; Macro/Microscopic Examinations; GC/MS; IR/FTIR Analysis
p2025420	W261	GC/MS; IR/FTIR Analysis; Raman Spectroscopy
p2025421	W261	GC/MS; IR/FTIR Analysis; Raman Spectroscopy
p2025422	W261	GC/MS; IR/FTIR Analysis; Raman Spectroscopy
p2025423	W261	GC/MS; IR/FTIR Analysis; Raman Spectroscopy
p2025424	W153	GC/MS; IR/FTIR Analysis; Raman Spectroscopy
p2025425	W244	Commercial Test Strips; Macro/Microscopic Examinations; Chemical Spot Tests; GC/MS
p2025426	W002	GC/FID/TEA/ECD; GC/MS; Thin Layer Chromatography; IR/FTIR Analysis; pH; Commercial Test Strips; Chemical Spot Tests
p2025427	W158	Chemical Spot Tests; GC/MS; IR/FTIR Analysis; HPLC/MS; pH
p2025429	W005	Chemical Spot Tests; GC/MS; IR/FTIR Analysis; pH
p2025431	W015	GC/MS; IR/FTIR Analysis; Chemical Spot Tests; UV Fluorescence; pH
p2025432	W103	GC/MS; IR/FTIR Analysis; HPLC/MS; Macro/Microscopic Examinations
p2025433	W010	Chemical Spot Tests; GC/MS; IR/FTIR Analysis; pH
p2025434	W025	Macro/Microscopic Examinations; IR/FTIR Analysis; pH; Chemical Spot Tests; GC/MS
p2025435	W051	Chemical Spot Tests; GC/MS; HPLC; IR/FTIR Analysis; HPLC/MS; Raman Spectroscopy
p2025436	W162	pH; Macro/Microscopic Examinations; GC/MS; IR/FTIR Analysis; HPLC/MS
p2025437	W004	Chemical Spot Tests; DART TOF-MS; IR/FTIR Analysis; pH; Macro/Microscopic Examinations; GC/MS; GC/FID/TEA/ECD; Thin Layer Chromatography

4) Other methods used (if none, please enter "N/A"):

UTIC	Webcode	Other methods used
p2025409	W061	Radiation - Radeye B20 VOC - MiniRae 3000
p2025414	W039	GC/RT
p2025419	W132	Solubility, 1H, 13C, HSQC AND HMBC NMR.
p2025425	W244	Headspace SPME Extraction for GC-MS

UTIC	Webcode	Other methods used
p2025426	W002	Watesmo Test Strip Density Calulation
p2025427	W158	weight determination
p2025432	W103	Melting point
p2025433	W010	GC/IR
p2025435	W051	LC-Orbitrap MS and NMR
p2025436	W162	NMR
p2025437	W004	For Item 2: miscibility tests and phase separation filter paper

5) **Item 1**

What chemical components were identified in the questioned material from Item 1?

UTIC	Webcode	**Item 1** What chemical components were identified in the questioned material from Item 1?
p2025401	W182	L-tryptophan
p2025402	W158	Tryptophan
p2025403	W061	Common illicit drugs were not detected in the powder. The weight of the powder was 0.49 grams. The powder was tentatively identified as tryptophan. Tryptophan was tentatively identified based on comparison of the compound's infrared spectrum with that of a literature source. If necessary, unequivocal identification of this compound can be made on receipt of a certified reference material at the laboratory.
p2025404	W061	Tryptophan was tentatively identified as a component of the powder (item 1). The weight of the powder was 0.49 grams. Tryptophan was tentatively identified based on comparison of the compound’s spectra with literature sources. Unequivocal identification may be made upon receipt of a certified reference material at the laboratory.
p2025405	W061	Tryptophan.
p2025406	W061	Tryptophan
p2025407	W061	Tryptophan
p2025408	W061	Tryptophan
p2025409	W061	L-tryptophan and D-tryptophan
p2025410	W061	On both FTIR and RAMAN the result was D-tryptophan, L-tryptophan.
p2025411	W061	tryptophan
p2025412	W061	Tryptophan

UTIC	Webcode	**Item 1** What chemical components were identified in the questioned material from Item 1?
p2025413	W061	Analysis indicated the presence of tryptophan. **Note:** data was not compared to the data from reference material analysed under the same analytical conditions - identity not confirmed.
p2025414	W039	Tryptophan
p2025416	W193	Tryptamine
p2025417	W163	Tryptophan
p2025418	W163	Tryptophan
p2025419	W132	Indications of tryptophan.
p2025420	W261	L-Tryptophan was found in the powder
p2025421	W261	L-Tryptophan
p2025422	W261	L-Tryptophan
p2025423	W261	L-Trytophane
p2025424	W153	Tryptophan
p2025425	W244	Tryptomine
p2025426	W002	Tryptophan
p2025427	W158	tryptophan
p2025429	W005	Tryptophan
p2025431	W015	tryptamine (indicated) tryptophan (indicated)
p2025432	W103	Tryptophan
p2025433	W010	Tryptamine indicated, not confirmed.
p2025434	W025	l-tryptophan
p2025435	W051	Tryptophan
p2025436	W162	The material consists of a white powder. Upon FTIR analysis the resulting spectrum was positively matched with L-tryptophan from an external reference library.In order to confirm tryptophan as well as to screen for other substances the powder was analyzed using LC-MS. Tryptophan was the only identified substance in the sample. In conclusion the white powder contains **tryptophan**.
p2025437	W004	The Item 1 powder contained Tryptophan.

6) **Item 2**

What chemical components were identified in the questioned liquid from Item 2?

UTIC	Webcode	**Item 2** What chemical components were identified in the questioned liquid from Item 2?
p2025401	W182	Methanol
p2025402	W158	Methanol
p2025403	W061	Common illicit drugs were not detected in the liquid. The weight of the liquid was 10.4 grams. The liquid was identified as methanol.
p2025404	W061	Common illicit drugs were not detected in the liquid (item 2). The weight of the liquid was 10.9 grams. The liquid was identified as methanol.
p2025405	W061	Methanol.
p2025406	W061	Methanol
p2025407	W061	Methanol
p2025408	W061	Methanol
p2025409	W061	Methanol
p2025410	W061	On both FTIR and Raman the result was Methanol the pH was also N/A.
p2025411	W061	methanol
p2025412	W061	methanol
p2025413	W061	Analysis indicated the presence of methanol. **Note:** data was not compared to the data from reference material analysed under the same analytical conditions - identity not confirmed.
p2025414	W039	Methanol
p2025416	W193	Methanol
p2025417	W163	Methanol
p2025418	W163	Methanol
p2025419	W132	Methanol.
p2025420	W261	Methanol was found in the liquid
p2025421	W261	Methanol
p2025422	W261	Negative
p2025423	W261	negative
p2025424	W153	Methanol
p2025425	W244	Methanol
p2025426	W002	Methanol
p2025427	W158	methanol
p2025429	W005	No Controlled Substances Identified
p2025431	W015	methanol (indicated)
p2025432	W103	Methanol
p2025433	W010	Methanol indicated, not confirmed.
p2025434	W025	methanol
p2025435	W051	Methanol

UTIC	Webcode	**Item 2** What chemical components were identified in the questioned liquid from Item 2?
p2025436	W162	The material consists of a clear colorless liquid. The liquid is miscible with water and has a neutral pH-value. Upon FTIR analysis the resulting spectrum was positively matched with methanol from our internal reference library.In order to confirm methanol as well as to screen for other substances the liquid was analyzed using two different GC-MS systems, one of which is designed for volatile compounds and the other for drug screening purposes. Methanol was the only identified substance in the sample. In conclusion the clear colorless liquid contains **methanol**.
p2025437	W004	The Item 2 liquid contained methanol.

7) **Item 3**

What chemical components were identified in the questioned liquid from Item 3?

UTIC	Webcode	**Item 3** What chemical components were identified in the questioned liquid from Item 3?
p2025401	W182	Diphenylmethane
p2025402	W158	Diphenylmethane
p2025403	W061	Common illicit drugs were not detected in the liquid. The weight of the liquid was 0.44 grams. The liquid was tentatively identified as diphenylmethane. Diphenylmethane was tentatively identified based on comparison of the compound's mass spectra with that of a literature source. If necessary, unequivocal identification of this compound can be made on receipt of a certified reference material at the laboratory.
p2025404	W061	Common illicit drugs were not detected in the liquid (item 3). The weight of the liquid was 0.48 grams. Diphenylmethane was tentatively identified as the major component of the liquid. Diphenylmethane was tentatively identified based on comparison of the compound's spectra with literature sources. Unequivocal identification may be made upon receipt of a certified reference material at the laboratory.
p2025405	W061	Diphenylmethane.
p2025406	W061	Diphenylmethane
p2025407	W061	Diphenylmethane
p2025408	W061	Diphenylmethane

UTIC	Webcode	**Item 3** What chemical components were identified in the questioned liquid from Item 3?
p2025409	W061	Diphenylmethane
p2025410	W061	On both FTIR and Raman the result was Diphenylmethane the pH was also N/A.
p2025411	W061	diphenylmethane
p2025412	W061	diphenylmethane
p2025413	W061	Analysis indicated the presence of diphenylmethane. **Note:** data was not compared to the data from reference material analysed under the same analytical conditions - identity not confirmed.
p2025414	W039	Diphenylmethane
p2025416	W193	1.Diphenylmethane 2. Benzophenone
p2025417	W163	Diphenylmethane
p2025418	W163	Diphenylmethane
p2025419	W132	Indications of diphenylmethane.
p2025420	W261	Diphenylmethane was found in the liquid
p2025421	W261	Diphenylmethanol
p2025422	W261	Diphenylmethane
p2025423	W261	Diphenylmethane
p2025424	W153	Diphenylmethane or isomers
p2025425	W244	Diphenylmethane
p2025426	W002	Diphenylmethane
p2025427	W158	diphenylmethane
p2025429	W005	Diphenylmethane
p2025431	W015	diphenylmethane
p2025432	W103	Diphenylmethane
p2025433	W010	Diphenylmethane, indicated not confirmed.
p2025434	W025	diphenylmethane
p2025435	W051	Diphenylmethane
p2025436	W162	The material consists of a clear colorless liquid. The liquid is not miscible with water and has a neutral pH-value. Upon FTIR analysis the resulting spectrum was unable to be matched with anything from the reference libraries.Using the routine GC-MS method a single peak was detected. The peak was indicated as diphenyl methane using an external reference library. In order to support the indicated diphenyl methane a series of NMR experiments were run. The results of the NMR experiments corroborate diphenyl methane. In conclusion **diphenyl methane** was indicated in the clear colorless liquid.
p2025437	W004	The Item 3 liquid contained Diphenylmethane.

8) How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court). In order to maintain confidentiality, please refrain from including identifying information specific to your laboratory.

UTIC	Webcode	How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).
p2025401	W182	Item #1: L-tryptophan Item #2: Methanol Item #3: Diphenylmethane
p2025402	W158	Tryptophan was detected in Lab Item 1. Methanol was detected in Lab Item 2. Diphenylmethane was detected in Lab Item 3.
p2025403	W061	<u>DISCUSSION:</u> Precursors: Tryptophan Reagents and solvents: Methanol, diphenylmethane Tryptamine is a hallucinogenic drug which can be synthesised by the decarboxylation of tryptophan, an amino acid. The synthesis of tryptamine involves the reaction of tryptophan and diphenylmethane by heating the two reagents under nitrogen gas. The resulting solution of crude tryptamine can be converted to tryptamine hydrochloride by treating it with a dry saturated hydrogen chloride solution or by exposure to hydrogen chloride gas. The tryptamine hydrochloride can then be collected via filtration. Further purifiaction of the tryptamine hydrochloride can be acheived by recrystallising the powder in a solvent such as methanol[1]. <u>CONCLUSIONS:</u> The presence of tryptophan and diphenylmethane indicates that tryptamine could be synthesised. Tryptamine was not detected on any of the items submitted for analysis. 1. Brandt, S., et al., *An analytical perspective on favoured synthetic routes to the psychoactive tryptamins.* Journal of Parmaceutical and Biomedical Analysis 36 (2004): p 675-691.

UTIC	Webcode	How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).
p2025404	W061	The following items associated with drug manufacture were identified: Precursors: Tryptophan Reagents and solvents: Methanol, Diphenylmethane DISCUSSION: Tryptamines are hallucinogenic substances that occur naturally in some plants and fungi. While not controlled substance on its own, tryptamine can be used for the manufacture of other tryptamines, including N,N-dimethyltryptamine (DMT). Tryptamine can be manufactured using the precursor tryptophan via a number of synthesis routes. One method for the manufacture of tryptamine is a thermally-induced decarboxylation reaction, which involves the heating of tryptophan in a high-boiling solvent such as diphenylmethane. Hydrogen chloride gas can be used to separate the crude tryptamine from the reaction mixture by precipitating tryptamine as the hydrochloride salt. Crude tryptamine hydrochloride can be purified through recrystallisation using common organic solvents such as methanol and ethyl acetate. Tryptophan is listed under Schedule 4 of the [redacted], but is available in a variety of over-the-counter health supplement products. Diphenylmethane is an industrial solvent commonly used in the manufacture of perfumes and dyes or as a dielectric in electronics. Hydrogen chloride gas can be readily generated by the action of sulfuric acid on sodium chloride (table salt) or calcium chloride. Methanol is used in a wide variety of industrial and household products such as racing fuels, paints, insecticides, paint strippers and glass cleaners. CONCLUSION: The precursor, tryptophan, and the necessary chemicals required for the manufacture of tryptamine were identified, however tryptamine was not detected in any of the samples. REFERENCES: T. Kametanie et. al., Studies on the Syntheses of Heterocyclic Compounds. Part CDLXXXI. A Simple Preparation of Tryptamine, Synthesis, 1972, 09, 475.
p2025405	W061	Item 1 - Contains tryptophan. Item 2 - Contains methanol. Item 3 - Contains diphenylmethane.

UTIC	Webcode	How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).
p2025406	W061	Item 1: Tryptophan was detected Item 2: No dangerous drugs were detected iin the liquid which was consistent with a methanol/water solution. Item 3: No Dangerous drugs were detected in the liquid. Diphenylmethane was detected. Tyrptamine can be produced from tryptophan by heating in any of a number of high boiling solvent such as diphenymethane. Tryptophan was detected in exhbit1, diphenylmethane was detected as the major component in the liquid in exhibit 3.
p2025407	W061	**Manufacture of Tryptamine** 4.1 Tryptamine is the core structure of a group of naturally occurring and synthetic substances known as hallucinogenic tryptamines. 4.2 Tryptamine can be manufactured from several different methods using tryptophan as a starting precursor chemical, one of which is described below. 4.3 Tryptophan is decarboxylated when heated in diphenylmethane under a stream of nitrogen. Once the carbon dioxide evolution ceases and the reaction mixture has cooled, a non-polar aromatic solvent saturated with dry hydrogen chloride is added. 4.4 The crude tryptamine hydrochloride precipitates from solution and can then be collected and further purified. 4.5 The powder in Item 1 was identified as tryptophan (1). 4.6 The liquid in Item 2 was identified as methanol. 4.7 The liquid in Item 3 was identified as diphenylmethane (1). 4.8 In my opinion, the identification of tryptophan and diphenylmethane indicates that the manufacture of tryptamine could occur. Footnote: (1) A reference standard was not available and identification was based on reference to mass spectral library data.

UTIC	Webcode	How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).
p2025408	W061	Item 1 - Sample of questioned material recovered from clandestine laboratory - Glass vial containing a quantity of a white powder. The powder was identified as tryptophan. Item 2 - Sample of questioned liquid recovered from clandestine laboratory - Glass vial containing a quantity of a clear liquid. The liquid was identified as methanol. Item 3 - Sample of questioned liquid recovered from clandestine laboratory - Glass vial containing a quantity of a clear liquid. The liquid was identified as diphenylmethane. The illicit drug tryptamine can be manufactured from tryptophan via decarboxylation. Diphenylmethane is a suitable solvent to use for the decarboxylation processs. Methanol could be used in the manufacture of tryptamine, however methanol is not considered a diagnostic chemical indicating manufacture.
p2025409	W061	Item 1 presumptively identified to contain L-tryptophan and D-tryptophan, confirmatory analysis required, submit to [redacted]. Item 2 presumptively identified to contain methanol, confirmatory analysis required, submit to [redacted]. Item 3 presumptively identified to contain Diphenylmethane, confirmatory analysis required, submit to [redacted].
p2025410	W061	Item 1 was a white powder that was presumptively Identified as D-tryptophan and L-tryptophan. Item 2 was a clear colourless liquid that was presumptively Identified as Methanol and had a pH that was N/A. Item 3 was a clear colourless liquid that was presumptively Identified as Diphenylmethane and had a pH that was N/A.

<table>
<tr><th>UTIC</th><th>Webcode</th><th>How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).</th></tr>
<tr><td>p2025411</td><td>W061</td><td>
<table>
<tr><th>Exhibit number</th><th>Description</th><th>Mass (grams)</th><th>Result of analysis</th></tr>
<tr><td>Item 1</td><td>One item containing white amorphous powder</td><td>0.050</td><td>Tryptophan*&**</td></tr>
<tr><td>Item 2</td><td>One item containing liquid</td><td>10.78</td><td>No scheduled drugs detected*
Liquid consistent with methanol**&***</td></tr>
<tr><td>Item 3</td><td>One item containing liquid</td><td>0.47</td><td>No scheduled drugs detected*
Liquid consistent with diphenylmethane*&**&***</td></tr>
</table>
*Provisional identification only by Gas Chromatography/Mass Spectrometry (GC/MS) due to the absence of reference material
** Analysis by Infrared Spectroscopy
*** Analysis by Raman Spectroscopy

Explanatory note:
Tryptophan is a documented precursor to tryptamine.
Tryptophan (Item 1) although not scheduled, can be converted to tryptamine (a scheduled substance). The conversion is achieved via thermal decarboxylation involving refluxing with a high boiling point solvent such as diphenylmethane (Item 3). Resulting in a crude tryptamine product that can be recrystallised using methanol (Item 2).
</td></tr>
</table>

<table>
<tr><th>UTIC</th><th>Webcode</th><th>How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).</th></tr>
<tr><td>p2025412</td><td>W061</td><td>
<table>
<tr><th>Item No.</th><th>Description</th><th>Mass (grams)</th><th>Result of analysis</th></tr>
<tr><td>Item 1</td><td>One item containing white powder</td><td>0.51</td><td>Tryptophan*&**
(Refer to explanatory note A)</td></tr>
<tr><td>Item 2</td><td>One item containing liquid</td><td>11.15</td><td>No scheduled drugs detected*
Liquid consistent with methanol**
(Refer to explanatory note A)</td></tr>
<tr><td>Item 3</td><td>One item containing liquid</td><td>0.45</td><td>No scheduled drugs detected*
Liquid consistent with diphenylmethane*&**
(Refer to explanatory note A)</td></tr>
</table>
*Provisional identification only by Gas Chromatography/Mass Spectrometry (GC/MS) due to the absence of reference material
** Analysis by Infrared Spectroscopy

Explanatory note:
A. Tryptophan is considered to be a precursor of tryptamine. Tryptophan can be converted to tryptamine via thermal decarboxylation by refluxing in a high boiling point solvent such as diphenylmethane. The crude tryptamine product can be recrystallised using methanol.
</td></tr>
</table>

<table>
<tr><th>UTIC</th><th>Webcode</th><th>How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).</th></tr>
<tr><td>p2025413</td><td>W061</td><td>This Laboratory Report is NOT intended for Court purposes.
If this result is to be presented at Court, contact the Case Manager to request a Certificate or Statement.

RE: Analysis for drugs

EXHIBITS EXAMINED:

<table>
<tr><th>Item Number</th><th>Exhibit Description</th><th>Net Quantity (grams)</th></tr>
<tr><td colspan="3">A cardboard box containing items 1 - 3</td></tr>
<tr><td>1</td><td>A paper envelope containing a glass vial containing white powder</td><td>0.5</td></tr>
<tr><td>2</td><td>A plastic bottle containing paper towel and a glass vial containing colourless liquid</td><td>11.3</td></tr>
<tr><td>3</td><td>A plastic bottle containing paper towel and a glass vial containing colourless viscous liquid</td><td>0.4</td></tr>
</table>

RESULTS OF EXAMINATION:

No drugs or prescribed precursor chemicals were detected in items 1 – 3.

Analysis indicated that item 1 contained tryptophan.

Analysis indicated that item 2 contained methanol.

Analysis indicated that item 3 contained diphenylmethane.</td></tr>
<tr><td>p2025414</td><td>W039</td><td>1) one glass vial containing white powdery substance
Test Result: tryptophan

2) one glass vial containing clear colorless liquid
Test Result: methanol

3) one glass vial containing clear colorless liquid
Test Result: diphenylmethane</td></tr>
<tr><td>p2025416</td><td>W193</td><td>Item 1, on analysis , I found liquid containing Tryptamine
Item 2, on analysis, I found liquid containing Methanol
Item3, on analysis, I found liquid containing Diphenylmethane and Benzophenone
All chemical and reagent found can be use in synthesis of tryptamine via thermolytic decarboxylation route</td></tr>
</table>

UTIC	Webcode	How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).
p2025417	W163	Item 1 was found to contain 521 milligrams of a white powder that was found to contain tryptophan. Item 2 was found to contain approximately 15 millilitres of a colourless liquid that was identified as methanol. Item 3 was found to contain a small quantity of a colourless liquid that solidified when cooled and was identified as diphenylmethane. None of the substances identified in Items 1, 2 and 3 are controlled under the [redacted] (as amended). **Further work** I have been asked to comment on the potential use of the chemicals identified in this case in the production of controlled substances. Tryptophan can be reacted with diphenylmethane in order to produce tryptamine. Tryptamine is not controlled under the [redacted] (as amended). Methanol is a common solvent that can be used in many chemical and cleaning processes.
p2025418	W163	Tryptophan is an amino acid that can be readily converted to tryptamine. There are several methods for this conversion, but one method involves heating a suspension of tryptophan in diphenylmethane. The combination of both tryptophan and diphenylmethane recovered from the laboratory indicates that it could be used in the production of tryptamine.
p2025419	W132	1. An envelope labelled "....FTS-25-CLAN, Item 1..." which held a glass container which held an off-white powder. Indications of tryptophan. Tryptophan is not a controlled drug. 2. A plastic container labelled "...FTS-25-CLAN, Item 2..." which held a glass container which held a clear liquid. Methanol. Methanol is not a controlled drug. 3. A plastic container labelled "...FTS-25-CLAN, Item 3..." which held a glass container which held a clear crystalline substance. Indications of diphenylmethane. Diphenylmethane is not a controlled drug.
p2025420	W261	Item1: tested positive for L- Tryptophan and schedule 5 Item 2: tested negative Item 3: tested positive for Diphenylmethane and not listed
p2025421	W261	N- Acetyl-L- Tryptophan methyl ester Methyl ester of L-Trytophan ia listed in schedule 5 of the [redacted]
p2025422	W261	3.1 Positive for L-Trytophane 3,2 Negative 3.3 Posetive for Diphenylmethane

UTIC	Webcode	How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).
p2025423	W261	3.1 Positive for L-Tryptophane 3.2 Negative 3.3 Positive for Diphenylmethane
p2025424	W153	- Tryptophan is primarily used as a dietary supplement aimed at improving sleep and mood, due to its role as a precursor of serotonin and melatonin. It is also incorporated into nutritional formulas and protein-enriched beverages to complement their essential amino acid content. It also finds applications in scientific research, particularly in the development of drugs related to neurological disorders and sleep. While tryptophan is not classified as a controlled substance under country XXX law, it may serve as a chemical precursor in the illicit synthesis of dimethyltryptamine (DMT). DMT is a substituted tryptamine structurally derived from tryptamine, which itself can be obtained via the decarboxylation of tryptophan. - Methanol is a widely used solvent in organic synthesis. As such, it can also be involved in drug synthesis. - Diphenylmethane and its derivatives are antihistamines or anticholinergics.Based on our knowledge, it is not commonly used in the synthesis of illicit drugs and is not considered a relevant precursor or reagent.
p2025425	W244	ITEM#1: The fragmentation patterns of the unknown is consistent with Tryptomine. The whitish powder-like substance is identified as Tryptomine, to be confirmed with certified reference material/standards ITEM#2: The retention times and fragmentation patterns of the unknown is consistent with that of Methanol. The transparent liquid is identified as Methanol. ITEM#3: The transparent liquid was identified as Diphenylmethane by using NIST library matching
p2025426	W002	1 - The white powder in Item 1 was found to contain tryptophan. The net weight of Item 1 was 0.50 grams. 2 - The liquid in Item 2 was found to be consistent with methanol. No controlled substance was found in Item 2. The net weight of Item 2 was 11.46 grams. 3 - The liquid in Item 3 was found to contain diphenylmethane. The net weight of Item 3 was 0.42 grams.
p2025427	W158	Tryptophan was detected in Lab Item 1 (net weight - 0.50 gram). Methanol was detected in Lab Item 2. Diphenylmethane was detected in Lab Item 3.

UTIC	Webcode	How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).
p2025429	W005	Item 1: TRYPTOPHAN Item 2: NO CONTROLLED SUBSTANCES IDENTIFIED Item 3: DIPHENYLMETHANE There is a simple process to convert tryptophan to tryptamine in the presence of diphenylmethane. Tryptophan (Item 1) and diphenylmethane (Item 3) were identified. There is no evidence of a reaction or synthesis having taken place from the submitted evidence.
p2025431	W015	Item 1: One (1) glass vial containing white powder - tryptamine (indicated), tryptophan (indicated) One (1) glass vial containing colorless liquid - methanol (indicated) One (1) glass vial containing colorless liquid - diphenylmethane Tryptamine is an intermediate step in the chemical synthesis of Dimethyltryptamine (aka DMT). Tryptophan is a precursor in the chemical synthesis of Dimethyltryptamine (aka DMT). Methanol is a solvent used in a wide variety of chemical processes. Diphenylmethane is an organic compound used in the production of Dimethyltryptamine (aka DMT). Items 1,2, and 3 indicate that an attempt to manufacture Dimethyltryptamine (aka DMT) occurred.
p2025432	W103	Item 1 was tentatively identified as tryptophan. Item 2 was identified as methanol. Item 3 was tentatively identified as diphenylmethane.

UTIC	Webcode	How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).
p2025433	W010	Item #1 consists of a white powder. Preliminary analysis of the powder, net weight of 501 ± 4 milligrams, indicates TRYPTAMINE. Not confirmed. The [redacted] does not currently have a standard for tryptamine. (Samples of the substance were examined using: Color Test(s), GCMS, FTIR) Item #2 consists of a clear colorless liquid. The liquid is consistent with METHANOL. Not confirmed. No controlled substances were detected. (Samples of the substance were examined using: GCMS, FTIR) Item #3 consists of a clear colorless liquid that crystallized to an off-white substance. Preliminary analysis of the substance indicates DIPHENYLMETHANE. Not confirmed. The [redacted] does not currently have a standard for diphenylmethane. (Samples of the substance were examined using: GCMS, GCIR, FTIR) Diphenylmethane may be used to manufacture tryptamine. Tryptamine (a precursor) and methanol may be used in the manufacture of dimethyltryptamine and other tryptamine analogs.
p2025434	W025	The powder in item 1 contained l-tryptophan. The liquid in item 2 contained methanol. The liquid in item 3 contained diphenylmethane. DISCUSSION: Tryptamines are similar in structure to the neurotransmitter serotonin which has effects on mood, perception, and cognition. Tryptamine derivatives include several psychoactive substances. The drug tryptamine can be used to create several of these derivatives. One of the primary ways to synthesize tryptamine is the decarboxylation of tryptophan, an essential amino acid. CONCLUSION: L-tryptophan (item 1) can be reacted with diphenylmethane (item 3) to produce tryptamine, however due to the lack of additional intermediates, reagents or finished product, no further conclusion can be made.
p2025435	W051	Item 1: The exhibit was found to be one (1) vial containing white powdery substance. The powdery substance was analysed and found to contain tryptophan. Item 2: The exhibit was found to be one (1) vial containing a liquid. The liquid was analysed and found to contain methanol. Item 3: The exhibit was found to be one (1) vial containing a liquid. The liquid was analysed and found to contain diphenylmethane.

UTIC	Webcode	How would you state your findings in a report? (Use the same wording as you would to submit a report to the lead investigator and/or court).
p2025436	W162	Tryptophan and methanol have been identified while diphenyl methane has been indicated in the three examined materials respectively.Tryptophan is an amino acid. However, it has applications in chemical synthesis, for instance in the synthesis of tryptamine and its derivatives such as DMT (dimethyl tryptamine), which is a narcotic substance. Methanol is a common solvent with a wide range of applications that include chemical synthesis. Diphenyl methane is a chemical substance that can be used in chemical synthesis. According to a recipe found in the grey literature diphenyl methane can be used in the synthesis of tryptamine from tryptophan.
p2025437	W004	For Item 2: METHODS: The Item 2 liquid was examined visually and using miscibility tests, pH indicator strips, phase separation filter paper, Fourier Transform Infrared Spectrophotometry (FTIR), and Gas Chromatography-Mass Spectrometry (GC-MS). The Item 2 liquid was extracted using an ambient headpace technique. The Item 2 extract was examined using GC-MS. RESULTS AND INTERPRETATIONS: The Item 2 liquid contained methanol. Date(s) of testing: 06/23/2025 - 06/26/2025. FOR CONTROLLED SUBSTANCES EXAMINATIONS For Item 1: One vial which contained off-white powder For Item 2: One taped vial which contained clear liquid For Item 3: One taped vial which contained clear liquid RESULTS: Item 1 0.498 +/- 0.007 gram of powder, found to contain Tryptophan. [Methods: WM, CT, TLC, DART-TOF, and IR] Item 2 Preliminary testing was conducted with no further analysis. [Methods: WM, DART-TOF and GC-FID-MS] Item 3 Liquid, found to contain Diphenylmethane. [Methods: WM, DART-TOF, and GC-FID-MS] Measurement certainty of weight measurements is reported at 95.4% level of confidence. Methods used: Weight Measurement (WM), Color tests (CT), Thin Layer Chromatography (TLC), Direct Analysis in Real Time Time-of-Flight-Mass Spectrometry (DART-TOF), Gas Chromatogaphy-Flame Ionization-Mass Spectrometry (GC-FID-MS), and Infrared Spectrometry (IR). Dates of testing: 06/09/2025- 07/14/2025

9) How long did it take to complete this test (in hours)? Please report actual analytical hours only.

10) Did you find this test to be a fair test of the process of the examination and interpretation of chemicals that may be encountered in a clandestine drug laboratory?

A) ◯ Yes

B) ◯ No

UTIC	Webcode	How long did it take to complete this test (in hours)? Please report actual analytical hours only.	Did you find this test to be a fair test of the process of the examination and interpretation of chemicals that may be encountered in a clandestine drug laboratory?
p2025401	W182	3	Yes
p2025402	W158	3	No
p2025403	W061	1.5	Yes
p2025404	W061	3	Yes
p2025405	W061	15 hours.	Yes
p2025406	W061	3	Yes
p2025407	W061	8	Yes
p2025408	W061	16	Yes
p2025409	W061	8hrs	Yes
p2025410	W061	25 minutes	Yes
p2025411	W061	9	Yes
p2025412	W061	10	Yes
p2025413	W061	approximately 2 hours	No
p2025414	W039	20	Yes
p2025416	W193	3 hours	Yes
p2025417	W163	5 hours	Yes
p2025418	W163	4 hours	Yes
p2025419	W132	35 hours	Yes
p2025420	W261	7 hrs	Yes
p2025421	W261	8 hrs	Yes
p2025422	W261	12 hrs	Yes
p2025423	W261	11 hrs	Yes
p2025424	W153	12	Yes
p2025425	W244	5 Hours	Yes
p2025426	W002	24	Yes
p2025427	W158	16	No
p2025429	W005	10	No
p2025431	W015	6 hours	Yes

UTIC	Webcode	How long did it take to complete this test (in hours)? Please report actual analytical hours only.	Did you find this test to be a fair test of the process of the examination and interpretation of chemicals that may be encountered in a clandestine drug laboratory?
p2025432	W103	7	Yes
p2025433	W010	4	Yes
p2025434	W025	30	Yes
p2025435	W051	15	Yes
p2025436	W162	6 hours	Yes
p2025437	W004	5 (Item 2) 8 hours (Items 1 and 3)	No

11) How would you change the aspects of the test (i.e. scenario, test samples, question sections, report format) to improve a future version of this test? Comments and suggestions are welcome.

Additionally, this question is a means to provide you with an opportunity to explain or include information about your findings or interpretation, as needed. In order to maintain confidentiality, please refrain from including identifying information specific to your laboratory.

UTIC	Webcode	How would you change the aspects of the test (i.e. scenario, test samples, question sections, report format) to improve a future version of this test? Comments and suggestions are welcome.	FTS Response
p2025401	W182	Additional precursors would make for a better test.	Thank you for the suggestion.
p2025402	W158	Additional case snerio informaton would make the proficency a more realistic test of the process.	Thank you for your comment. FTS does not include case scenarios and does not assess evidence interpretation and significance.
p2025403	W061	Including a scene attendance senario which may include reaction equipement, notes or other chemicals and reagents no submitted for analysis.	Please see FTS Comment for p2025402.

UTIC	Webcode	How would you change the aspects of the test (i.e. scenario, test samples, question sections, report format) to improve a future version of this test? Comments and suggestions are welcome.	FTS Response
p2025404	W061	The only feedback I would like to provide is to reconsider the packaging of the liquids. While Item 2 did not appear to leak at all, item 2 had leaked somewhat and the label on the glass vial was almost completely faded as a result.	Thank you for the suggestion. We will look into this for future PTs.
p2025405	W061	Our laboratory has not encountered a clanlab using tryptophan as a precursor (presumably for tryptamine manufacture by decarboxylation), however we are aware of clandestine literature that discusses the procedure. Regarding this scenario, it would be useful to have some context for the items rather than just "recovered from clandestine laboratory". Examples of alternative text that doesn't give the game away could be Item 1: Sample of questioned powder from reasealable mylar bag with manufacturer label torn off. Item 2: Sample of questioned liquid from unlabelled 20L metal drum. Item 3: Sample of questioned liquid from unlabelled glass round bottom flask.	Thank you for the suggestion. We will consider adding additional information to the case scenario in future PTs.
p2025407	W061	Please note our jurisdiction has not encountered a tryptamine manufacture clandestine laboratory. As a result, this report/interpretation that would be provided to our clients could be subject to amendments. Tryptophan was confirmed through TMS derivatisation before analysis on GC/MS.	Thank you for clarifying your result.

UTIC	Webcode	How would you change the aspects of the test (i.e. scenario, test samples, question sections, report format) to improve a future version of this test? Comments and suggestions are welcome.	FTS Response
p2025410	W061	I think this test is fit for purpose.	
p2025412	W061	Tryptamine was also detected in item 1 however this was considered to be the breakdown product of tryptophan through decarboxylation in GC/MS. Or it could have been in sample 1 prior. Due to the absence of reference standard, the source of tryptamine whether it's from tryptophan or the GC/MS itself could not be determined. Likewise in item 3, Benzene, 1-methyl-4-(phenylmethyl)- and benzophenone also detected with diphenylmethane however they are considered as solvent impurities/ breakdown in GC/MS.	Thank you for clarifying your results.
p2025413	W061	Provision of test samples that are similar to case work exhibits (e.g. precursor chemicals).	Thank you for the suggestion.

UTIC	Webcode	How would you change the aspects of the test (i.e. scenario, test samples, question sections, report format) to improve a future version of this test? Comments and suggestions are welcome.	FTS Response
p2025414	W039	My apologies for submitting this test a second time. The first submission included no interpretation of results. Research into the possible combined use of the chemicals and substances in this case yielded the following general mechanism. Diphenylmethane is used to decarboxylate tryptophan to tryptamine. Tryptamine is then modified via methylation to produce dimethyltryptamine. Of course, this is just one possible use of these items. Merely possessing these items alone is not a crime. In this case, it is not until it becomes apparent that the reactions required to synthesize an illicit substance have taken place that a crime has been committed.	Thank you for clarifying your results.
p2025417	W163	I would suggest that for this Clandestine Laboratory Test, that rather than simply being asked to identify the submitted substances, a scenario for their recovery is suggested and that the laboratories being tested are explicitly asked to interpret the significance of the recovery of these substances from the same suspected Clandestine Laboratory scene.	Please see FTS Response for p2025405. FTS does not assess evidence significance or interpretation.

UTIC	Webcode	How would you change the aspects of the test (i.e. scenario, test samples, question sections, report format) to improve a future version of this test? Comments and suggestions are welcome.	FTS Response
p2025419	W132	I would include more details of how and where the samples were obtained. It was mentioned that these were seized from a clandestine laboratory but no context of whether it was a small, at home laboratory, or a large manufacturing type laboratory. This would give some more guidance of the type of materials expected or more of a direction for how to start analysis. Results for item 1 were obtained after extensive initial GC-MS analysis which was inconclusive. After much discussion and literature research from various members of staff, the material was determined to be thermolabile and therefore required a derivitisation step in order to stabilise the material to complete an identification with GC-MS. Along with IR and NMR techniques, the material was determined to contain indications of tryptophan.	Please see FTS Response for p2025405. Thank you for clarifying your results.
p2025420	W261	I would not change the aspects of the test. It is relevant to our scope of work	
p2025421	W261	I would not change anything this was perfect, however I am intrested in hand would one obtain on GC-,MS reslts of methanol the spectrum	

UTIC	Webcode	How would you change the aspects of the test (i.e. scenario, test samples, question sections, report format) to improve a future version of this test? Comments and suggestions are welcome.	FTS Response
p2025426	W002	The primary labs encountered here are methamphetamine manufacture via lithium-ammonia reduction, with an occassional iodine red phosporus, and DMT extraction. While I do believe being able to identify chemicals from other types are manufactures is essential, it becomes a little more difficult in a proficiency setting (short time frame) when specific standards or chemicals are not kept on hand or certain analytical methods aren't developed because it's not something that has submitted before.	Thank you for your comment.
p2025429	W005	Samples are made from standards which is not indicitive of a true clandestine laboratory sample.	FTS tries to offer a variety of samples year to year. Complications arise when shipping certain pre-cursors and mixtures.
p2025431	W015	It would be beneficial and more dynamic to include additional narrative, photo, video, and/or description of equipment/paraphernalia in these tests to more closely resemble a scene visit. Notes of tests performed in the field (by a qualified individual) could prove useful in forming an expert opinion about the possibility of a manufacturing process.	Please see FTS Response for p2025405.
p2025432	W103	I found that item 3 was a solid at room temperature, but melted into a liquid at a few degrees celcius above room temperature.	
p2025433	W010	Improve the scenario by adding more details about the scene and please provide more sample.	Please see FTS Response for p2025405.

UTIC	Webcode	How would you change the aspects of the test (i.e. scenario, test samples, question sections, report format) to improve a future version of this test? Comments and suggestions are welcome.	FTS Response
p2025434	W025	The open in PDF to print checks all of the boxes for question 3, therefore, not a useful feature.	Thank you for mentioning this. The bug on our website has been fixed.
p2025436	W162	If it is possible we would like to see a change in the timing of the proficiency test. Currently the deadline is in the middle of the summer which makes scheduling a problem since it often overlaps with vacation. Apart from that we are happy with the test as it is. We would like to especially underline the benefit of having access to the different labs' answers to question number 8.	Thank you for the suggestion.

UTIC	Webcode	How would you change the aspects of the test (i.e. scenario, test samples, question sections, report format) to improve a future version of this test? Comments and suggestions are welcome.	FTS Response
p2025437	W004	The test itself is fine. However, clandestine Labs can be very complicated. A detailed narrative is needed to try and figure out what is present and its relevance to a possible clandestine synthesis. A list of chemicals, recipes, pictures are helpful for the chemist to evaluate what they are looking at and what it might do. In this case, Item 1 being tryptophan was followed by an internet search as to what tryptophan can be used to clandestine synthesize. The presence of diphenylmethane in Item 3 is consistent with a possible clandestine synthesis decarboxylating tryptophan to tryptamine. For Item 2, details regarding the offense to include pictures of any chemicals would be necessary prior to examination.	Please see FTS Response for p2025405.