CHD01 Hemp Oil Proficiency Testing Program

Blue Sample - Cannabinoids, Terpenes and Water Activity

Round # 3

Shipment Date 09-22-25

Final Report Issue Date: 12-05-25

Round ID: CHD01-092225

Sample Report

AOAC INTERNATIONAL
2275 Research Blvd, Ste 300
Rockville, MD 20850

ACCREDITED
CERT # 1782.01
Proficiency Testing Provider

CONTENTS

This report has been authorized by
Shane Flynn, Senior Director
Proficiency Testing

Shane P Flynn

Sample Report

1.0 Introduction

Test materials for the Hemp Oil Proficiency Testing round were shipped to participants on September 22, 2025. Each laboratory was given a site identification number in order to maintain confidentiality. Instructions for Analysis and instructions on how to report results within the AOAC Proficiency Testing website were provided to the participants. Participants were instructed to analyze the test materials according to procedures routinely used in their laboratories. Results were to be submitted to AOAC by October 21, 2025.

2.0 Test Design

Sample 1 - Blue contains three subsamples, which cover "naturally occurring" oil components.

- Sample 1A – Cannabinoids contains spiked cannabinoids in medium chain triglyceride (MCT) oil. Homogeneity testing for Sample 1A (Hemp) was performed for seven cannabinoids.
- Sample 1B – Terpenes contains spiked terpene compounds in hemp seed oil (HSO). Homogeneity testing for Sample 1B was performed for the six spiked terpenes.
- Sample 1C – Water Activity is an unspiked sample of MCT oil that will be evaluated for natural amounts of water activity. Homogeneity testing for Sample 1C was performed for water activity.

For more detailed information on homogeneity see Appendix C

3.0 Homogeneity

At least three samples of each type were tested, per method, either by Signature Science or a third-party ISO 17025 accredited laboratory. Homogeneity samples were randomly selected for testing from the lot of prepared PT samples. 1A, 1B, and 1C sample types were extracted and analyzed for cannabinoids, terpenes, and water activity, respectively.

Homogeneity for the cannabinoids, terpenes and water activity samples, were extracted and analyzed at a third-party ISO 17025 accredited laboratory before PT sample distribution.

Samples were prepared and shipped by the following Laboratory:

signature science LLC
8329 North Mopac Expressway Austin,
TX 78759

Sample Report

4.0 Preparation of Test Materials

The matrix selected for the hemp oil round was organic MCT oil for cannabinoids and water activity, and organic HSO oil for terpenes. The MCT oil matrix was found to be free of naturally occurring cannabinoids, terpenes, or other uncommon matrix interferences. Analysis of the HSO showed that the HSO did not contain terpenes or other analytes that would conflict with the detection of spiked compounds. Two separate aliquots from each sample type were analyzed by each analytical method to assess homogeneity across and within samples.

5.0 Evaluations and Laboratory Performance

When an assigned value is available and a z-score or z'-score can be calculated the following labels have been applied to the Evaluation.

- In this report a z-score of $|z| \leq 2.00$ is labeled as **ACCEPTABLE**
- In this report a z-score of $2.00 < |z| < 3.00$ is labeled as **WARNING**
- In this report a z-score of $|z| \geq 3.00$ is labeled as **UNACCEPTABLE**

If an assigned value is unavailable and z-scores or z'-scores cannot be calculated for an analyte, participants are still evaluated on an acceptable range.

Evaluations against this acceptable range can include:

- Any result that is reported by a participant laboratory as detected, but <LOQ, is considered **ACCEPTABLE** , as long as the LOQ is within the acceptable range. If the LOQ value exceeds the acceptable range, this would be **UNACCEPTABLE**.
- Any result that is reported by a participant laboratory as detected, and a value is provided, is **ACCEPTABLE** if the reported value is within the acceptable range. If the reported value exceeds the exceeds the acceptable range, this would be **UNACCEPTABLE** .
- Any result that is reported by a participant laboratory considered as a “Non-Detect” is considered **UNACCEPTABLE,** if that analyte was detected and reported for by the reference labs**.**

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5.1 Calculation and Interpretation of z-scores:

For each individual result, when appropriate, a z-score was calculated as follows:

$$Zi = \frac{Xi - Xpt}{\delta pt}$$

where:

Zi = the z score (standard score)

Xi = the reported value of analyte

Xpt = the assigned value, the best estimate of the true concentration

δpt = the estimate of variation (standard deviation)

The robust procedure from *ISO 13528:2022(E), Statistical methods for use in proficiency testing by interlaboratory comparisons* is used in processing the result data. Robust statistics relies on medians rather than means and uses more information from the central than from the outlying observations.

The assigned value used was based on the median of up to five data points by reference laboratories. The standard deviation used was 20% of the assigned value. This standard deviation value will decrease over time as participating laboratories improve performance. Any blunders were removed prior to assigned value calculations. Measurement uncertainty (standard uncertainty of the assigned value) has also been provided.

MU = (1.25 * (sd/sqrt(n))) where n=sample size

The following interpretation of z-scores for each individual test result is provided in of ISO/ IEC 17043:2023(E) Conformity Assessment - General requirements for proficiency testing schemes common examples of application of z-scores:

— A result that gives $|z| \leq 2.0$ is considered to be acceptable.
— A result that gives $2.0 < |z| < 3.0$ is considered to give a warning signal.
— A result that gives $|z| \geq 3.0$ is considered to be unacceptable (or action signal).

Calculations for z scores based on the data presented in the results sheet might be slightly different from the z-scores assigned by AOAC. The z-scores assigned by AOAC are based on calculations that may use more significant figures than is possible to display on the results sheet.

Sample Report

6.0 General Discussion of Results

Confidentiality of results will be maintained by issuing site identification codes to the participating laboratories. Results in the reports will only be identified by the site identification code. Z-scores have been provided for the following groups of analytes in Sample 1-Blue: Cannabinoids, Terpenes, and Water Activity. In addition, some tests had fewer participants submitting results because some laboratories do not routinely perform all analyses.

Appendix A is included in this report to show participating laboratories' reported results, methods used, assigned values, standard deviations, medians, acceptable ranges, z-scores, measurement uncertainties, and more. If a component was included in the analysis by the laboratory but it was reported as zero, < LOQ, or < LOD it is represented as “Reported as < (LOQ or LOD)". Laboratories should not report a value of '0'. Each laboratory should use the information in Appendix A to determine areas of improvement.

7.0 Comments and Recommendations

Cannabinoids

Overall, the participating laboratories performed well. Two laboratories received UNACCEPTABLE evaluations for CBCA, as they reported quantifiable values even though CBCA was not spiked into the sample. One laboratory received UNACCEPTABLE evaluations for THCA and total CBG, as their reported results were above the acceptable ranges.

Terpenes

Overall, the participating laboratories performed well. One laboratory received UNACCEPTABLE evaluations for 3-carene and alpha-humuleneas they reported quantifiable values for terpenes that were not spiked into the sample. Another laboratory received an UNACCEPTABLE evaluation for eucalyptol, as the “<” value they reported was below the acceptable range.

One laboratory received UNACCEPTABLE evaluations for Beta-caryophyllene, fenchyl alcohol, and limonene, as their reported results were above the acceptable ranges for those terpenes. Another laboratory received an UNACCEPTABLE evaluation for Beta-pinene, as they reported a quantifiable value for a terpene that was not spiked into the sample.

Another participant received UNACCEPTABLE evaluations for 3-carene and Beta-pinene, again due to reporting quantifiable values for terpenes that were not spiked into the sample. This same participant also received UNACCEPTABLE evaluations for Alpha-bisabolol, Beta-caryophyllene, Beta-myrcene, eucalyptol, and limonene, as they reported values below the acceptable ranges.

Another laboratory received UNACCEPTABLE evaluations for 3-carene, alpha-terpinene, borneol, fenchone, and γ-terpinene, as they reported quantifiable values for terpenes that were not spiked into the sample. This laboratory also reported a value for fenchyl alcohol that was above the acceptable range.

Water Activity

All participating laboratories performed well.

Please be sure to select the correct radio button indicator to signify whether a value is equal to, < LOD, or < LOQ, as this affects the way data is processed.

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8.0 Distribution of Results Plots

The distribution of results plots provides information on the distribution of results for each compound. The plots illustrate the results of all the participant laboratories versus the reference laboratories versus the targeted value. Some of the plots include the statement "reference labs are indicated by squares", and there are no squares on the plot. If the reference laboratories did not test for a specific analyte, their representative squares are not indicated on the plots, even though they are mentioned in the legends. At the advice of an expert in statistical graphics and design of data visualization, changes have been made to improve the plots. Data from the Subscribing Laboratories is displayed as individual data points with no connecting line. The target value is displayed with a dashed horizontal reference line. Reference labs are indicated by squares. If a laboratory marked a compound as “not tested,” it was not included on the graph. The key to the graph identifies each line. Only data that fell within a z- score value of + 5 have been included in the graphs. As AOAC® continues to improve its reporting format, changes may occur.

If a participant would like to appeal against the assessment of their performance in this proficiency testing scheme please contact staff at Cannabis_PT@AOAC.org

Sample Report

Appendix A

Hemp_Oils Proficiency Testing Program

-- Blue Sample --

Site=190104 Lab Reporting Details

Site	Program	Metric	Value
190104	CHD01	Lab Name	XXXX XXXXX
		Analyst Name	XXX XXXXX
		Laboratory Address	XXXXXXX XXXX
		Laboratory Address2	
		City	XXXX XXXX
		State	XX
		Postal Code	XXXXX
		Country	XXXXX XXXXX
		License #	
		Test Initiation Date	09/22/2025
		Test Close Date	10/21/2025
		Submission Date	10/24/2025
		Results Processed Date	11/26/2025

Sample Report

AOAC INTERNATIONAL

PT PROFICIENCY TESTING

Report Issued by:
AOAC INTERNATIONAL
2275 Research Blvd. Ste 300
Rockville, MD 20850

Report Authorized by:
Shane Flynn, Senior Director of Proficiency Testing

Appendix A

Hemp_Oils Testing Results and Z-scores

Site=190104 Blue Sample Analyte Group = Cannabinoids (%)

Test	Method	Reported Result	Acceptable Range	Number of Reported Results	Participant Mean	Participant Median	Participant SD	Reference Lab Median Assigned Value	Target SD	Z-Score	Evaluation	Standard Uncertainty of the Assigned Value	Note
% Cannabindiol (CBD)	MF-CHEM 15	0.18000	(0.0796 - 0.3182)	10	0.206	0.199	0.032	0.1989	0.0398	*-0.4751*	*ACCEPTABLE*	0.0157	
% Cannabidiolic acid (CBDA)	MF-CHEM 15	0.20000	(0.0896 - 0.3582)	10	0.237	0.225	0.042	0.2239	0.0448	*-0.5337*	*ACCEPTABLE*	0.0177	
% Cannabinol (CBN)	MF-CHEM 15	< 0.00667	(0.0000 - 0.0073)	10	0.004	0.004	0.002	< 0.0046	0.0009		*ACCEPTABLE*		
% Cannabinolic acid (CBNA)	MF-CHEM 15	Not Tested	(0.0000 - 0.0000)	3	0.001	0.001	0.001	0.0000	0.0000		*NOT TESTED*	0.0000	Not Spiked
% Cannabigerol (CBG)	MF-CHEM 15	< 0.00667	(0.0000 - 0.0073)	10	0.004	0.005	0.003	< 0.0046	0.0009		*ACCEPTABLE*		
% Cannabichromene (CBC)	MF-CHEM 15	< 0.02000	(0.0000 - 0.0135)	9	0.009	0.009	0.005	< 0.0084	0.0017		*ACCEPTABLE*		
% Cannabichromenic acid (CBCA)	MF-CHEM 15	< 0.02000	(0.0000 - 0.0000)	7	0.007	0.007	0.007	0.0000	0.0000		*ACCEPTABLE*	0.0000	Reported as < (LOD or LOQ)
% Cannabidivarinic acid (CBDVA)	MF-CHEM 15	Not Tested	(0.0000 - 0.0000)	5	0.002	0.001	0.002	0.0000	0.0000		*NOT TESTED*	0.0000	Not Spiked
% Cannabigerolic acid (CBGA)	MF-CHEM 15	< 0.00667	(0.0000 - 0.0080)	10	0.005	0.005	0.002	< 0.0050	0.0010		*ACCEPTABLE*		
% Cannabidivarin (CBDV)	MF-CHEM 15	< 0.00667	(0.0000 - 0.0000)	9	0.002	0.001	0.002	0.0000	0.0000		*ACCEPTABLE*	0.0000	Reported as < (LOD or LOQ)
% Δ8-tetrahydrocannabinol (Δ8-THC)	MF-CHEM 15	< 0.00667	(0.0000 - 0.0000)	9	0.002	0.001	0.002	0.0000	0.0000		*ACCEPTABLE*	0.0000	Reported as < (LOD or LOQ)
% Δ9-tetrahydrocannabinol (Δ9-THC)	MF-CHEM 15	0.11200	(0.0492 - 0.1968)	10	0.123	0.122	0.015	0.1230	0.0246	*-0.4472*	*ACCEPTABLE*	0.0097	
% Tetrahydrocannabinolic acid (THCA)	MF-CHEM 15	< 0.02000	(0.0050 - 0.0199)	10	0.018	0.013	0.014	0.0124	0.0025		*ACCEPTABLE*	0.0010	Reported as <LOQ or <LOD
% Tetrahydrocannabivarin (THCV)	MF-CHEM 15	< 0.00667	(0.0000 - 0.0000)	10	0.002	0.001	0.002	0.0000	0.0000		*ACCEPTABLE*	0.0000	Reported as < (LOD or LOQ)
% Tetrahydrocannabivaric acid (THCVA)	MF-CHEM 15	< 0.00667	(0.0000 - 0.0000)	7	0.002	0.001	0.003	0.0000	0.0000		*ACCEPTABLE*	0.0000	Reported as < (LOD or LOQ)
% Total CBD = (CBDA * 0.877) + CBD	MF-CHEM 15	0.35500	(0.1553 - 0.6210)	8	0.394	0.388	0.036	0.3882	0.0776	*-0.4270*	*ACCEPTABLE*	0.0343	

Sample Report

The following interpretation of z-scores for each individual test result is provided in ISO/IEC 17043:2023(E):

A result that gives $|z| \leq 2.0$ is considered to be ACCEPTABLE

A result that gives $2.0 < |z| < 3.0$ is considered to give a Warning signal

A result that gives $|z| \geq 3.0$ is considered to be UNACCEPTABLE (or action signal)

Appendix A

Hemp_Oils Testing Results and Z-scores

Site=190104 Blue Sample Analyte Group = Cannabinoids (%)

Test	Method	Reported Result	Acceptable Range	Number of Reported Results	Participant Mean	Participant Median	Participant SD	Reference Lab Median Assigned Value	Target SD	Z-Score	Evaluation	Standard Uncertainty of the Assigned Value	Note
% Total CBG = (CBGA * 0.878) + CBG	MF-CHEM 15	< 0.00667	(0.0000 - 0.0107)	6	0.101	0.005	0.235	< 0.0067	0.0013		ACCEPTABLE		
% Total THC = (THCA * 0.877) + Δ9-THC	MF-CHEM 15	0.12400	(0.0496 - 0.1984)	9	0.139	0.131	0.023	0.1240	0.0248	0.0000	ACCEPTABLE	0.0103	

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A result that gives $|z| \geq 3.0$ is considered to be UNACCEPTABLE (or action signal)

Appendix A

Hemp_Oils Testing Results and Z-scores

Site=190104 Blue Sample Analyte Group = Terpenes (%)

Test	Method	Reported Result	Acceptable Range	Number of Reported Results	Participant Mean	Participant Median	Participant SD	Reference Lab Median Assigned Value	Target SD	Z-Score	Evaluation	Standard Uncertainty of the Assigned Value	Note
% 3-carene	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	9	0.009	0.002	0.013	0.0000	0.0000		ACCEPTABLE	0.0000	Reported as < (LOD or LOQ)
% Alpha-bisabolol	MF-CHEM 17	0.57450	(0.2260 - 0.9040)	10	0.527	0.528	0.240	0.5650	0.1130	0.0841	ACCEPTABLE	0.0447	
% Alpha-cedrene	MF-CHEM 17	Not Tested	(0.0000 - 0.0000)	7	0.002	0.002	0.001	0.0000	0.0000		NOT TESTED	0.0000	Not Spiked
% Alpha-humulene	MF-CHEM 17	0.00410	(0.0000 - 0.0111)	10	0.011	0.007	0.014	< 0.0070	0.0014		ACCEPTABLE		
% Alpha-phellandrene	MF-CHEM 17	Not Tested	(0.0000 - 0.0000)	7	0.002	0.002	0.001	0.0000	0.0000		NOT TESTED	0.0000	Not Spiked
% Alpha-pinene	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	10	0.006	0.002	0.013	0.0000	0.0000		ACCEPTABLE	0.0000	Reported as < (LOD or LOQ)
% Alpha-terpinene	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	10	0.006	0.002	0.013	0.0000	0.0000		ACCEPTABLE	0.0000	Reported as < (LOD or LOQ)
% Beta-caryophyllene	MF-CHEM 17	0.47390	(0.2336 - 0.9344)	10	0.599	0.621	0.268	0.5840	0.1168	-0.9426	ACCEPTABLE	0.0462	
% Beta-myrcene	MF-CHEM 17	0.92920	(0.3716 - 1.4864)	10	0.943	0.929	0.338	0.9290	0.1858	0.0011	ACCEPTABLE	0.0734	
% Beta-ocimene	MF-CHEM 17	< 0.00060	(0.0000 - 0.0000)	8	0.010	0.002	0.015	0.0000	0.0000		ACCEPTABLE	0.0000	Reported as < (LOD or LOQ)
% Beta-pinene	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	10	0.008	0.003	0.013	0.0000	0.0000		ACCEPTABLE	0.0000	Reported as < (LOD or LOQ)
% Borneol	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	8	0.029	0.003	0.038	0.0000	0.0000		ACCEPTABLE	0.0000	Reported as < (LOD or LOQ)
% Camphene	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	10	0.006	0.002	0.013	0.0000	0.0000		ACCEPTABLE	0.0000	Reported as < (LOD or LOQ)
% Camphor	MF-CHEM 17	Not Tested	(0.0000 - 0.0000)	7	0.005	0.005	0.004	0.0000	0.0000		NOT TESTED	0.0000	Not Spiked
% Cedrol	MF-CHEM 17	Not Tested	(0.0000 - 0.0000)	7	0.002	0.002	0.001	0.0000	0.0000		NOT TESTED	0.0000	Not Spiked
% Cis-nerolidol	MF-CHEM 17	< 0.00040	(0.0000 - 0.0000)	9	0.005	0.002	0.008	0.0000	0.0000		ACCEPTABLE	0.0000	Reported as < (LOD or LOQ)

Sample Report

The following interpretation of z-scores for each individual test result is provided in ISO/IEC 17043:2023(E):

A result that gives $|z| \leq 2.0$ is considered to be ACCEPTABLE

A result that gives $2.0 < |z| < 3.0$ is considered to give a Warning signal

A result that gives $|z| \geq 3.0$ is considered to be UNACCEPTABLE (or action signal)

Appendix A

Hemp_Oils Testing Results and Z-scores

Site=190104 Blue Sample Analyte Group = Terpenes (%)

Test	Method	Reported Result	Acceptable Range	Number of Reported Results	Participant Mean	Participant Median	Participant SD	Reference Lab Median Assigned Value	Target SD	Z-Score	Evaluation	Standard Uncertainty of the Assigned Value	Note
% Eucalyptol	MF-CHEM 17	1.17350	(0.4380 - 1.7520)	10	0.999	1.134	0.477	1.0950	0.2190	***0.3584***	***ACCEPTABLE***	0.0866	
% Fenchone	MF-CHEM 17	Not Tested	(0.0000 - 0.0000)	7	0.004	0.005	0.002	0.0000	0.0000		***NOT TESTED***	0.0000	Not Spiked
% Fenchyl alcohol	MF-CHEM 17	Not Tested	(0.1878 - 0.7512)	7	0.641	0.678	0.203	0.4695	0.0939		***NOT TESTED***	0.0444	Not Tested
% Gamma-terpinene	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	10	0.006	0.002	0.013	0.0000	0.0000		***ACCEPTABLE***	0.0000	Reported as < (LOD or LOQ)
% Geraniol	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	10	0.050	0.003	0.070	0.0000	0.0000		***ACCEPTABLE***	0.0000	Reported as < (LOD or LOQ)
% Guaiol	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	10	0.003	0.002	0.005	0.0000	0.0000		***ACCEPTABLE***	0.0000	Reported as < (LOD or LOQ)
% Isoborneol	MF-CHEM 17	Not Tested	(0.0000 - 0.0000)	7	0.005	0.005	0.004	0.0000	0.0000		***NOT TESTED***	0.0000	Not Spiked
% (-)-Isopulegol	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	10	0.006	0.002	0.013	0.0000	0.0000		***ACCEPTABLE***	0.0000	Reported as < (LOD or LOQ)
% Limonene	MF-CHEM 17	1.15000	(0.4720 - 1.8880)	10	1.275	1.215	0.442	1.1800	0.2360	***-0.1271***	***ACCEPTABLE***	0.0933	
% Linalool	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	10	0.006	0.002	0.013	0.0000	0.0000		***ACCEPTABLE***	0.0000	Reported as < (LOD or LOQ)
% Menthol	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	7	0.003	0.005	0.002	0.0000	0.0000		***ACCEPTABLE***	0.0000	Reported as < (LOD or LOQ)
% O-cymene	MF-CHEM 17	Not Tested	(0.0000 - 0.0000)	1	0.001	0.001		0.0000	0.0000		***NOT TESTED***	0.0000	Not Spiked
% Pulegone	MF-CHEM 17	Not Tested	(0.0000 - 0.0000)	7	0.002	0.002	0.001	0.0000	0.0000		***NOT TESTED***	0.0000	Not Spiked
% Terpineol	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	9	0.006	0.002	0.014	0.0000	0.0000		***ACCEPTABLE***	0.0000	Reported as < (LOD or LOQ)
% Terpinolene	MF-CHEM 17	< 0.00090	(0.0000 - 0.0000)	10	0.006	0.002	0.013	0.0000	0.0000		***ACCEPTABLE***	0.0000	Reported as < (LOD or LOQ)
% Trans-nerolidol	MF-CHEM 17	< 0.00050	(0.0000 - 0.0000)	9	0.007	0.002	0.010	0.0000	0.0000		***ACCEPTABLE***	0.0000	Reported as < (LOD or LOQ)

Sample Report

The following interpretation of z-scores for each individual test result is provided in ISO/IEC 17043:2023(E):

A result that gives $|z| \leq 2.0$ is considered to be ACCEPTABLE

A result that gives $2.0 < |z| < 3.0$ is considered to give a Warning signal

A result that gives $|z| \geq 3.0$ is considered to be UNACCEPTABLE (or action signal)

Appendix A

Hemp_Oils Testing Results and Z-scores

Site=190104 Blue Sample Analyte Group = Terpenes (%)

Test	Method	Reported Result	Acceptable Range	Number of Reported Results	Participant Mean	Participant Median	Participant SD	Reference Lab Median Assigned Value	Target SD	Z-Score	Evaluation	Standard Uncertainty of the Assigned Value	Note
% Valecene	MF-CHEM 17	Not Tested	(0.0000 - 0.0000)	7	0.002	0.002	0.001	0.0000	0.0000		*NOT TESTED*	0.0000	Not Spiked

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The following interpretation of z-scores for each individual test result is provided in ISO/IEC 17043:2023(E):

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A result that gives $|z| \geq 3.0$ is considered to be UNACCEPTABLE (or action signal)

Appendix A

Hemp_Oils Testing Results and Z-scores

Site=190104 Blue Sample Analyte Group = Water Activity

Test	Method	Reported Result	Acceptable Range	Number of Reported Results	Participant Mean	Participant Median	Participant SD	Reference Lab Median Assigned Value	Target SD	Z-Score	Evaluation	Standard Uncertainty of the Assigned Value	Note
Water Activity (a_w)	MF-CHEM-14	0.47000	(0.1680 - 0.6720)	10	0.414	0.418	0.038	0.4200	0.0840	***0.5952***	***ACCEPTABLE***	0.0332	

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The following interpretation of z-scores for each individual test result is provided in ISO/IEC 17043:2023(E):

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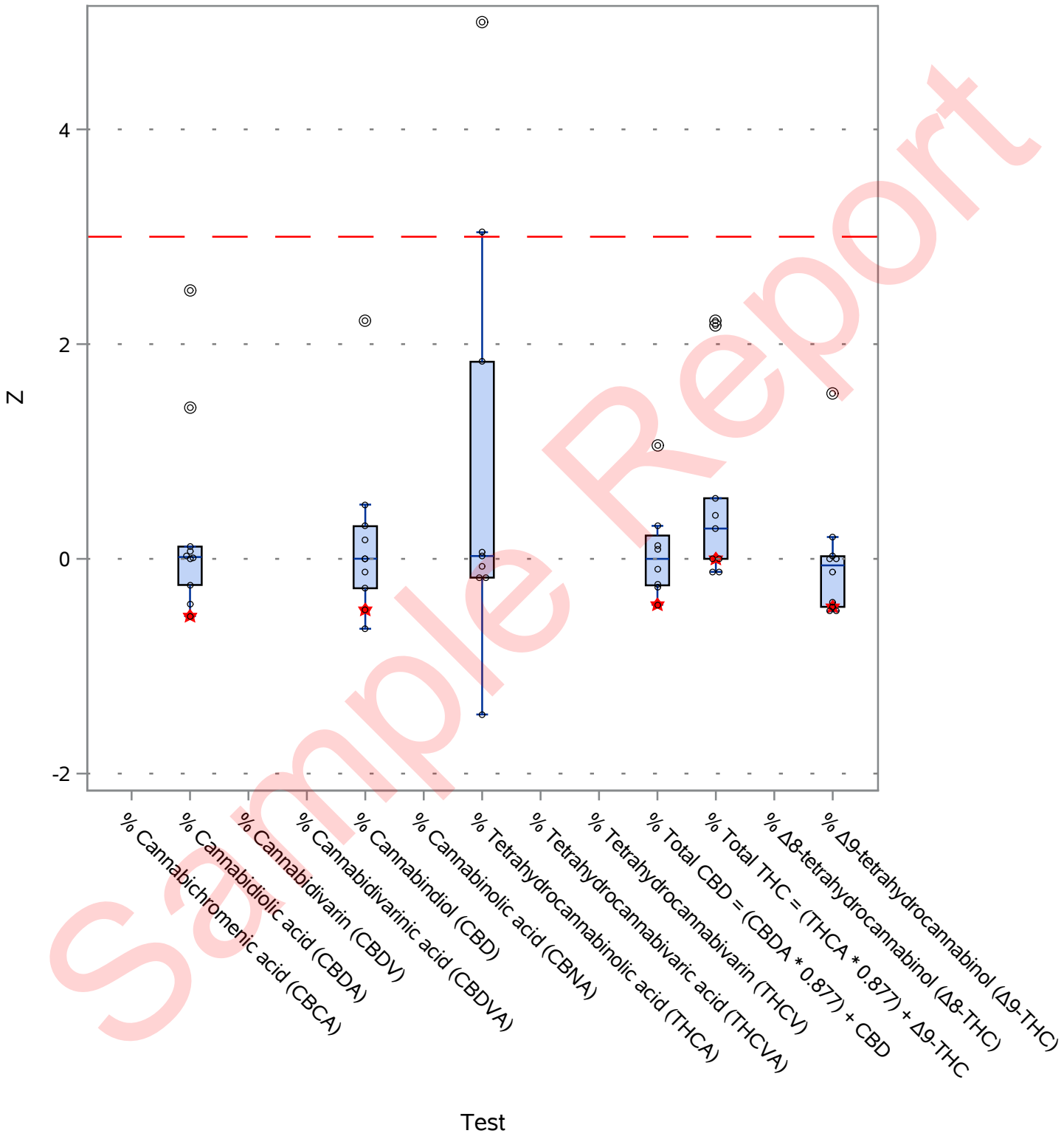
A result that gives $2.0 < |z| < 3.0$ is considered to give a Warning signal

A result that gives $|z| \geq 3.0$ is considered to be UNACCEPTABLE (or action signal)

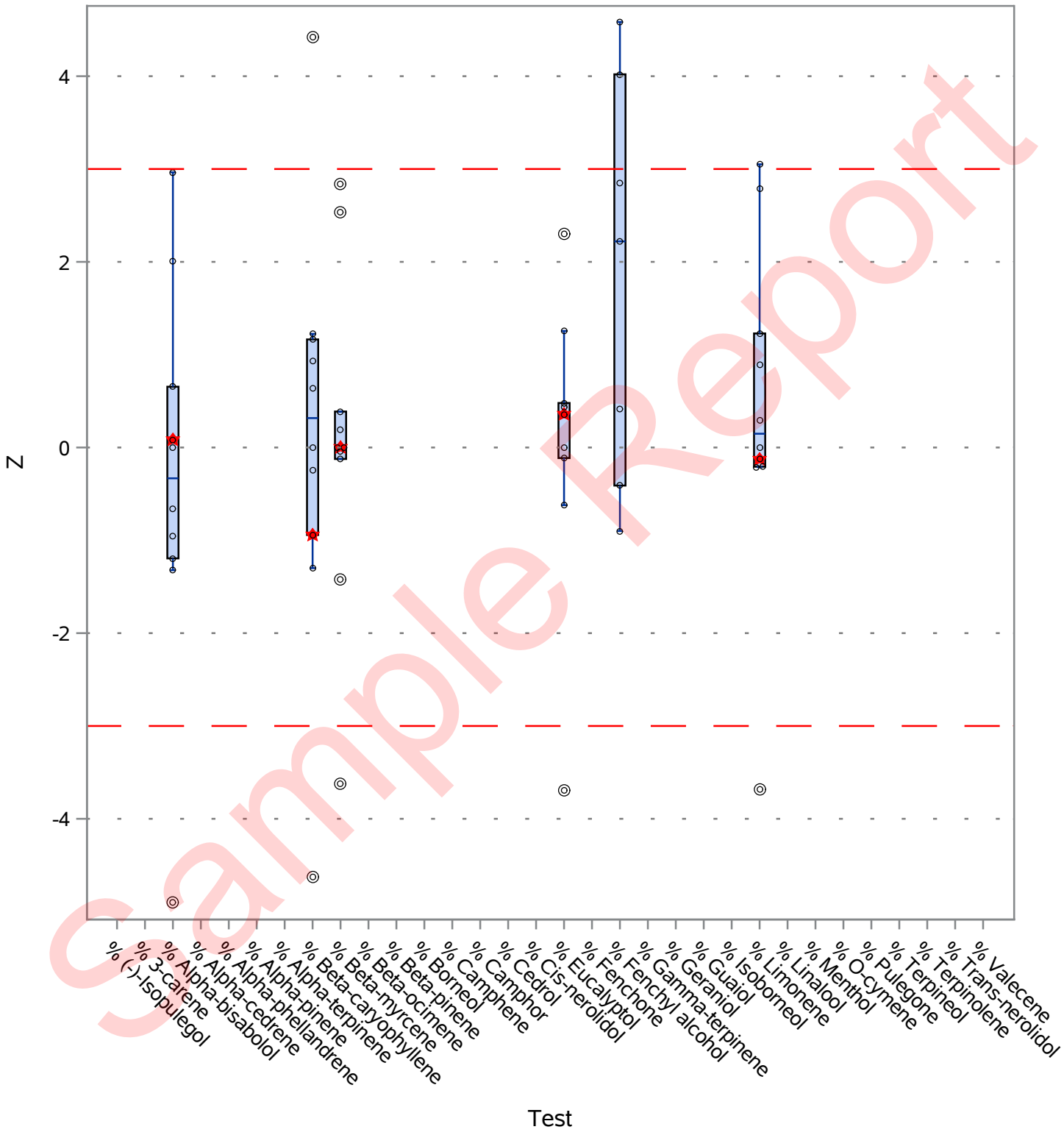
Appendix B
Hemp_Oils Z-Score Distributions
Blue Sample - Cannabinoids (%)
Site = 190104



Sample Report

Note: Your Result(Red Star) Compared to All Results

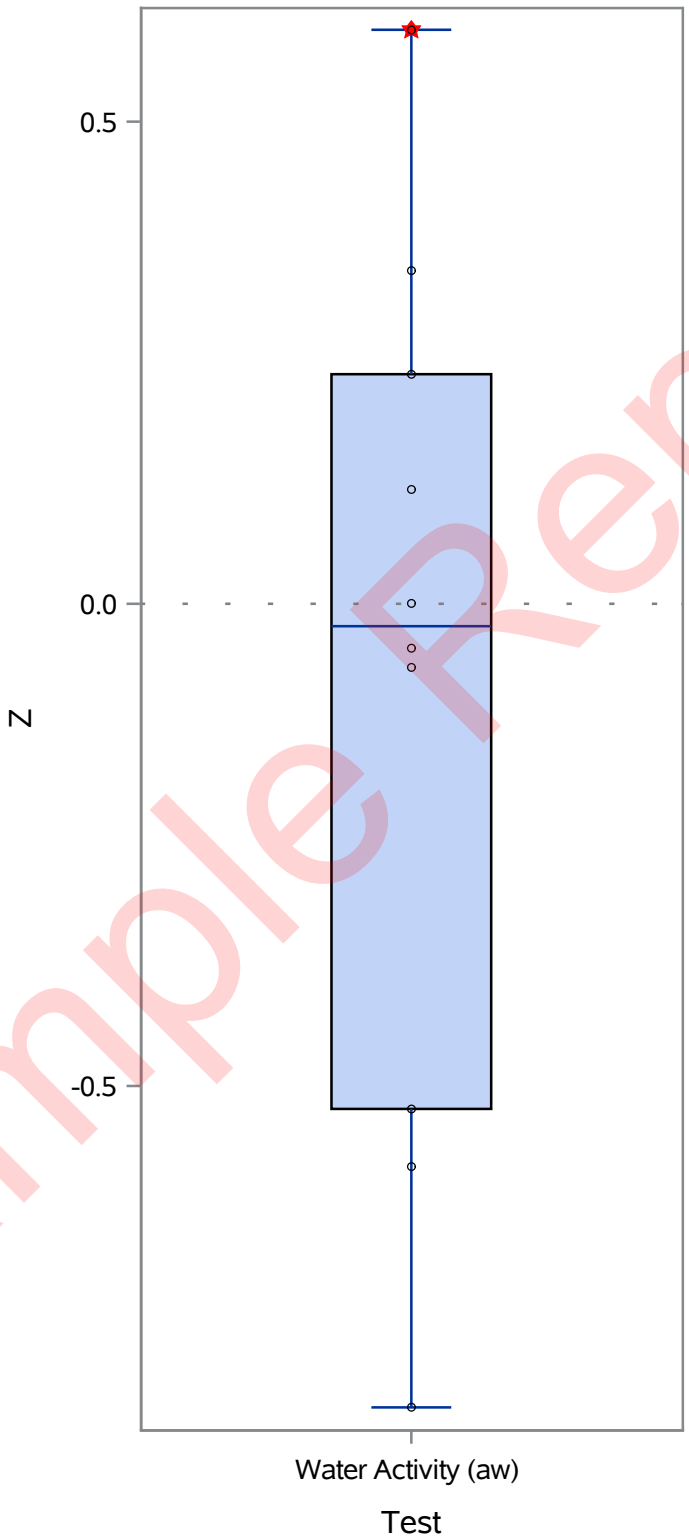
Appendix B
Hemp_Oils Z-Score Distributions
Blue Sample - Terpenes (%)
Site = 190104



Sample Report

Note: Your Result(Red Star) Compared to All Results

Appendix B
Hemp_Oils Z-Score Distributions
Blue Sample - Water Activity
Site = 190104

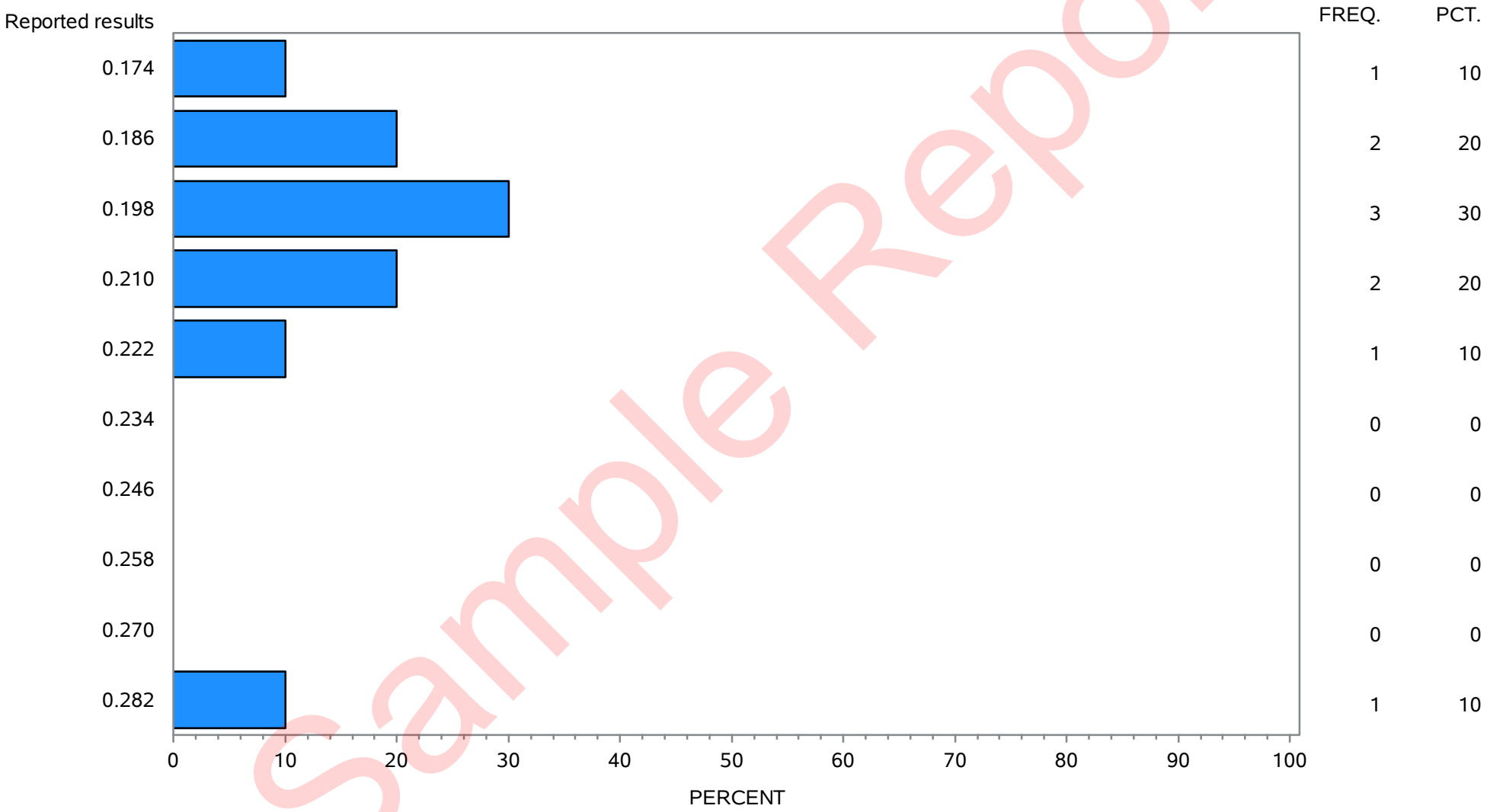


Note: Your Result(Red Star) Compared to All Results

Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

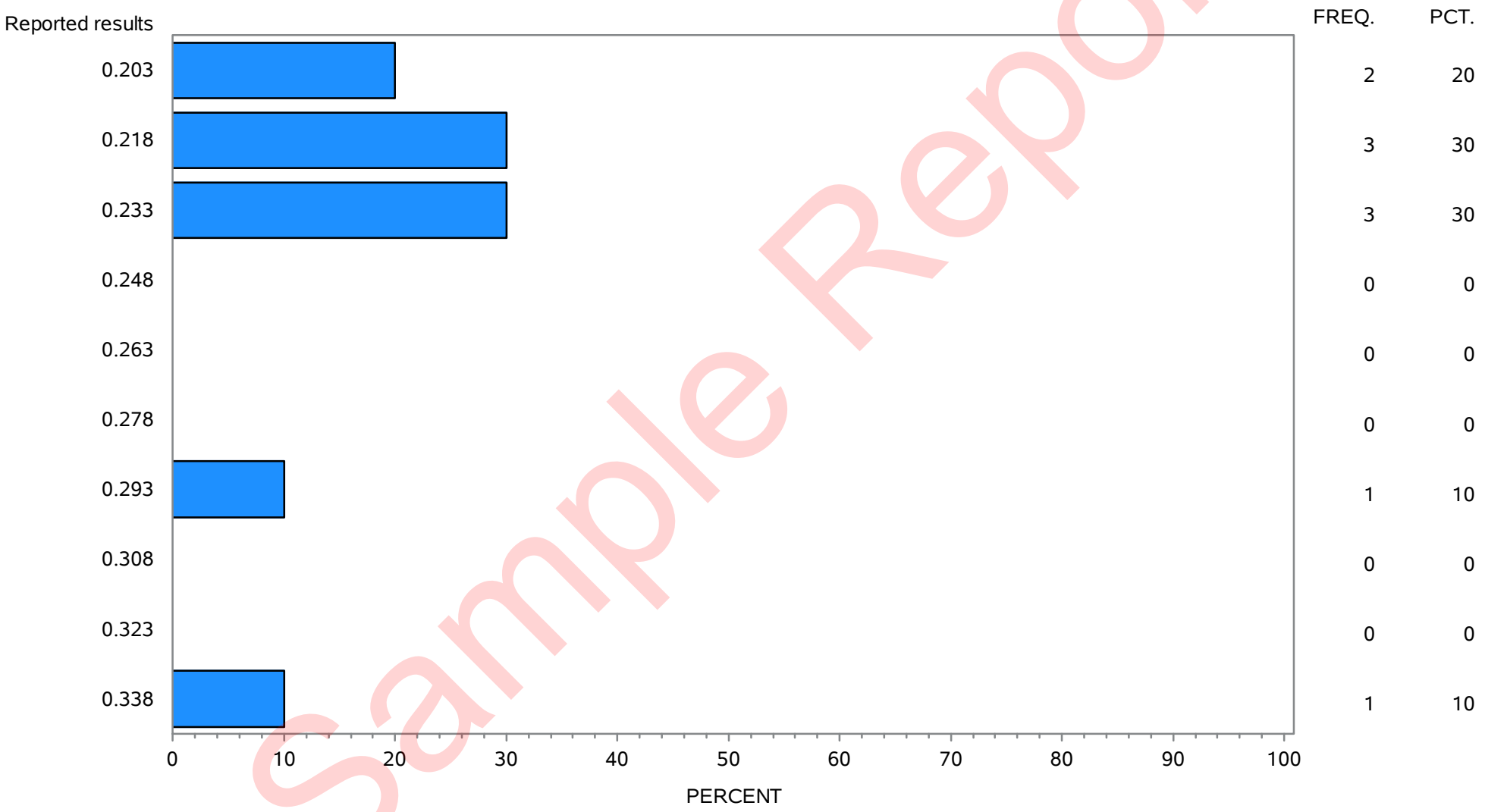
Analyte Group=Cannabinoids (%) Test=% Cannabindiol (CBD)



Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

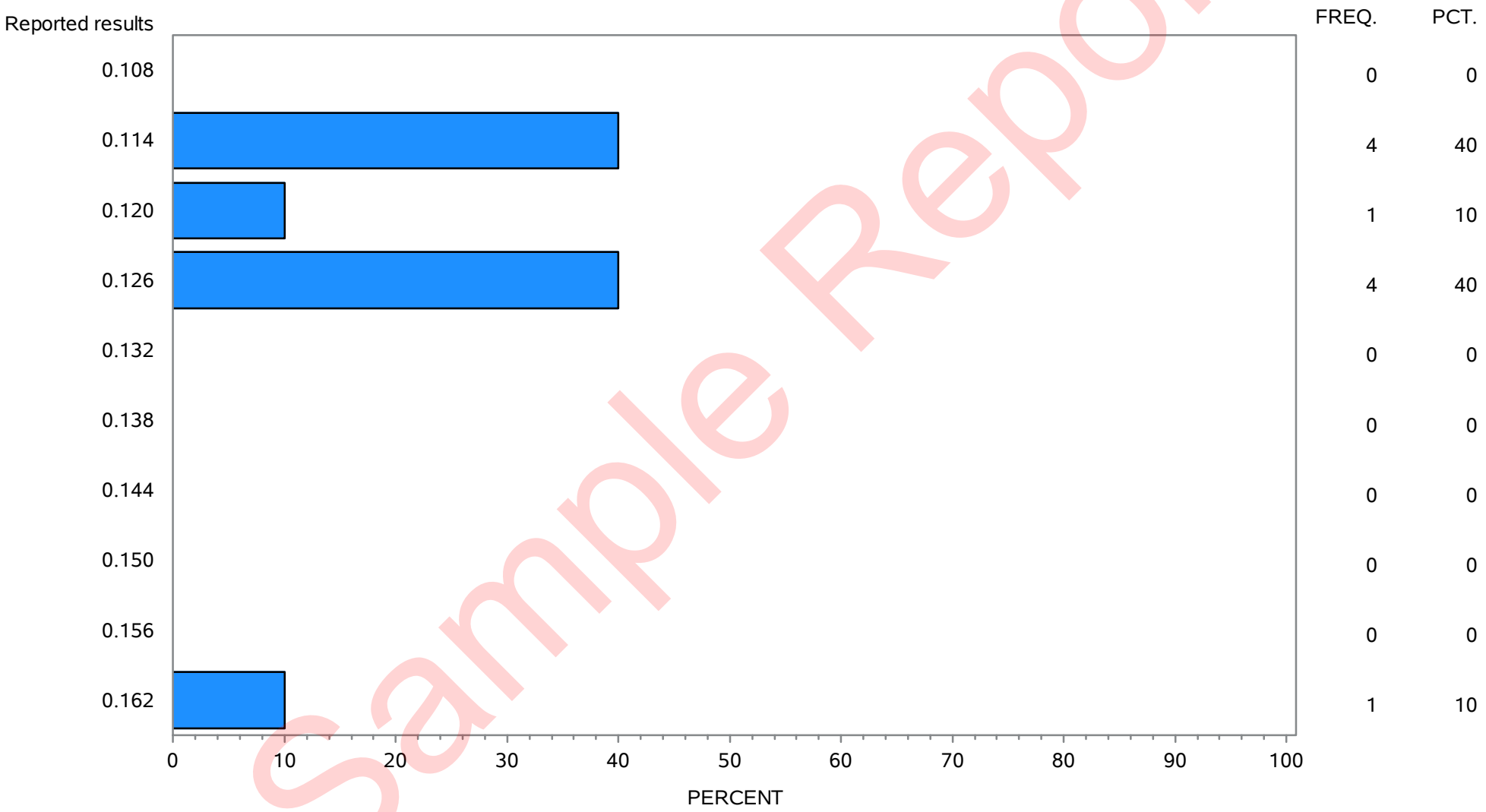
Analyte Group=Cannabinoids (%) Test=% Cannabidiolic acid (CBDA)



Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

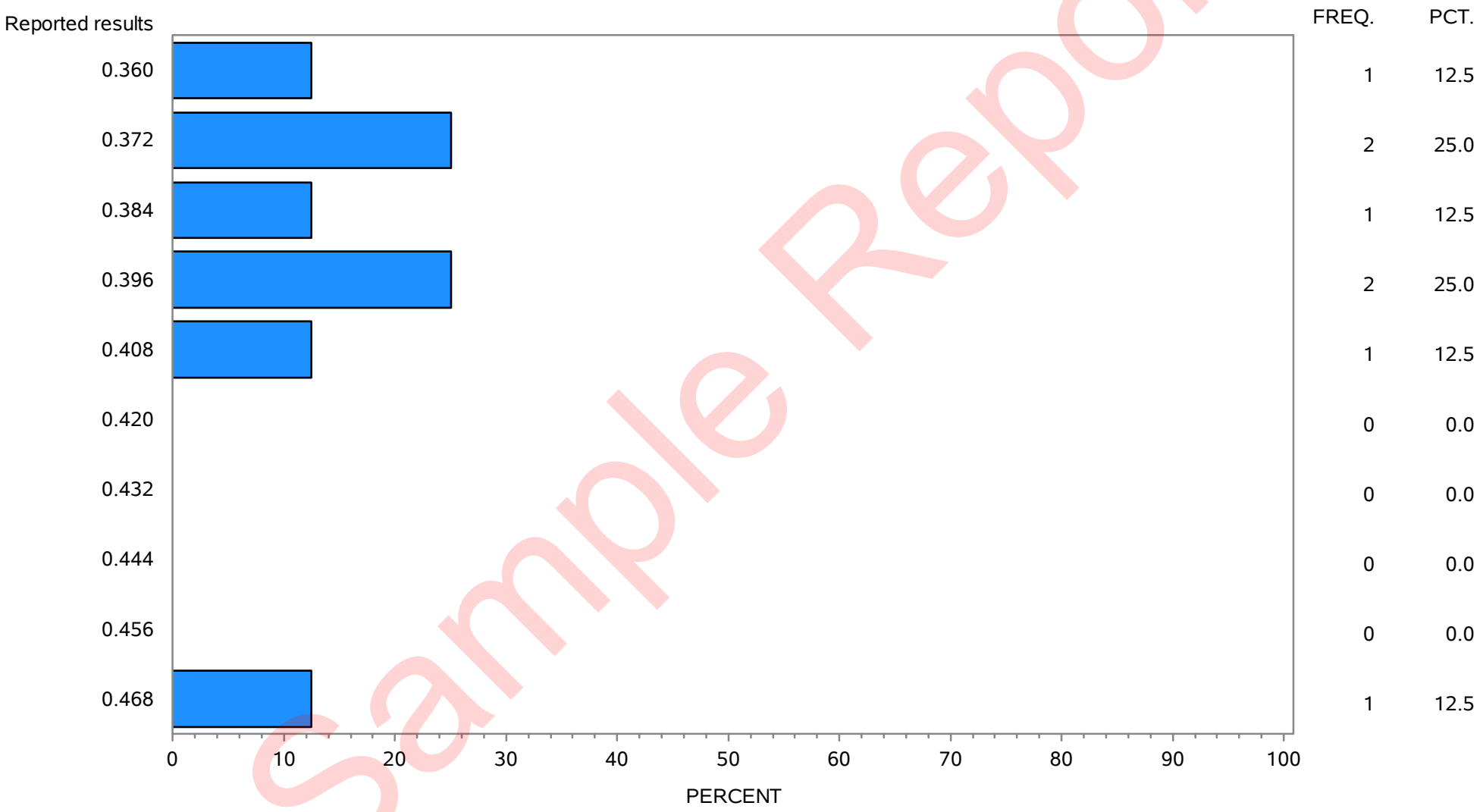
Analyte Group=Cannabinoids (%) Test=% Δ9-tetrahydrocannabinol (Δ9-THC)



Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

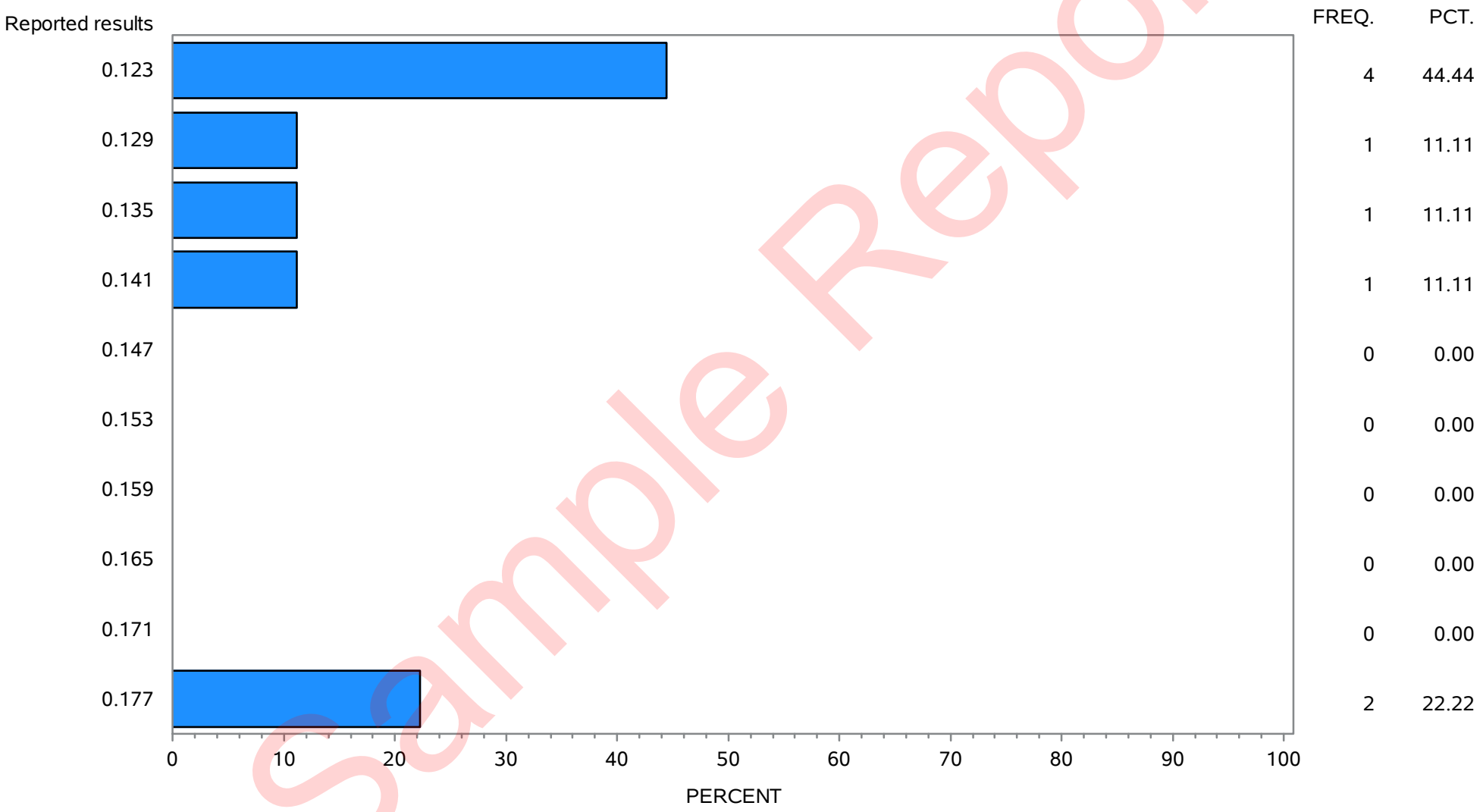
Analyte Group=Cannabinoids (%) Test=% Total CBD = (CBDA * 0.877) + CBD



Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

Analyte Group=Cannabinoids (%) Test=% Total THC = (THCA * 0.877) + Δ9-THC

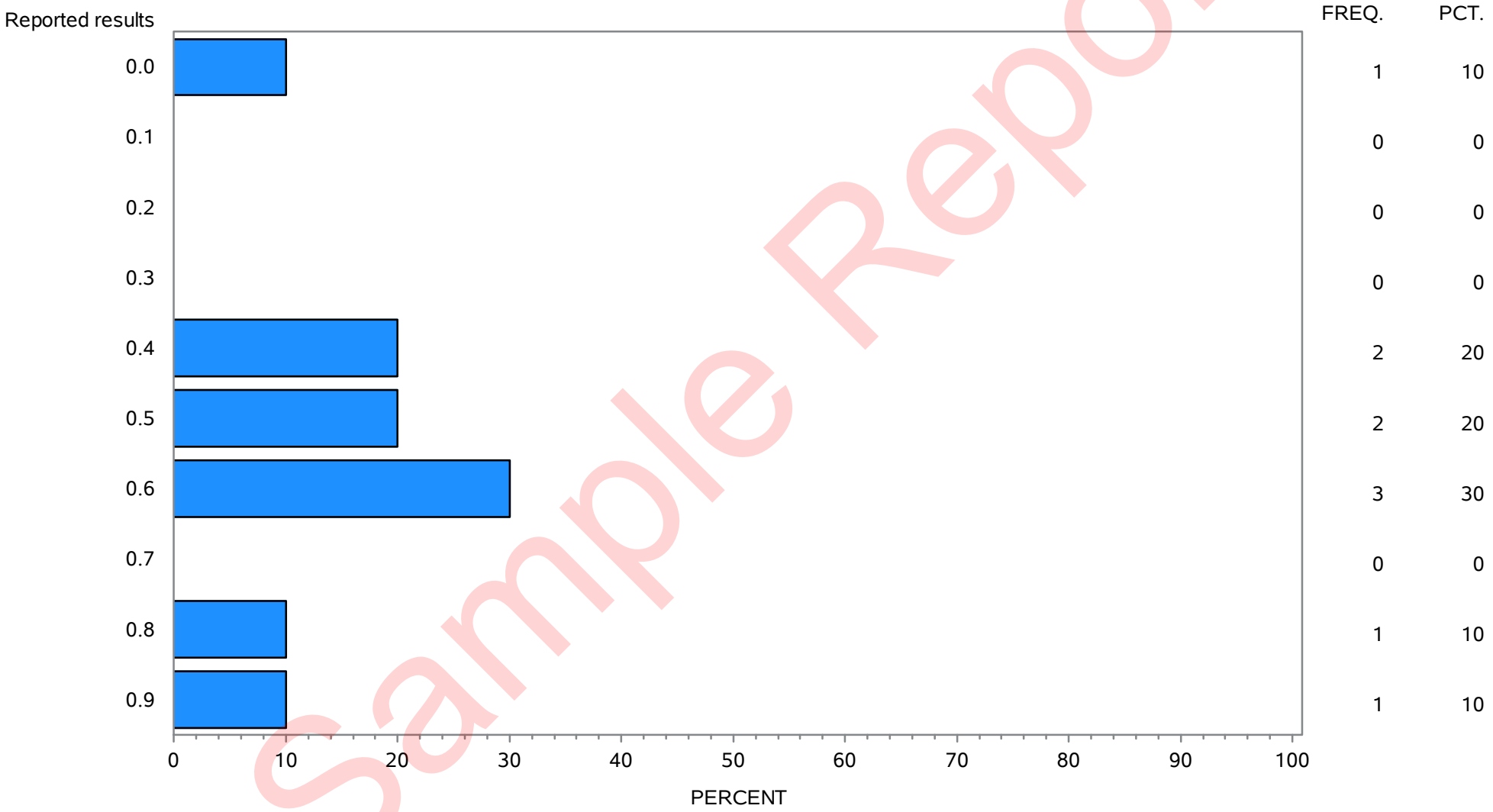


Reported results	FREQ.	PCT.
0.123	4	44.44
0.129	1	11.11
0.135	1	11.11
0.141	1	11.11
0.147	0	0.00
0.153	0	0.00
0.159	0	0.00
0.165	0	0.00
0.171	0	0.00
0.177	2	22.22

Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

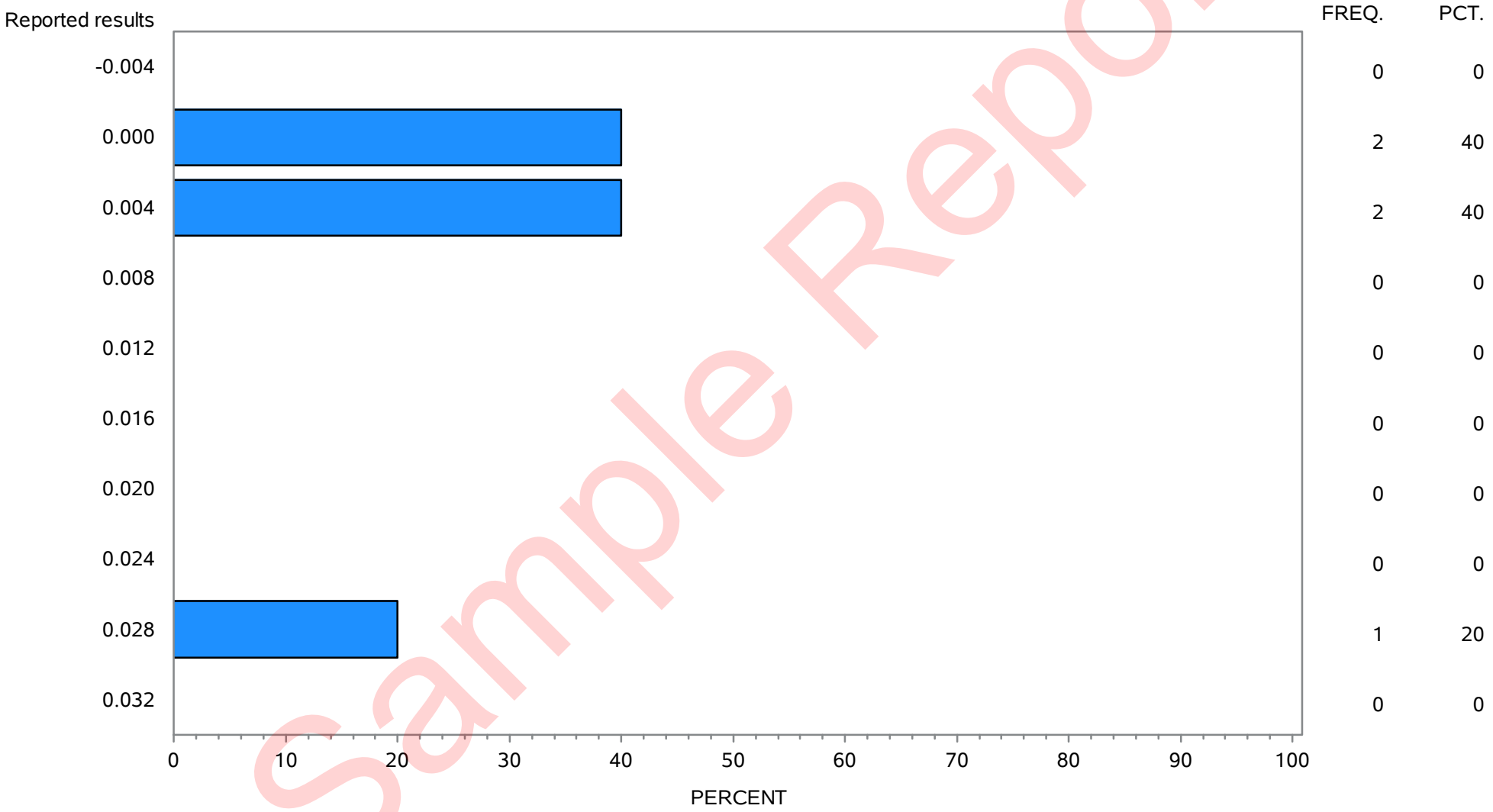
Analyte Group=Terpenes (%) Test=% Alpha-bisabolol



Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

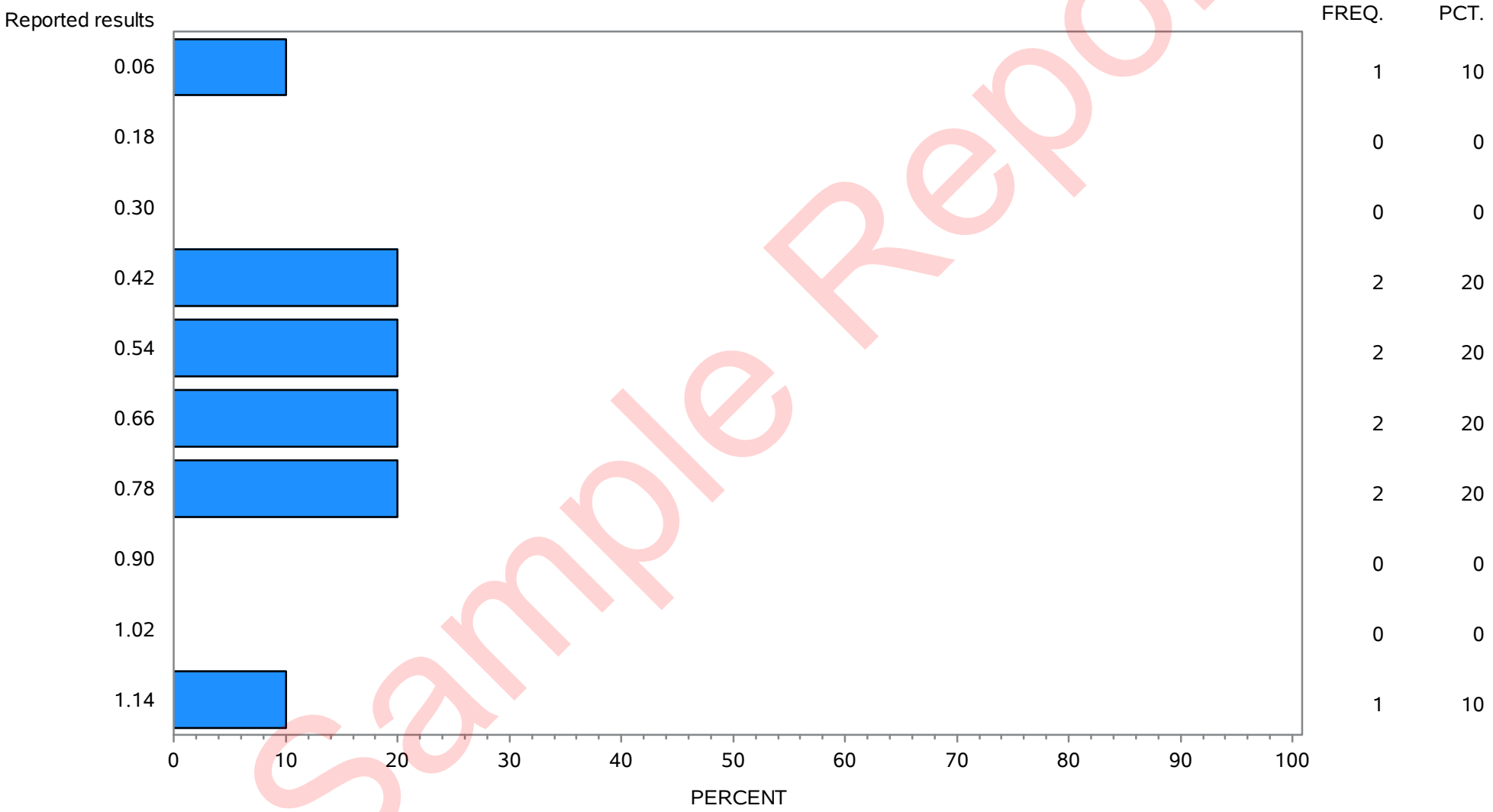
Analyte Group=Terpenes (%) Test=% Alpha-humulene



Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

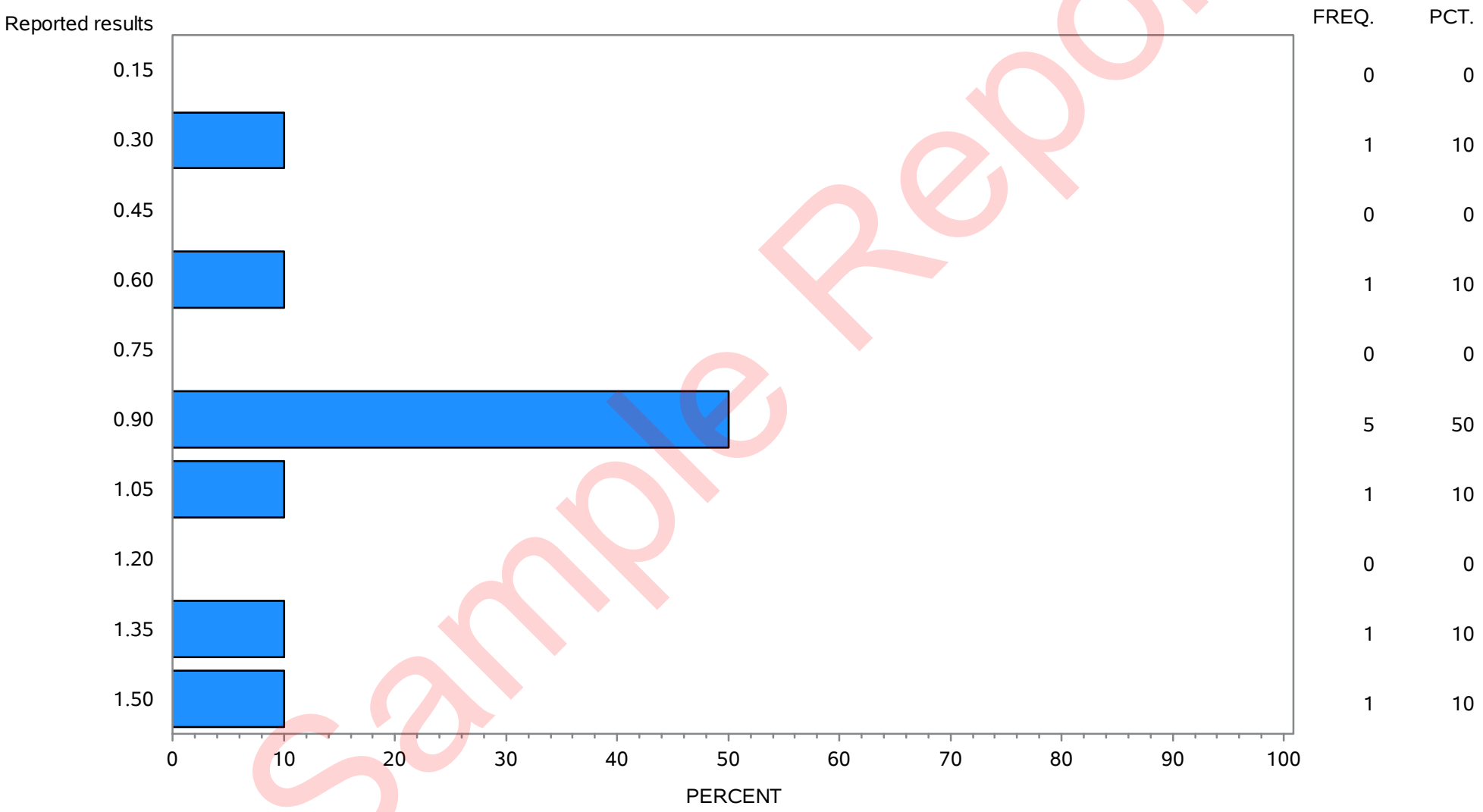
Analyte Group=Terpenes (%) Test=% Beta-caryophyllene



Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

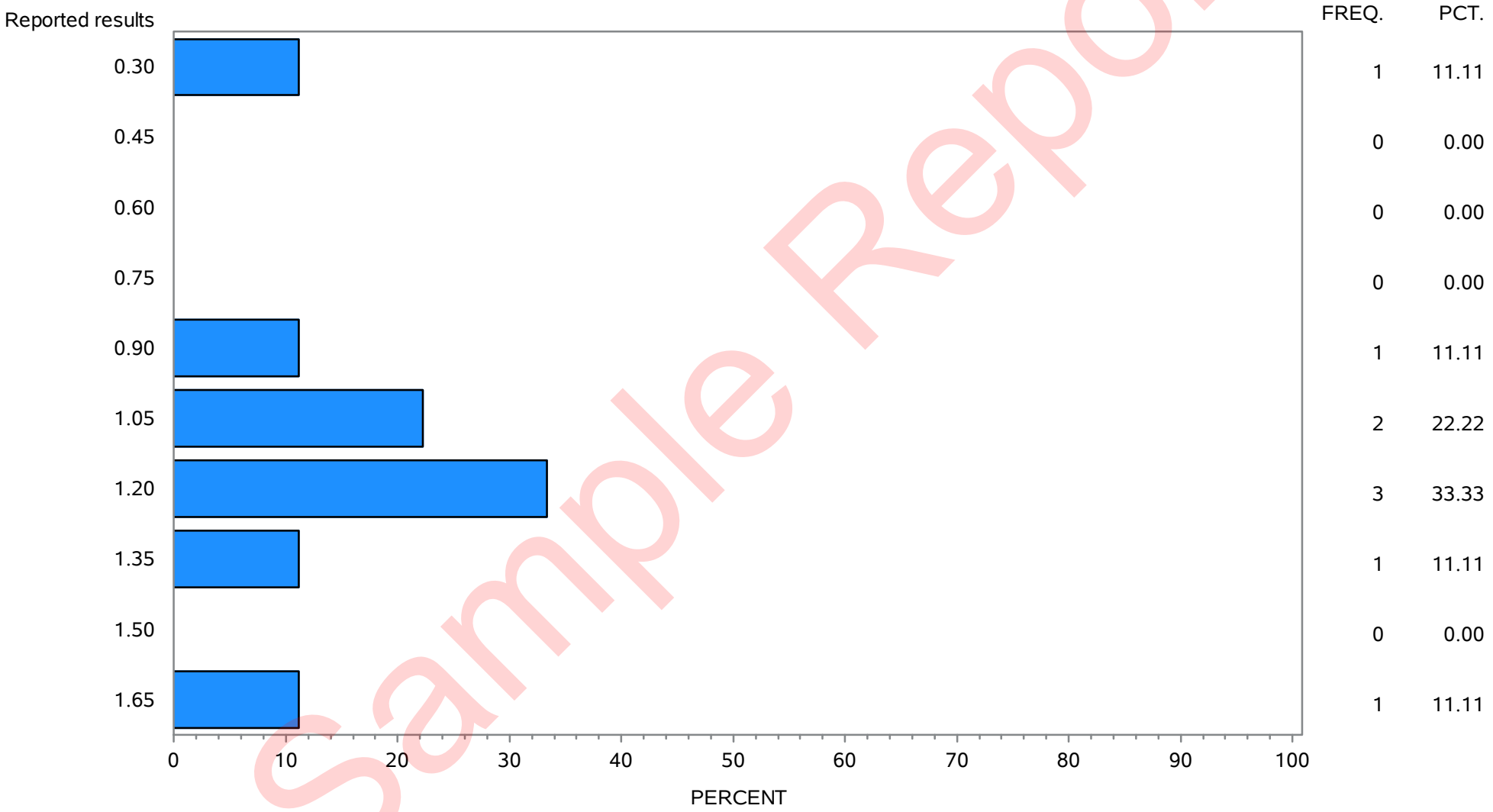
Analyte Group=Terpenes (%) Test=% Beta-myrcene



Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

Analyte Group=Terpenes (%) Test=% Eucalyptol

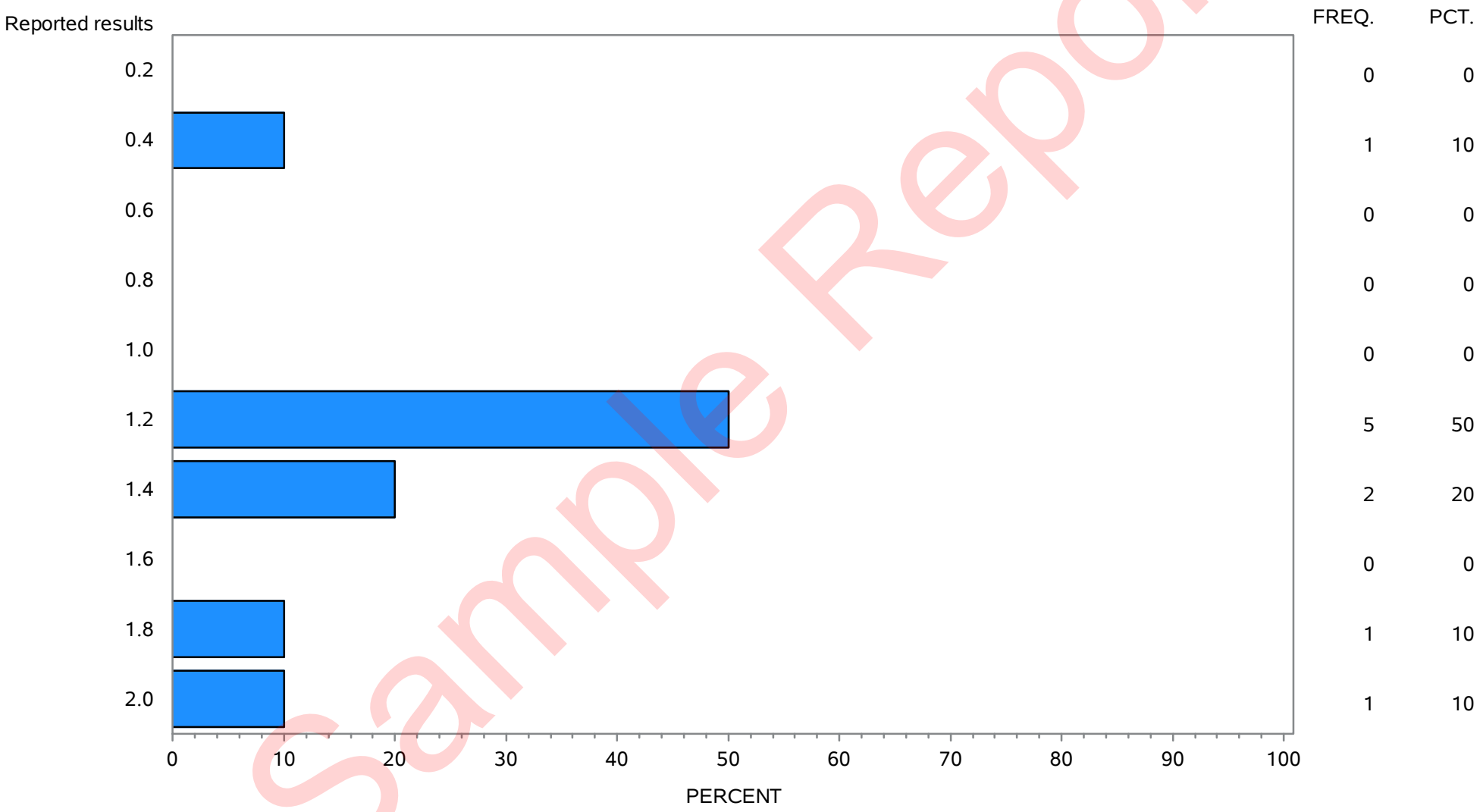


Reported results	FREQ.	PCT.
0.30	1	11.11
0.45	0	0.00
0.60	0	0.00
0.75	0	0.00
0.90	1	11.11
1.05	2	22.22
1.20	3	33.33
1.35	1	11.11
1.50	0	0.00
1.65	1	11.11

Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

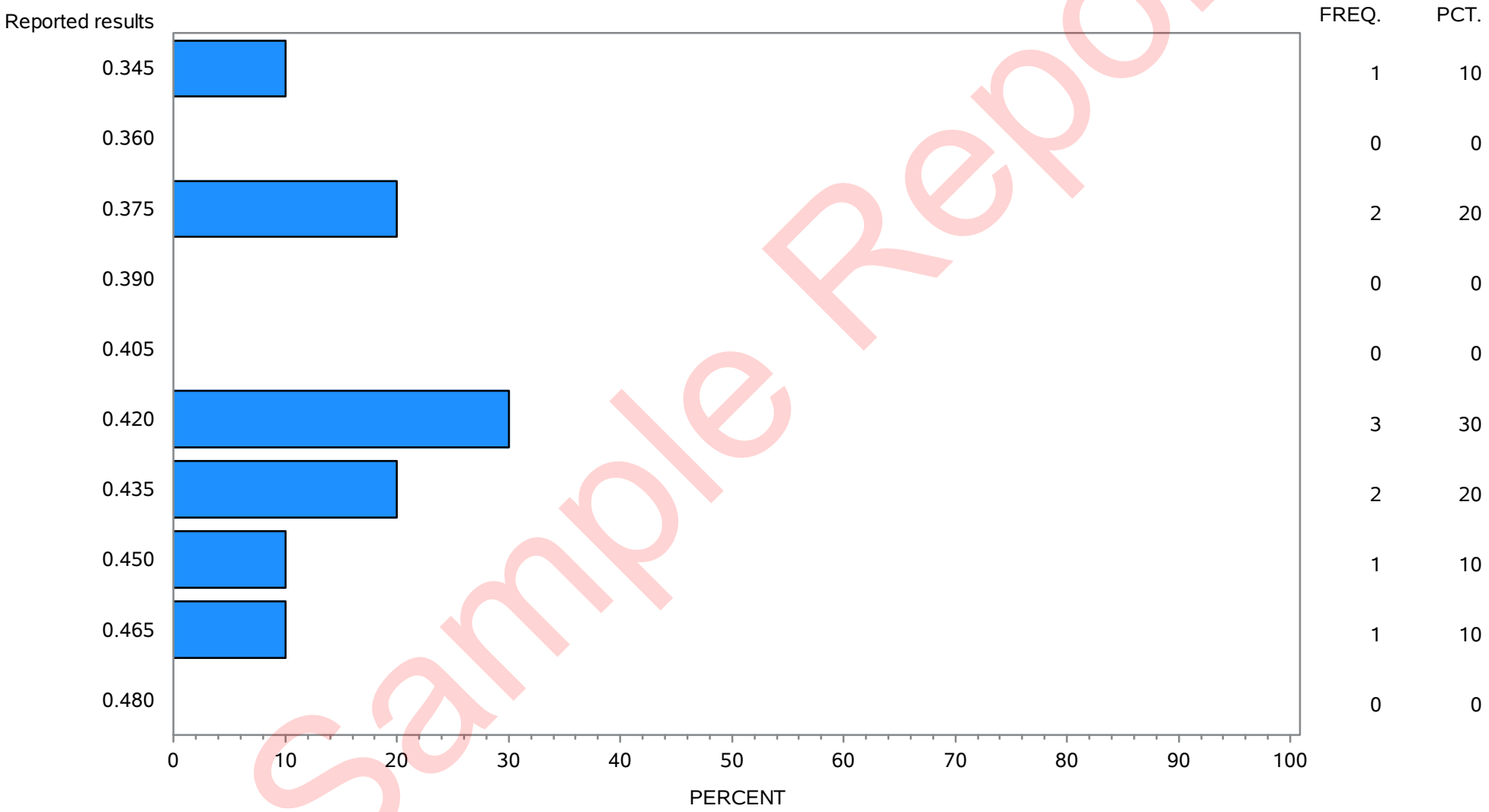
Analyte Group=Terpenes (%) Test=% Limonene



Sample Report

Appendix B
Hemp_Oils Blue Sample
Frequency Chart of Reported Results
Site = 190104

Analyte Group=Water Activity Test=Water Activity (aw)



Sample Report

Appendix C

Homogeneity & Stability

1A – Cannabinoids (Sample 1 – Blue)

Homogeneity/Stability Testing Results						
Cannabinoids	**THCA**	**d9-THC**	**CBDA**	**CBD**	**Total THC**	**Total CBD**
CHDPT2501 Stability Conc (w/w%)	**0.012**	**0.133**	**0.232**	**0.217**	**0.144**	**0.42**
Homogeneity Mean (w/w%)	0.056	0.128	0.229	0.211	0.178	0.412
Homogeneity Mean % Recovery	471%	96%	99%	97%	123%	98%
Total Homogeneity CV	10%	2%	2%	1%	1%	1%
Stability Mean (w/w%)	0.012	0.111	0.213	0.194	0.121	0.381
Stability Mean % Recovery	97%	83%	92%	90%	84%	91%
Total Stability CV	3%	3%	1%	2%	3%	2%
Percent Difference (Stability - Homogeneity / Homogeneity)	-79%	-13%	-7%	-8%	-32%	-7%
Conclusion	Pass	Pass	Pass	Pass	Pass	Pass

Homogeneity - Undetected/Less than LOQ Cannabinoids (Hemp)

Undetected/Less than LOQ Cannabinoids	d8-THC	THCVA	THCV	CBDVA	CBDV	CBN	CBGA	CBG	CBCA	CBC	CBL	Total CBG
Result (w/w%)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LOQ (w/w%)	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.033	0.017	0.017	NA
LOD (w/w%)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.010	0.005	0.005	NA

Stability - Undetected/Less than LOQ Cannabinoids (Hemp)

Cannabinoid	LOQ (w/w%)	LOD (w/w%)
CBGA	0.004	0.001
Total CBG	0.004	0.001
CBN	0.004	0.001
CBC	0.004	0.001
D8-THC	0.004	0.001
THCVA	0.004	0.001
THCV	0.004	0.001
CBDVA	0.004	0.001
CBDV	0.004	0.001
CBG	0.004	0.001
CBCA	0.009	0.003
CBL	0.004	0.001

Sample Report

Appendix C

Homogeneity & Stability

1B - Terpenes (Sample 1 – Blue)

Homogeneity/Stability Testing Results						
Terpenes	**Beta-caryophyllene**	**Alpha-bisabolol**	**Limonene**	**Beta-myrcene**	**Fenchyl Alcohol**	**Eucalyptol**
CHDPT2501 Stability Conc (w/w%)	**0.680**	**0.580**	**1.300**	**1.000**	**0.490**	**1.130**
Homogeneity Mean (w/w%)	0.658	0.565	1.250	0.922	0.431	1.200
Homogeneity Mean % Recovery	97%	97%	96%	92%	88%	106%
Total Homogeneity CV	1%	3%	1%	0.0%	11%	1%
Stability Mean (w/w%)	0.555	0.430	1.130	0.906	0.385	0.959
Stability Mean % Recovery	82%	74%	87%	91%	79%	85%
Total Stability CV	2%	7%	0.0%	0.3%	12%	1%
Percent Difference (Stability - Homogeneity / Homogeneity)	-16%	-24%	-10%	-2%	-11%	-20%
Conclusion	Pass	Pass	Pass	Pass	Pass	Pass

Homogeneity - Undetected/Less than LOQ Terpenes

Undetected/Less than LOQ Terpenes	**3-carene**	**Alpha-cedrene**	**Alpha-humulene**	**Alpha-phellandrene**	**Alpha-pinene**	**Alpha-terpinene**	**Beta-pinene**	**Borneol**	**Camphene**	**Camphor**
Result (w/w %)	ND	ND	<LOQ	ND	ND	ND	ND	ND	ND	ND
LOQ (w/w %)	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.2200	0.0069	0.0275
LOD (w/w %)	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0733	0.0023	0.0092
Undetected/Less than LOQ Terpenes	**Caryophyllene oxide**	**Cedrol**	**Fenchone**	**Gamma-terpinene**	**Geraniol**	**Geranyl acetate**	**Guaiol**	**Isoborneol**	**Isopulegol**	**Linalool**
Result (w/w %)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LOQ (w/w %)	0.0138	0.0069	0.0138	0.0069	0.4400	0.0069	0.0069	0.0275	0.0069	0.0069
LOD (w/w %)	0.0046	0.0023	0.0046	0.0023	0.1470	0.0023	0.0023	0.0092	0.0023	0.0023
Undetected/Less than LOQ Terpenes	**Menthol**	**Nerol**	**Total nerolidol**	**Ocimene**	**Pulegone**	**Sabinene**	**Sabinene hydrate**	**Terpinolene**	**Terpineol**	**Valencene**
Result (w/w %)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LOQ (w/w %)	0.0138	0.2200	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069
LOD (w/w %)	0.0046	0.0733	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023

Sample Report

Homogeneity & Stability

1B - Terpenes (Sample 1 – Blue)

Stability - Undetected/Less than LOQ Terpenes

Terpene	LOQ (w/w%)	LOD (w/w%)
Caryophyllene oxide	0.015	0.005
Alpha-humulene	0.007	0.002
3-carene	0.007	0.002
Alpha-cedrene	0.007	0.002
Alpha-phellandrene	0.007	0.002
Alpha-pinene	0.007	0.002
Alpha-terpinene	0.007	0.002
Beta-pinene	0.007	0.002
Borneol	0.220	0.077
Camphene	0.007	0.002
Camphor	0.028	0.009
Cedrol	0.007	0.002
Fenchone	0.015	0.005
Gamma-terpinene	0.007	0.002
Geraniol	0.46	0.154
Geranyl acetate	0.007	0.002
Guaiol	0.007	0.002
Isoborneol	0.029	0.010
Isopulegol	0.007	0.002
Linalool	0.007	0.002
Menthol	0.014	0.005
Nerol	0.220	0.077
Total nerolidol	0.007	0.002
Beta-ocimene	0.007	0.002
Pulegone	0.007	0.002
Sabinene	0.007	0.002
Sabinene hydrate	0.007	0.002
Terpinolene	0.007	0.002
Terpineol	0.007	0.002
Valencene	0.007	0.002

Sample Report

Appendix C

Homogeneity & Stability

1C - Water Activity (Sample 1 – Blue)

Homogeneity/Stability Testing Results	
Water Activity	
CHDPT2501 Stability Conc (aw)	**0.38**
Homogeneity Mean (aw)	0.42
Homogeneity Mean % Recovery	111%
Total Homogeneity CV	1%
Stability Mean (aw)	0.35
Stability Mean % Recovery	93%
Total Stability CV	4%
Percent Difference (Stability - Homogeneity / Homogeneity)	-17%
Conclusion	Pass

Sample Report

Cannabis/Hemp Proficiency Testing (PT) Program

CHDPT (Oil)

Sample 1 – Blue

PROFICIENCY TEST INSTRUCTIONS

UPON RECEIPT, inspect the integrity of the package and its contents to ensure that the samples are intact and not leaking or compromised. Each Sample 1 – Blue package should contain three sealed ampules wrapped in a bubble bag within a zip top bag containing vermiculite. If problems are observed, contact Cannabis_PT@AOAC.org.

Sample 1 - Blue Details

Number of Samples	Three samples per Sample 1 – Blue package
Sample IDs	• **1A Cannabinoids (<0.3%)**; • **1B Terpenes** • **1C Water Activity**
Sample Type (Matrix)	Oil
Sample Amount	• Sample 1A: 1 g • Sample 1B: 1 g • Sample 1C: 2 g
Sample Temperature Upon Receipt	**Satisfactory if received at ≤ 15°C**
Sample Storage	• **Store samples 1A and 1B frozen (< -15°C)** • **Store sample 1C at ambient conditions**
Applicable Sample Testing Method(s)	Cannabinoids (potency), terpenes, and water activity

READ THESE INSTRUCTIONS in their entirety before proceeding with sample preparation and analysis. These instructions contain important information about the enclosed samples and specific requirements for this proficiency test. **Failure to read these instructions may adversely impact your performance on this proficiency test.**

Samples are provided for analytical purposes only. Provided samples are not for human consumption. Refer to the provided SDS(s) for health and safety considerations.

Sample Report

Part 1: AOAC Website

AOAC has sent an email notification to the laboratory's contact on record, which includes a link to the secure AOAC PT Website, along with the laboratory's login and password information. Instructions for Analysis and Instructions for Reporting are included on this site.

Applicable sample details and analysis and reporting instructions also are discussed below.

Part 2: Sample 1 – Blue Details

Sample 1 - Blue contains three oil samples for testing in individual 2 mL amber glass ampules.

Table 1. Sample Types

Sample Number	Method
1A	Cannabinoids (potency)
1B	Terpenes
1C	Water Activity

Refer to the provided SDS(s) for health and safety and disposal considerations.

Part 3: Analysis

Each sample should be brought to room temperature (20°C to 25°C) for at least 30 minutes before processing. The samples should be thoroughly homogenized/mixed before aliquoting for analysis.

Sample 1 - Blue is divided into three samples suitable for analysis for cannabinoids (1A), terpenes (1B), and water activity (1C). Participants may test samples for as many, or as few, of the methods and associated analytes as applicable. Appendix A and B provide the reportable list of cannabinoids and terpenes, respectively.

Proficiency testing samples should be handled and analyzed in the same manner and following the same analytical standard operating procedures (SOPs) as routine samples. The participating laboratory should take appropriate action(s) to ensure a representative sample is tested (e.g., quantitative transfer, thorough mixing, other internal procedure).

Labs have four weeks to analyze samples and report results.

Shipping containers and artificial ice are used for one-way shipping and do not need to be returned. Any unused sample should be disposed of in accordance with typical laboratory procedures and should not be returned.

Part 4: Reporting

Refer to the AOAC PT website for detailed reporting instructions.

All results must be reported on an **as-received** basis (i.e., percent moisture should not be factored into the calculation).

The table below provides the units for reporting each of the analytes of interest.

Sample Report

Table 2. Unit Reporting Requirements

Method	Units
Cannabinoids (potency)	Mass %
Terpenes	Mass %
Water Activity	Aw

Values below the laboratory's limit of detection (LOD) or limit of quantitation (LOQ) should be reported as "less than" either the LOD or LOQ. A value of zero should not be reported to indicate that the analyte was not detected.

Reporting of uncertainties associated with the results is not required.

Sample Report

Part 5: Schedule and Other Information

The table below contains the key dates for this PT round.

Table 3. Schedule

Event	Date
Sample Shipment	22 September 2025
Expected Sample Receipt	Next Day (domestic) Within 5 Days of Shipment (international)
Results Due	21 October 2025
Participant Results Released	≤ 30 days after receipt of all participant results

Questions and Comments

If you have questions regarding the round, please contact Cannabis_PT@AOAC.org.

Test Material Provider:

signature science LLC

Sample Report

APPENDIX A

Reportable Cannabinoids

Compound	CAS Number
Cannabidiol (CBD)	13956-21-1
Cannabidiolic acid (CBDA)	1244-58-2
Cannabinol (CBN)	521-35-7
Cannabinolic acid (CBNA)	2808-39-1
Cannabichromene (CBC)	20675-51-8
Cannabichromenic acid (CBCA)	20408-52-0
Cannabidivarinic acid (CBDVA)	31932-13-5
Cannabigerol (CBG)	25654-31-3
Cannabigerolic acid (CBGA)	25555-57-1
Cannabidivarin (CBDV)	24274-48-4
Δ8-tetrahydrocannabinol (Δ8-THC)	5957-75-5
Δ9-tetrahydrocannabinol (Δ9-THC)	1972-08-3
Tetrahydrocannabinolic acid (THCA)	23978-85-0
Tetrahydrocannabivarin (THCV)	28172-17-0
Tetrahydrocannabivaric acid (THCVA)	39986-26-0
Total CBD [Total CBD = (CBDA * 0.877) + CBD]	
Total CBG [Total CBG = (CBGA * 0.878) + CBG]	
Total THC [Total THC = (THCA * 0.877) + Δ9-THC]	

Sample Report

APPENDIX B

Reportable Terpenes

Compound	CAS Number	Compound	CAS Number
3-carene	13466-78-9	Fenchone	7787-20-4
Alpha-bisabolol	23089-26-1	Fenchyl alcohol	1632-73-1
Alpha-cedrene	469-61-4	Gamma-terpinene	99-85-4
Alpha-humulene	6753-98-6	Geraniol	106-24-1
Alpha-phellandrene	4221-98-1	Guaiol	489-86-1
Alpha-pinene	80-56-8	Isoborneol	124-76-5
Alpha-terpinene	99-86-5	Isopulegol	89-79-2
Beta-caryophyllene	87-44-5	Limonene	5989-27-5
Beta-myrcene	123-35-3	Linalool	78-70-6
Beta-ocimene	13877-91-3	Menthol	2216-51-5
Beta-pinene	19902-08-0	O-cymene	527-84-4
Borneol	464-45-9	Pulegone	89-82-7
Camphene	79-92-5	Terpineol	8000-41-7
Camphor	464-48-2	Terpinolene	586-62-9
Cedrol	77-53-2	Trans-nerolidol	40716-66-3
Cis-nerolidol	3790-78-1	Valencene	4630-07-3
Eucalyptol	470-82-6		

----------End of Document----------

Sample Report

CHD01 Hemp Oil Proficiency Testing Program

Red Sample - Pesticides, Residual Solvents, Mycotoxins, and Heavy Metals

Round #3

Shipment Date: 09-22-25
Final Report Issue Date: 12-05-25
Round ID: CHD01-092225

Sample Report

AOAC INTERNATIONAL
2275 Research Blvd, Ste 300
Rockville, MD 20850

ACCREDITED
CERT # 1782.01
Proficiency Testing Provider

CONTENTS

This report has been authorized by
Shane Flynn, Senior Director
Proficiency Testing

Shane P Flynn

Sample Report

1.0 Introduction

Test materials for the Hemp Oil Proficiency Testing Round were shipped to participants on September 22, 2025. Each laboratory was given a site identification number in order to maintain confidentiality. Instructions for Analysis and instructions on how to report results within the AOAC Proficiency Testing website were provided to the participants. Participants were instructed to analyze the test materials according to procedures routinely used in their laboratories. Results were to be submitted to AOAC by October 21, 2025.

2.0 Test Design

Sample 2 – Red contains three subsamples, which cover oil contaminants.

- Sample 2A – Pesticides/Mycotoxins contains spiked pesticides and mycotoxins in HSO. Homogeneity testing was performed for the seven spiked pesticides and two spiked mycotoxins.
- Sample 2B – Residual Solvents contains spiked residual solvents in HSO. Homogeneity testing was performed for the six spiked solvents.
- Sample 2C – Heavy Metals contains spiked metals in HSO. Homogeneity testing was performed for the four spiked metals.

3.0 Homogeneity

At least three samples of each type were tested in replicate, per method, either by Signature Science or a third-party ISO 17025 accredited laboratory. Homogeneity samples were randomly selected for testing from the lot of prepared PT samples. 2A, 2B, and 2C sample types were extracted and analyzed for pesticides/mycotoxins, residual solvents, and heavy metals, respectively. Two separate aliquots from each sample type were analyzed by each analytical method to assess homogeneity across and within samples.

Homogeneity for pesticides/mycotoxin, heavy metals and residual solvents samples were extracted and analyzed by Signature Science, LLC. and/or at a third-party ISO 17025 accredited laboratory before PT sample distribution.

Sample Report

4.0 Preparation of Test Materials

The matrix selected for the hemp oil round was organic HSO oil for for samples containing pesticides/mycotoxins, residual solvents, and heavy metals. Analysis of the HSO showed that the HSO did not contain any analytes that would conflict with the detection of spiked compounds. Two separate aliquots from each sample type were analyzed by each analytical method to assess homogeneity across and within samples.

Samples were prepared and shipped by the following Laboratory:

signature science LLC

8329 North Mopac Expressway

Austin, TX 78759

Sample Report

5.0 Analyses Requested

Reportable Pesticides

Compound	CAS Number	Compound	CAS Number
Abamectin (Avermectins: B1a & B1b)	71751-41-2	Flonicamid	158062-67-0
Acephate	30560-19-1	Fludioxonil	131341-86-1
Acequinocyl	57960-19-7	Fluopyram	658066-35-4
Acetamiprid	135410-20-7	Flurprimidol	56425-91-3
Aldicarb	116-06-3	Hexythiazox	78587-05-0
Allethrin	584-79-2	Imazalil	35554-44-0
Ancymidol	12771-68-5	Imidacloprid	138261-41-3
Azadirachtin	108168-76-9	Iprodione	36734-19-7
Azoxystrobin	131860-33-8	Kinoprene	37882-31-8
Benzovindiflupyr	1072957-71-1	Kresoxim-methyl	143390-89-0
Bifenazate	149877-41-8	Malathion	121-75-5
Bifenthrin	82657-04-3	Metalaxyl	57837-19-1
Boscalid	188425-85-6	Methiocarb	2032-65-7
Buprofezin	69327-76-0	Methomyl	16752-77-5
Captan	133-06-2	Methoprene	40596-69-8
Carbaryl	63-25-2	Methyl parathion	298-00-0
Carbofuran	1563-66-2	Mevinphos	7786-34-7
Chlorantraniliprole	500008-45-7	MGK-264	113-48-4
Chlordane	57-74-9	Myclobutanil	88671-89-0
Chlorfenapyr	122453-73-0	Naled (Systhane) (Dibrom)	300-76-5
Chlormequat chloride	999-81-5	Novaluron	116714-46-6
Chlorpyrifos	2921-88-2	Oxamyl	23135-22-0
Clofentezine	74115-24-5	Paclobutrazol	76738-62-0
Clothianidin	21088-92-5	Pentachloronitrobenzene (Quintozene)	82-68-8
Coumaphos	56-72-4	Permethrin (mix of isomers)	52645-53-1
Cyantraniliprole	736994-63-1	Phenothrin (d-phenothrin)	26002-80-2
Cyfluthrin (Baythroid)	68359-37-5	Phosmet (Imidan)	732-11-6
Cypermethrin	52315-07-8	Phosmet (oxon)	3735-33-9
Cyprodinil	121552-61-2	Piperonyl butoxide	55218
Daminozide	1596-84-5	Pirimicarb	23103-98-2
Deltamethrin	52918-63-5	Prallethrin (mix of isomers)	23031-36-9
Diazinon	333-41-5	Propiconazole (tilt)	60207-90-1
Dichlorvos	62-73-7	Propoxur (Baygon)	114-26-1

Sample Report

Reportable Pesticides Cont.

Compound	CAS Number	Compound	CAS Number
Dimethoate	60-51-5	Pyraclostrobin	175013-18-0
Dimethomorph	110488-70-5	Pyrethrin (mix of isomers)	8003-34-7
Dinotefuran	165252-70-0	Pyridaben	96489-71-3
Dodemorph	1593-77-7	Resmethrin	10453-86-8
Endosulfan I (alpha)	959-98-8	Spinetoram	187166-40-1
Endosulfan II (beta)	33213-65-9	Spinosad (mixture of A and D)	168316-95-8
Endosulfan sulfate	1031-07-8	Spirodiclofen	148477-71-8
Ethephon	16672-87-0	Spiromesifen	283594-90-1
Ethoprophos (Prophos)	13194-48-4	Spirotetramat	203313-25-1
Etofenprox	80844-07-1	Spiroxamine	118134-30-8
Etoxazole	153233-91-1	Tebuconazole	107534-96-3
Etridiazole (Terrazole)	2593-15-9	Tebufenozide	112410-23-8
Fenhexamid	126833-17-8	Teflubenzuron	83121-18-0
Fenoxycarb	79127-80-3	Tetrachlorvinphos	961-11-5
Fenpyroximate (mix of isomers)	111812-58-9	Tetramethrin	7696-12-0
Fensulfothion	115-90-2	Thiacloprid	111988-49-9
Fenthion	55-38-9	Thiamethoxam	153719-23-4
Fenvalerete (Sanmarton)	51630-58-1	Thiophanate-methyl	23564-05-8
Fipronil	120068-37-3	Trifloxystrobin	141517-21-7

Sample Report

Reportable Residual Solvents

Compound	CAS Number	Compound	CAS Number
1,1,1-Trichloroethane	71-55-6	Dimethyl sulfoxide	67-68-5
1,1-Dichloroethene	75-35-4	Ethanol	64-17-5
1,2-Dichloroethane	107-06-2	Ethyl acetate	141-78-6
1,2-Dichloroethene	540-59-0	Ethyl ether	60-29-7
1,2-Dimethoxyethane	110-71-4	Ethyl formate	109-94-4
1,4-Dioxane	123-91-1	Ethylbenzene	100-41-4
1-Butanol	71-36-3	Ethylene glycol	107-21-1
1-Pentanol	71-41-0	Ethylene oxide	75-21-8
1-Propanol	71-23-8	Formamide	75-12-7
2,2-Dimethylbutane	75-83-2	Formic acid	64-18-6
2,3-Dimethylbutane	79-29-8	Heptane	142-82-5
2-Butanol	78-92-2	Hexane	110-54-3
2-Butanone	78-93-3	Isobutane (methyl propane)	75-28-5
2-Ethoxyethanol	110-80-5	Isobutyl acetate	110-19-0
2-Methoxyethanol	109-86-4	Isopropanol (2-propanol)	67-63-0
2-Methyl-1-propanol	78-83-1	Isopropyl acetate	108-21-4
2-Methylbutane	78-78-4	m,p-Xylenes	108-38-3 106-42-3
2-Methylpentane	107-83-5	Methanol	67-56-1
2-Propanol	67-63-0	Methyl acetate	79-20-9
3-Methyl-1-butanol	123-51-3	Methylbutylketone	591-78-6
3-Methylpentane	96-14-0	Methylcyclohexane	108-87-2
Acetic acid	64-19-7	Methylene chloride	75-09-2
Acetone	67-64-1	Methylethylketone	78-93-3
Acetonitrile	75-05-8	Methylisobutylketone	108-10-1
Anisole	100-66-3	N,N-dimethylacetamide	127-19-5
Benzene	71-43-2	N,N-dimethylformamide	68-12-2
Butane (sum of n- and iso-)	106-97-8	n-Butane	106-97-8
Butyl acetate	123-86-4	n-Heptane	142-82-5
Carbon tetrachloride	56-23-5	n-Hexane	10-54-3
Chlorobenzene	108-90-7	Nitrogen	7727-37-9
Chloroform	67-66-3	Nitromethane	75-52-5
Cumene	98-82-8	N-Methylpyrrolidone	872-50-4
Cyclohexane	110-82-7	n-Pentane	109-66-0

Sample Report

Reportable Residual Solvents Cont.

Compound	CAS Number	Compound	CAS Number
o-Xylene	95-47-6	Tetrahydrofuran	109-99-9
Pentane	109-66-0	Tetralin	119-64-2
Propane	74-98-6	Toluene	108-88-3
Propyl acetate	109-60-4	Trichloroethylene	79-01-6
Pyridine	110-86-1	Triethylamine	121-44-8
Sulfolane	126-33-0	Xylene	1330-20-7
tert-Butylmethyl ether	1634-04-4		

Reportable Mycotoxins

Compound	CAS Number
Ochratoxin A	303-47-9
Aflatoxin B1	1162-65-8
Aflatoxin B2	7220-81-7
Aflatoxin G1	1165-39-5
Aflatoxin G2	7241-98-7

Reportable Heavy Metals

Compound	CAS Number
Arsenic	7440-38-2
Cadmium	7440-43-9
Lead	7439-92-1
Mercury	439-97-6
Antimony	744-36-0
Barium	744-39-3
Chromium	18540-29-9
Copper	44-50-8
Nickel	7440-02-0
Silver	7440-22-4
Selenium	7782-49-2
Zinc	7440-66-6

The participants had the option of marking the analysis as Not Tested for any pesticide, residual solvent, mycotoxin or heavy metal not routinely tested by their laboratory. This designation was submitted to AOAC®. Information on the method used for each analyses was requested.

Sample Report

6.0 Evaluations and Laboratory Performance

When an assigned value is available and a z-score can be calculated the following labels have been applied to the Evaluation.

- In this report a z-score of $|z| \leq 2.00$ is labeled as **ACCEPTABLE**
- In this report a z-score of $2.00 < |z| < 3.00$ is labeled as **WARNING**
- In this report a z-score of $|z| \geq 3.00$ is labeled as **UNACCEPTABLE**

if an assigned value is unavailable and z-scores cannot be calculated for an analyte, participants are still evaluated on an acceptable range.

When all Reference Labs report a < LOQ or < LOD and a definitive assigned value for calculating z-scores cannot be determined, the participating laboratory is evaluated by comparing their reported result to an acceptable range. Evaluations against this acceptable range can include:

- Any result that is reported by a participant laboratory as detected, but <LOQ, is considered **ACCEPTABLE** , as long as the LOQ is within the acceptable range. If the LOQ value exceeds the acceptable range, this would be **UNACCEPTABLE**.
- Any result that is reported by a participant laboratory as detected, and a value is provided, is **ACCEPTABLE** if the reported value is within the acceptable range. If the reported value exceeds the exceeds the acceptable range, this would be **UNACCEPTABLE** .
- Any result that is reported by a participant laboratory considered as a “Non-Detect” is considered **UNACCEPTABLE,** if that analyte was detected and reported for by the reference labs**.**

Sample Report

6.1 Calculation and Interpretation of z-scores:

For each individual result, a z-score was calculated as follows:

$$Zi = \frac{Xi - Xpt}{\delta pt}$$

where:

Zi = the z score (standard score)

Xi = the reported value of analyte

Xpt = the assigned value, the best estimate of the true concentration

δpt = the estimate of variation (standard deviation)

The robust procedure from *ISO 13528:2022(E), Statistical methods for use in proficiency testing by interlaboratory comparisons* is used in processing the result data. Robust statistics relies on medians rather than means and uses more information from the central than from the outlying observations.

The assigned value used was based on the median of up to five data points by reference laboratories. The standard deviation used was 20% of the assigned value. This standard deviation value will decrease over time as participating laboratories improve performance. Any blunders were removed prior to assigned value calculations. Measurement uncertainty (standard uncertainty of the assigned value) has also been provided.

MU = (1.25 * (sd/sqrt(n))) where n=sample size

The following interpretation of z-scores for each individual test result is provided in of ISO/ IEC 17043:2023 Conformity Assessment - General requirements for proficiency testing schemes common examples of application of z-scores:

— A result that gives $|z| \leq 2.0$ is considered to be acceptable.
— A result that gives $2.0 < |z| < 3.0$ is considered to give a warning signal.
— A result that gives $|z| \geq 3.0$ is considered to be unacceptable (or action signal).

Sample Report

7.0 General Discussion of Results

Confidentiality of results has been maintained by issuing site identification codes to the participants. Results in reports have only been identified by the site identification code. Results were submitted by both Participating Laboratories and participating Reference Laboratories. materials were exposed to the same shipping conditions for both types of laboratories. This report includes information only for the pesticides, residual solvents, mycotoxins and heavy metals listed in Section 5.0. Some analytes had fewer participants submitting results because some of the laboratories do not routinely test for all analytes listed in Section 5.0.

Each laboratory is responsible for the stability of the compounds in the extract covering the time between extraction and analysis under the storage conditions in that laboratory. Stability will be dependent on the solvent the extract is in, the storage conditions, and the type of container used to store the extract. It is recommended that the analysis proceed as quickly as possible after extraction. Z-scores have been calculated for those pesticides, residual solvents, mycotoxins and heavy metals, that were spiked into the matrix. Z-scores have been calculated for those pesticides and mycotoxins where the following criteria were met for the specific analyte in the specific sample; when the usable results from: at least four out of the five Reference laboratories are within 2 standard deviations of the target concentration (assigned value), or if only four of the five Reference laboratories analyze for a specific residue then three of the four Reference laboratories must be within 2 standard deviations of the target concentration, or if only three Reference laboratories analyze for a residue, then all three Reference laboratories must be within 2 standard deviations of the target concentration.

Appendix A is included in this report to show participating laboratory's reported results, methods used, assigned values, standard deviations, median, min, max, z-scores, evalutations, and measurement uncertainties. Each laboratory should use the information in Appendix A to determine areas of improvement. If a participating laboratory received a Not-Detected, it is up to that laboratory to evaluate the result based on its own limit of quantification (LOQ). Appendix B is included to show all incurred and additional pesticides, residual solvents, mycotoxins and heavy metals reported by participants. Appendix C displays the reported values, method used for all participating labs and their corresponding z-scores. The same information is provided for the Reference labs. Each laboratory should use the information in Appendix A, Appendix B, and Appendix C to determine areas of improvement. Appendix D Graphs illustrate the results of all the Participant Laboratories versus the Reference Laboratories versus the targeted value. Appendix E is Homogeneity and Stability and Appendix F is Instructions for Analysis.

Calculations for z scores based on the data presented in the results sheet might be slightly different from the z-scores assigned by AOAC. The z-scores assigned by AOAC are based on calculations that may use more significant figures than is possible to display on the results sheet.

Pesticides

Z-scores were calculated for the following pesticides: Acetamiprid, Coumaphos, Diazinon, Fenpyroximate, Hexythiazox, Imazalil, Propiconazole and Tebuconazole. If other pesticides were detected but were not spiked in the sample they are listed in Appendix B.

Sample Report

Currently the program includes 5-10 unique pesticides per round in matrix. Each round cycles through the pesticides listed (i.e., the pesticide list in the appendix included with participant instructions). This number of pesticides is representative of what a laboratory may encounter during routine testing. Including more pesticides per sample could make the samples less realistic of what would be expected for an actual operational sample, and therefore, be less fit for purpose. Laboratories are expected to get the correct answer for the spiked pesticides and the unspiked pesticides just like they would for operational samples.

AOAC is evaluating spiking 10 to 15 pesticides per round, so that the program covers the ~60 pesticides that are most commonly evaluated by CA and other states in a much quicker time period. We ensure to cover a range of pesticide classes, even though not all pesticides are covered each round, multiple classes are covered.

Residual Solvents

Z-scores were calculated for the following Residual Solvents: 1,2-Dichloroethane, Acetonitrile, Ethanol and Methylene Chloride. Other residual solvents were determined not to be present at a detectable level. If other residual solvents were detected but were not spiked in the sample they are listed in Appendix B.

Mycotoxins

Z-scores were calculated for the following mycotoxins: Aflatoxin B2 and Aflatoxin G1. Other mycotoxins were determined not to be present at a detectable level. If other mycotoxins were detected but were not spiked in the sample they are listed in Appendix B.

Heavy Metals

Z-scores were calculated for the following Heavy Metals: Arsenic, Mercury, Antimony and Copper. Other heavy metals were determined not to be present at a detectable level. If other heavy metals were detected but were not spiked in the sample they are listed in Appendix B.

Sample Report

8.0 Comments and Recommendations

Pesticides- Overall, participating laboratories performed well. One laboratory received an 'UNACCEPTABLE' evaluation for Hexythiazox as their reported result was below the acceptable range. Another laboratory received an 'UNACCEPTABLE' evaluation for Hexythiazox and Coumaphos as their reported results were above the acceptable range.

Mycotoxins - Participating laboratories performed well. No 'UNACCEPTABLE' evaluations were given.

Residual Solvents - Overall, participating laboratories performed well. One laboratory received an 'UNACCEPTABLE' evaluation for 1,2-Dichloroethane. Another laboratory received an 'UNACCEPTABLE' evaluation for Acetontrile as their reported result was above the acceptable range. Two laboratories received UNACCEPTABLE evaluations for Ethanol as their '<' reported results were below the acceptable range. One other lab failed for Ethanol as their reported quantifiable result was below the acceptable range.

Heavy Metals - Overall, participating laboratories performed well. One laboratory received an 'UNACCEPTABLE' evaluation for Arsenic as their reported result was above the acceptable range. Two laboratories received UNACCEPTABLE evaluations for Mercury as their reported '<' values were below the acceptable range.

9.0 Distribution of Results Plots

The distribution of results plots provides information on the distribution of results for each compound. The plots illustrate the results of all the participant laboratories versus the reference laboratories versus the targeted value. Some of the plots include the statement "reference labs are indicated by squares", and there are no squares on the plot. If the reference laboratories did not test for a specific analyte, their representative squares are not indicated on the plots, even though they are mentioned in the legends. At the advice of an expert in statistical graphics and design of data visualization, changes have been made to improve the plots. Data from the Subscribing Laboratories is displayed as individual data points with no connecting line. The target value is displayed with a dashed horizontal reference line. Reference labs are indicated by squares. If a laboratory marked a compound as “not tested,” it was not included on the graph. The key to the graph identifies each line. Only data that fell within a z- score value of $\pm$ 5 have been included in the graphs. As AOAC® continues to improve its reporting format, changes may occur.

If a participant would like to appeal against the assessment of their performance in this proficiency testing scheme please contact staff at Cannabis_PT@AOAC.org

Sample Report

2A - Pesticide/Mycotoxins (Sample 2 – Red)

Sample 2A homogeneity and stability samples were extracted and analyzed for pesticide and mycotoxins using Pesticide Residues and Mycotoxins by LC-MS/MS.

Homogeneity/Stability Testing Results								
Pesticide	**Acetamiprid**	**Diazinon**	**Coumaphos**	**Fenpyroximate**	**Hexythiazox**	**Imazalil**	**Propiconazole**	**Tebuconazole**
Theoretical Concentration (ug/g, ppm)	**0.138**	**0.277**	**0.111**	**0.207**	**0.138**	**0.104**	**0.207**	**0.138**
Homogeneity Mean (ppm)	0.143	0.269	0.114	0.151	0.116	0.075	0.223	0.133
Homogeneity Mean % Recovery	103%	97%	103%	73%	84%	72%	107%	96%
Total Homogeneity CV	5%	11%	4%	1%	3%	12%	7%	8%
Stability Mean (ppm)	0.140	0.277	0.121	0.231	0.150	0.070	0.231	0.146
Stability Mean % Recovery	101%	100%	110%	111%	108%	67%	111%	106%
Total Stability CV	4%	6%	3%	18%	10%	6%	8%	4%
Percent Difference (Stability - Homogeneity / Homogeneity)	-2%	3%	7%	53%	30%	-7%	4%	10%
Conclusion	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

Homogeneity/Stability Testing Results		
Mycotoxin	**Aflatoxin B2**	**Aflatoxin G1**
Theoretical Concentration (ug/g, ppm)	**0.102**	**0.129**
Homogeneity Mean (ppm)	0.098	0.117
Homogeneity Mean % Recovery	96%	91%
Total Homogeneity CV	6%	4%
Stability Mean (ppm)	0.104	0.129
Stability Mean % Recovery	102%	100%
Total Stability CV	5%	3%
Percent Difference (Stability - Homogeneity / Homogeneity)	6%	10%
Conclusion	Pass	Pass

Homogeneity - Undetected/Less than LOQ Mycotoxins

Undetected/Less than LOQ Mycotoxins	Aflatoxin B1	Aflatoxin G2	Ochratoxin A
Result (ug/g)	ND	ND	ND
LOQ (ug/g)	0.004	0.007	0.006
LOD (ug/g)	0.003	0.006	0.006

Sample Report

Appendix A

Hemp_Oils Proficiency Testing Program

-- Red Sample --

Site=193126 Lab Reporting Details

Site	Program	Metric	Value
193126	CHD01	Lab Name	XXXXX
		Analyst Name	XXXXX XXXXX
		Laboratory Address	XXX XXXXXX XXX
		Laboratory Address2	XXXXX X
		City	XXXXX XXXXXX
		State	XX
		Postal Code	XXXXX
		Country	XXXXXX XXXXXX
		License #	XXXXXXXX
		Test Initiation Date	09/22/2025
		Test Close Date	10/21/2025
		Submission Date	10/16/2025
		Results Processed Date	11/26/2025

Sample Report

AOAC INTERNATIONAL

PT PROFICIENCY TESTING

Report Issued by:
AOAC INTERNATIONAL
2275 Research Blvd. Ste 300
Rockville, MD 20850

Report Authorized by:
Shane Flynn, Senior Director of Proficiency Testing

Appendix A

Hemp_Oils Testing Results and Z-scores

Site=193126 Red Sample Analyte Group = Pesticides (ug/g ppm)

Test	Reported result	Acceptable Range	Number of reported results	Participant Mean	Participant Median	Participant SD	Assigned Value	Target SD	Z-score	Evaluation	Standard uncertainty of the assigned value	Notes
Acetamiprid	0.1030	(0.056 - 0.224)	12	0.128	0.135	0.025	0.140	0.028	***-1.32***	***ACCEPTABLE***	0.010	
Coumaphos	0.0939	(0.0456 - 0.1824)	10	0.117	0.114	0.028	0.114	0.023	***-0.88***	***ACCEPTABLE***	0.010	
Diazinon	0.2030	(0.1076 - 0.4304)	11	0.247	0.256	0.046	0.269	0.054	***-1.23***	***ACCEPTABLE***	0.020	
Fenpyroximate (mix of isomers)	0.2800	(0.0788 - 0.3152)	12	0.182	0.176	0.054	0.197	0.039	***2.11***	***WARNING***	0.014	
Hexythiazox	0.1140	(0.0464 - 0.1856)	12	0.123	0.118	0.044	0.116	0.023	***-0.09***	***ACCEPTABLE***	0.009	
Imazalil	0.0774	(0.03096 - 0.12384)	12	0.087	0.084	0.013	0.077	0.015	***0.00***	***ACCEPTABLE***	0.006	
Propiconazole (tilt)	0.2830	(0.0892 - 0.3568)	10	0.234	0.223	0.053	0.223	0.045	***1.35***	***ACCEPTABLE***	0.018	
Tebuconazole	0.1500	(0.0532 - 0.2128)	12	0.129	0.124	0.028	0.133	0.027	***0.64***	***ACCEPTABLE***	0.010	

Sample Report

The following interpretation of z-scores for each individual test result is provided in ISO/IEC 17043:2023(E):

A result that gives $|z| \leq 2.0$ is considered to be Acceptable

A result that gives $2.0 < |z| < 3.0$ is considered to give a Warning signal

A result that gives $|z| \geq 3.0$ is considered to be Unacceptable (or action signal)

Appendix A

Hemp_Oils Testing Results and Z-scores

Site=193126 Red Sample Analyte Group = Mycotoxins (ug/g ppm)

Test	Reported result	Acceptable Range	Number of reported results	Participant Mean	Participant Median	Participant SD	Assigned Value	Target SD	Z-score	Evaluation	Standard uncertainty of the assigned value	Notes
Aflatoxin_B2	0.0991	(0.0408 - 0.1632)	11	0.106	0.100	0.022	0.102	0.020	***-0.14***	***ACCEPTABLE***	0.008	
Aflatoxin_G1	0.1210	(0.0484 - 0.1936)	11	0.121	0.117	0.021	0.121	0.024	***0.00***	***ACCEPTABLE***	0.009	

Sample Report

The following interpretation of z-scores for each individual test result is provided in ISO/IEC 17043:2023(E):

A result that gives $|z| \leq 2.0$ is considered to be Acceptable

A result that gives $2.0 < |z| < 3.0$ is considered to give a Warning signal

A result that gives $|z| \geq 3.0$ is considered to be Unacceptable (or action signal)

Appendix A

Hemp_Oils Testing Results and Z-scores

Site=193126 Red Sample Analyte Group = Heavy Metals (ug/kg ppb)

Test	Reported result	Acceptable Range	Number of reported results	Participant Mean	Participant Median	Participant SD	Assigned Value	Target SD	Z-score	Evaluation	Standard uncertainty of the assigned value	Notes
Antimony	13600.0000	(4354 - 17416)	3	10739.0	10885.0	2936.72	10885.000	2177.00	*1.25*	*ACCEPTABLE*	1571.11	
Copper	1750.0000	(601.6 - 2406.4)	4	1642.50	1627.00	272.897	1504.000	300.800	*0.82*	*ACCEPTABLE*	188.000	
Total_Arsenic	283.0000	(113.2 - 452.8)	10	366.160	315.000	191.077	283.000	56.600	*0.00*	*ACCEPTABLE*	22.373	
Total_Mercury	108.0000	(48.2 - 192.8)	11	111.810	126.000	49.498	120.500	24.100	*-0.52*	*ACCEPTABLE*	9.526	

Sample Report

The following interpretation of z-scores for each individual test result is provided in ISO/IEC 17043:2023(E):

A result that gives $|z| \leq 2.0$ is considered to be Acceptable

A result that gives $2.0 < |z| < 3.0$ is considered to give a Warning signal

A result that gives $|z| \geq 3.0$ is considered to be Unacceptable (or action signal)

Appendix A

Hemp_Oils Testing Results and Z-scores

Site=193126 Red Sample Analyte Group = Residual Solvents (ug/g ppm)

Test	Reported result	Acceptable Range	Number of reported results	Participant Mean	Participant Median	Participant SD	Assigned Value	Target SD	Z-score	Evaluation	Standard uncertainty of the assigned value	Notes
1,2-Dichloroethane	1.4400	(0.576 - 2.304)	10	1.349	1.440	0.415	1.440	0.288	***0.00***	***ACCEPTABLE***	0.136	
Acetonitrile	181.0000	(80 - 320)	11	2645.84	200.000	7340.34	200.000	40.000	***-0.48***	***ACCEPTABLE***	16.667	
Ethanol	1880.0000	(866.4 - 3465.6)	11	1799.19	1845.00	462.988	2166.000	433.200	***-0.66***	***ACCEPTABLE***	191.449	
Methylene_chloride	959.0000	(383.6 - 1534.4)	9	854.480	954.500	214.865	959.000	191.800	***0.00***	***ACCEPTABLE***	84.764	

Sample Report

The following interpretation of z-scores for each individual test result is provided in ISO/IEC 17043:2023(E):

A result that gives $|z| \leq 2.0$ is considered to be Acceptable

A result that gives $2.0 < |z| < 3.0$ is considered to give a Warning signal

A result that gives $|z| \geq 3.0$ is considered to be Unacceptable (or action signal)

Appendix B

Hemp_Oils Additional Residues Reported in the September 22, 2025 Samples

Lab Number: 193126

Group=Pesticides (ug/g ppm)

Sample	Additional Residue	Method Reported by 193126	Modifier Reported by 193126	Value Reported by 193126	Evaluation
Red	Abamectin	No Method Provided	<	0.0181	ACCEPTABLE
Red	Acephate	No Method Provided	<	0.0181	ACCEPTABLE
Red	Acequinocyl	No Method Provided	<	0.0181	ACCEPTABLE
Red	Aldicarb	No Method Provided	<	0.0181	ACCEPTABLE
Red	Allethrin			Not Tested	NOT TESTED
Red	Azadirachtin			Not Tested	NOT TESTED
Red	Azoxystrobin	No Method Provided	<	0.0181	ACCEPTABLE
Red	Benzovindiflupyr			Not Tested	NOT TESTED
Red	Bifenazate	No Method Provided	<	0.0181	ACCEPTABLE
Red	Bifenthrin	No Method Provided	<	0.0181	ACCEPTABLE
Red	Boscalid	No Method Provided	<	0.0181	ACCEPTABLE
Red	Buprofezin			Not Tested	NOT TESTED
Red	Captan	No Method Provided	<	0.1450	ACCEPTABLE
Red	Carbaryl	No Method Provided	<	0.0181	ACCEPTABLE
Red	Carbofuran	No Method Provided	<	0.0181	ACCEPTABLE
Red	Chlorantraniliprole	No Method Provided	<	0.0181	ACCEPTABLE
Red	Chlordane	No Method Provided	<	0.0181	ACCEPTABLE
Red	Chlorfenapyr	No Method Provided	<	0.0181	ACCEPTABLE
Red	Chlormequat chloride	No Method Provided	<	0.0181	ACCEPTABLE
Red	Chlorpyrifos	No Method Provided	<	0.0181	ACCEPTABLE
Red	Clofentezine	No Method Provided	<	0.0181	ACCEPTABLE
Red	Clothianidin			Not Tested	NOT TESTED
Red	Cyantraniliprole			Not Tested	NOT TESTED
Red	Cyfluthrin	No Method Provided	<	0.0181	ACCEPTABLE
Red	Cypermethrin	No Method Provided	<	0.0363	ACCEPTABLE
Red	Cyprodinil			Not Tested	NOT TESTED
Red	Daminozide	No Method Provided	<	0.0181	ACCEPTABLE
Red	Deltamethrin			Not Tested	NOT TESTED
Red	Dichlorvos	No Method Provided	<	0.0181	ACCEPTABLE

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Appendix B

Hemp_Oils Additional Residues Reported in the September 22, 2025 Samples

Lab Number: 193126

Group=Pesticides (ug/g ppm)

Sample	Additional Residue	Method Reported by 193126	Modifier Reported by 193126	Value Reported by 193126	Evaluation
Red	Dimethoate	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Dimethomorph	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Dinotefuran			Not Tested	*NOT TESTED*
Red	Dodemorph			Not Tested	*NOT TESTED*
Red	Endosulfan I			Not Tested	*NOT TESTED*
Red	Endosulfan II (beta)			Not Tested	*NOT TESTED*
Red	Endosulfan sulfate			Not Tested	*NOT TESTED*
Red	Ethoprophos (Prophos)	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Etofenprox	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Etoxazole	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Etridiazole (Terrazole)			Not Tested	*NOT TESTED*
Red	Fenhexamid	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Fenoxycarb	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Fensulfothion			Not Tested	*NOT TESTED*
Red	Fenthion			Not Tested	*NOT TESTED*
Red	Fenvalerete (Sanmarton)			Not Tested	*NOT TESTED*
Red	Fipronil	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Flonicamid	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Fludioxonil	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Fluopyram			Not Tested	*NOT TESTED*
Red	Imidacloprid	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Iprodione			Not Tested	*NOT TESTED*
Red	Kinoprene			Not Tested	*NOT TESTED*
Red	Kresoxim-methyl	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	MGK-264	No Method Provided	<	0.0363	*ACCEPTABLE*
Red	Malathion-methyl	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Metalaxyl	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Methiocarb	No Method Provided	<	0.0181	*ACCEPTABLE*
Red	Methomyl	No Method Provided	<	0.0181	*ACCEPTABLE*

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Appendix B

Hemp_Oils Additional Residues Reported in the September 22, 2025 Samples

Lab Number: 193126

Group=Pesticides (ug/g ppm)

Sample	Additional Residue	Method Reported by 193126	Modifier Reported by 193126	Value Reported by 193126	Evaluation
Red	Methoprene			Not Tested	NOT TESTED
Red	Methyl parathion	No Method Provided	<	0.0181	ACCEPTABLE
Red	Mevinphos	No Method Provided	<	0.0181	ACCEPTABLE
Red	Myclobutanil	No Method Provided	<	0.0181	ACCEPTABLE
Red	Naled (Systhane) (Dibrom)	No Method Provided	<	0.0181	ACCEPTABLE
Red	Novaluron			Not Tested	NOT TESTED
Red	Oxamyl	No Method Provided	<	0.0181	ACCEPTABLE
Red	Paclobutrazol	No Method Provided	<	0.0181	ACCEPTABLE
Red	Pentachloronitrobenzene (Quintozene)	No Method Provided	<	0.0181	ACCEPTABLE
Red	Permethrin (mix of isomers)	No Method Provided	<	0.0181	ACCEPTABLE
Red	Phenothrin (d-phenothrin)			Not Tested	NOT TESTED
Red	Phosmet (Imidan)	No Method Provided	<	0.0181	ACCEPTABLE
Red	Piperonyl butoxide	No Method Provided	<	0.0181	ACCEPTABLE
Red	Pirimicarb			Not Tested	NOT TESTED
Red	Prallethrin (mix of isomers)	No Method Provided	<	0.0725	ACCEPTABLE
Red	Propoxur (Baygon)	No Method Provided	<	0.0181	ACCEPTABLE
Red	Pyraclostrobin			Not Tested	NOT TESTED
Red	Pyrethrin (mix of isomers)	No Method Provided	<	0.0725	ACCEPTABLE
Red	Pyridaben	No Method Provided	<	0.0181	ACCEPTABLE
Red	Resmethrin			Not Tested	NOT TESTED
Red	Spinetoram	No Method Provided	<	0.0181	ACCEPTABLE
Red	Spinosad	No Method Provided	<	0.0181	ACCEPTABLE
Red	Spirodiclofen			Not Tested	NOT TESTED
Red	Spiromesifen	No Method Provided	<	0.0181	ACCEPTABLE
Red	Spirotetramat	No Method Provided	<	0.0181	ACCEPTABLE
Red	Spiroxamine	No Method Provided	<	0.0181	ACCEPTABLE
Red	Tebufenozide			Not Tested	NOT TESTED
Red	Teflubenzuron			Not Tested	NOT TESTED
Red	Tetrachlorvinphos			Not Tested	NOT TESTED

Sample Report

Appendix B

Hemp_Oils Additional Residues Reported in the September 22, 2025 Samples

Lab Number: 193126

Group=Pesticides (ug/g ppm)

Sample	Additional Residue	Method Reported by 193126	Modifier Reported by 193126	Value Reported by 193126	Evaluation
Red	Tetramethrin			Not Tested	***NOT TESTED***
Red	Thiacloprid	No Method Provided	<	0.0181	***ACCEPTABLE***
Red	Thiamethoxam	No Method Provided	<	0.0181	***ACCEPTABLE***
Red	Thiophanate-methyl			Not Tested	***NOT TESTED***
Red	Trifloxystrobin	No Method Provided	<	0.0181	***ACCEPTABLE***

Sample Report

Appendix B

Hemp_Oils Additional Residues Reported in the September 22, 2025 Samples

Lab Number: 193126

Group=Mycotoxins (ug/g ppm)

Sample	Additional Residue	Method Reported by 193126	Modifier Reported by 193126	Value Reported by 193126	Evaluation
Red	Aflatoxin_B1	SOP.402	<	0.0015	***ACCEPTABLE***
Red	Aflatoxin_G2	SOP.402	<	0.0015	***ACCEPTABLE***
Red	Ochratoxin_A	SOP.402	<	0.0058	***ACCEPTABLE***

Sample Report

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Hemp_Oils Additional Residues Reported in the September 22, 2025 Samples

Lab Number: 193126

Group=Heavy Metals (ug/kg ppb)

Sample	Additional Residue	Method Reported by 193126	Modifier Reported by 193126	Value Reported by 193126	Evaluation
Red	Barium	SOP.502		Not Tested	***NOT TESTED***
Red	Chromium	SOP.502	<	51.8000	***ACCEPTABLE***
Red	Nickel	SOP.502	<	53.2000	***ACCEPTABLE***
Red	Selenium	SOP.502	<	25.2000	***ACCEPTABLE***
Red	Silver	SOP.502		Not Tested	***NOT TESTED***
Red	Total_Cadmium	SOP.502	<	1.0200	***ACCEPTABLE***
Red	Total_Lead	SOP.502	<	12.2000	***ACCEPTABLE***
Red	Zinc	SOP.502	<	10000.0000	***ACCEPTABLE***

Sample Report

Appendix B

Hemp_Oils Additional Residues Reported in the September 22, 2025 Samples

Lab Number: 193126

Group=Residual Solvents (ug/g ppm)

Sample	Additional Residue	Method Reported by 193126	Modifier Reported by 193126	Value Reported by 193126	Evaluation
Red	1,1,1-Trichloroethane			Not Tested	NOT TESTED
Red	1,1-Dichloroethene	No Method Provided	<	0.0382	ACCEPTABLE
Red	1,2-Dichloroethene			Not Tested	NOT TESTED
Red	1,2-Dimethoxyethane			Not Tested	NOT TESTED
Red	1,4-Dioxane			Not Tested	NOT TESTED
Red	1-Butanol			Not Tested	NOT TESTED
Red	1-Pentanol			Not Tested	NOT TESTED
Red	1-Propanol			Not Tested	NOT TESTED
Red	2,2-Dimethylbutane			Not Tested	NOT TESTED
Red	2,3-Dimethylbutane			Not Tested	NOT TESTED
Red	2-Butanol			Not Tested	NOT TESTED
Red	2-Butanone			Not Tested	NOT TESTED
Red	2-Ethoxyethanol			Not Tested	NOT TESTED
Red	2-Methoxyethanol			Not Tested	NOT TESTED
Red	2-Methyl-1-propanol			Not Tested	NOT TESTED
Red	2-Methylbutane			Not Tested	NOT TESTED
Red	2-Methylpentane			Not Tested	NOT TESTED
Red	2-Propanol			Not Tested	NOT TESTED
Red	3-Methyl-1-butanol			Not Tested	NOT TESTED
Red	3-Methylpentane			Not Tested	NOT TESTED
Red	Acetic_acid			Not Tested	NOT TESTED
Red	Acetone	No Method Provided	<	15.3000	ACCEPTABLE
Red	Anisole			Not Tested	NOT TESTED
Red	Benzene	No Method Provided	<	0.0382	ACCEPTABLE
Red	Butane_(sum_of_n-_and_iso-)			Not Tested	NOT TESTED
Red	Butyl_acetate			Not Tested	NOT TESTED
Red	Carbon_tetrachloride			Not Tested	NOT TESTED
Red	Chlorobenzene			Not Tested	NOT TESTED
Red	Chloroform	SOP.204		0.1900	ACCEPTABLE

Sample Report

Appendix B

Hemp_Oils Additional Residues Reported in the September 22, 2025 Samples

Lab Number: 193126

Group=Residual Solvents (ug/g ppm)

Sample	Additional Residue	Method Reported by 193126	Modifier Reported by 193126	Value Reported by 193126	Evaluation
Red	Cumene			Not Tested	NOT TESTED
Red	Cyclohexane			Not Tested	NOT TESTED
Red	Dimethyl_sulfoxide			Not Tested	NOT TESTED
Red	Ethyl_acetate	No Method Provided	<	15.3000	ACCEPTABLE
Red	Ethyl_ether	No Method Provided	<	15.3000	ACCEPTABLE
Red	Ethyl_formate			Not Tested	NOT TESTED
Red	Ethylbenzene			Not Tested	NOT TESTED
Red	Ethylene_glycol			Not Tested	NOT TESTED
Red	Ethylene_oxide	No Method Provided	<	0.1530	ACCEPTABLE
Red	Formamide			Not Tested	NOT TESTED
Red	Formic_acid			Not Tested	NOT TESTED
Red	Heptane			Not Tested	NOT TESTED
Red	Hexane			Not Tested	NOT TESTED
Red	Isobutane_(methyl_propane)			Not Tested	NOT TESTED
Red	Isobutyl_acetate			Not Tested	NOT TESTED
Red	Isopropanol_(2-propanol)	No Method Provided	<	15.3000	ACCEPTABLE
Red	Isopropyl_acetate			Not Tested	NOT TESTED
Red	Methanol	No Method Provided	<	91.7000	ACCEPTABLE
Red	Methyl_acetate			Not Tested	NOT TESTED
Red	Methylbutylketone			Not Tested	NOT TESTED
Red	Methylcyclohexane			Not Tested	NOT TESTED
Red	Methylethylketone			Not Tested	NOT TESTED
Red	Methylisobutylketone			Not Tested	NOT TESTED
Red	N,N-dimethylacetamide			Not Tested	NOT TESTED
Red	N,N-dimethylformamide			Not Tested	NOT TESTED
Red	N-Methylpyrrolidone			Not Tested	NOT TESTED
Red	Nitromethane			Not Tested	NOT TESTED
Red	Pentane	No Method Provided	<	3.8200	ACCEPTABLE
Red	Propane	No Method Provided	<	600.0000	ACCEPTABLE

Sample Report

Appendix B

Hemp_Oils Additional Residues Reported in the September 22, 2025 Samples

Lab Number: 193126

Group=Residual Solvents (ug/g ppm)

Sample	Additional Residue	Method Reported by 193126	Modifier Reported by 193126	Value Reported by 193126	Evaluation
Red	Propyl_acetate			Not Tested	***NOT TESTED***
Red	Pyridine			Not Tested	***NOT TESTED***
Red	Sulfolane			Not Tested	***NOT TESTED***
Red	Tetrahydrofuran			Not Tested	***NOT TESTED***
Red	Tetralin			Not Tested	***NOT TESTED***
Red	Toluene	No Method Provided	<	7.6400	***ACCEPTABLE***
Red	Trichloroethylene	No Method Provided	<	0.0382	***ACCEPTABLE***
Red	Triethylamine			Not Tested	***NOT TESTED***
Red	Xylene	No Method Provided	<	7.6400	***ACCEPTABLE***
Red	m,p-Xylenes			Not Tested	***NOT TESTED***
Red	n-Butane	No Method Provided	<	600.0000	***ACCEPTABLE***
Red	n-Heptane	No Method Provided	<	15.3000	***ACCEPTABLE***
Red	n-Hexane	No Method Provided	<	7.6400	***ACCEPTABLE***
Red	n-Pentane			Not Tested	***NOT TESTED***
Red	o-Xylene			Not Tested	***NOT TESTED***
Red	tert-Butylmethyl_ether			Not Tested	***NOT TESTED***

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Pesticides (ug/g ppm) Test=Acetamiprid

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
LC-MS/MS	.		0.1430	0.1071	0.0101
LC-MS/MS	.		0.1400	0.0000	0.0101
MF-CHEM 13	.		0.1390	-0.0357	0.0101
LC-MS/MS	.		0.1480	0.2857	0.0101
SOP.402	.		0.1030	-1.3214	0.0101
LCQQQ	0.1330	-0.2500			0.0101
LC/MS/MS	0.1030	-1.3214			0.0101
Official Methods of Analysis, AOAC Official Method 2007.01, Pesticide Residues i	0.1000	-1.4286			0.0101
LCMS	0.0820	-2.0714			0.0101
PAT-AM-024, PAT-AM-034 AOAC 2007.01, PAT-AM-033 (Modified AOAC 2007.01)	0.1690	1.0357			0.0101
LC-MS/MS	0.1368	-0.1143			0.0101
ACS SOP	0.1335	-0.2321			0.0101

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Pesticides (ug/g ppm) Test=Coumaphos

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
LC-MS/MS	.		0.1140	0.0000	0.0095
LC-MS/MS	.		0.1210	0.3070	0.0095
MF-CHEM 13	.		0.1140	0.0000	0.0095
LC-MS/MS	.		0.1000	-0.6140	0.0095
SOP.402	.		0.0939	-0.8816	0.0095
LCQQQ	0.1850	3.1140			0.0095
LC/MS/MS	0.0810				
	Not Tested				
	Not Tested				
PAT-AM-024, PAT-AM-034 AOAC 2007.01, PAT-AM-033 (Modified AOAC 2007.01)	0.1290	0.6579			0.0095
LC-MS/MS	0.0960	-0.7895			0.0095
ACS SOP	0.0964	-0.7719			0.0095

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Pesticides (ug/g ppm) Test=Diazinon

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
LC-MS/MS	.		0.2690	0.0000	0.0203
LC-MS/MS	.		0.2770	0.1487	0.0203
MF-CHEM 13	.		0.2870	0.3346	0.0203
LC-MS/MS	.		0.2240	-0.8364	0.0203
SOP.402	.		0.2030	-1.2268	0.0203
LCQQQ	0.2850	0.2974			0.0203
LC/MS/MS	0.2230	-0.8550			0.0203
	Not Tested				
LCMS	0.1400	-2.3978			0.0203
PAT-AM-024, PAT-AM-034 AOAC 2007.01, PAT-AM-033 (Modified AOAC 2007.01)	0.2970	0.5204			0.0203
LC-MS/MS	0.2524	-0.3086			0.0203
ACS SOP	0.2556	-0.2491			0.0203

Sample Report

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Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Pesticides (ug/g ppm) Test=Fenpyroximate (mix of

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
LC-MS/MS	.		0.1510	-1.1675	0.0142
LC-MS/MS	.		0.2310	0.8629	0.0142
MF-CHEM 13	.		0.1970	0.0000	0.0142
LC-MS/MS	.		0.1380	-1.4975	0.0142
SOP.402	.		0.2800	2.1066	0.0142
LCQQQ	0.2570	1.5228			0.0142
LC/MS/MS	0.1800	-0.4315			0.0142
Official Methods of Analysis, AOAC Official Method 2007.01, Pesticide Residues i	0.1100	-2.2081			0.0142
LCMS	0.1140	-2.1066			0.0142
PAT-AM-024, PAT-AM-034 AOAC 2007.01, PAT-AM-033 (Modified AOAC 2007.01)	0.1990	0.0508			0.0142
LC-MS/MS	0.1715	-0.6472			0.0142
ACS SOP	0.1500	-1.1929			0.0142

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Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Pesticides (ug/g ppm) Test=Hexythiazox

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
LC-MS/MS	.		0.1160	0.0000	0.0087
LC-MS/MS	.		0.1500	1.4655	0.0087
MF-CHEM 13	.		0.1320	0.6897	0.0087
LC-MS/MS	.		< 0.1000		
SOP.402	.		0.1140	-0.0862	0.0087
LCQQQ	0.2220	4.5690			0.0087
LC/MS/MS	0.1280	0.5172			0.0087
Official Methods of Analysis, AOAC Official Method 2007.01, Pesticide Residues i	0.1100	-0.2586			0.0087
LCMS	0.0450	-3.0603			0.0087
PAT-AM-024, PAT-AM-034 AOAC 2007.01, PAT-AM-033 (Modified AOAC 2007.01)	0.1180	0.0862			0.0087
LC-MS/MS	0.1439	1.2026			0.0087
ACS SOP	0.0788	-1.6034			0.0087

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Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Pesticides (ug/g ppm) Test=Imazalil

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
LC-MS/MS	.		0.0750	-0.1550	0.0056
LC-MS/MS	.		0.0700	-0.4780	0.0056
MF-CHEM 13	.		0.1020	1.5891	0.0056
LC-MS/MS	.		0.1030	1.6537	0.0056
SOP.402	.		0.0774	0.0000	0.0056
LCQQQ	0.0978	1.3178			0.0056
LC/MS/MS	0.0820	0.2972			0.0056
Official Methods of Analysis, AOAC Official Method 2007.01, Pesticide Residues i	0.0700	-0.4780			0.0056
LCMS	0.0830	0.3618			0.0056
PAT-AM-024, PAT-AM-034 AOAC 2007.01, PAT-AM-033 (Modified AOAC 2007.01)	0.0930	1.0078			0.0056
LC-MS/MS	0.1047	1.7636			0.0056
ACS SOP	0.0852	0.5039			0.0056

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Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Pesticides (ug/g ppm) Test=Propiconazole (tilt)

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
LC-MS/MS	.		0.2230	0.0000	0.0176
LC-MS/MS	.		0.2310	0.1794	0.0176
MF-CHEM 13	.		0.2200	-0.0673	0.0176
LC-MS/MS	.		0.2220	-0.0224	0.0176
SOP.402	.		0.2830	1.3453	0.0176
LCQQQ	0.3500	2.8475			0.0176
LC/MS/MS	0.1420	-1.8161			0.0176
	Not Tested				
	Not Tested				
PAT-AM-024, PAT-AM-034 AOAC 2007.01, PAT-AM-033 (Modified AOAC 2007.01)	0.2440	0.4709			0.0176
LC-MS/MS	0.2196	-0.0762			0.0176
ACS SOP	0.2084	-0.3274			0.0176

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Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Pesticides (ug/g ppm) Test=Tebuconazole

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
LC-MS/MS	.		0.1330	0.0000	0.0096
LC-MS/MS	.		0.1460	0.4887	0.0096
MF-CHEM 13	.		0.1240	-0.3383	0.0096
LC-MS/MS	.		0.1180	-0.5639	0.0096
SOP.402	.		0.1500	0.6391	0.0096
LCQQQ	0.1900	2.1429			0.0096
LC/MS/MS	0.0930	-1.5038			0.0096
Official Methods of Analysis, AOAC Official Method 2007.01, Pesticide Residues i	0.1200	-0.4887			0.0096
LCMS	0.0810	-1.9549			0.0096
PAT-AM-024, PAT-AM-034 AOAC 2007.01, PAT-AM-033 (Modified AOAC 2007.01)	0.1510	0.6767			0.0096
LC-MS/MS	0.1231	-0.3722			0.0096
ACS SOP	0.1232	-0.3684			0.0096

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Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Mycotoxins (ug/g ppm) Test=Aflatoxin_B2

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
LC-MS/MS	.		0.0980	-0.1961	0.0077
LC-MS/MS	.		0.1040	0.0980	0.0077
MF-CHEM-13	.		0.1020	0.0000	0.0077
LC-MS/MS	.		0.1490	2.3039	0.0077
SOP.402	.		0.0991	-0.1422	0.0077
No Method Provided	0.0995	-0.1225			0.0077
LC/MS/MS	0.0930	-0.4412			0.0077
Official Methods of Analysis, AOAC Official Method 2007.01, Pesticide Residues i	0.0880	-0.6863			0.0077
LCMS	0.0851	-0.8279			0.0077
PAT-AM-024, PAT-AM-034 (Modified AOAC 2007.01)	0.1490	2.3039			0.0077
	Not Tested				
ACS SOP, LC-MS/MS	0.1010	-0.0490			0.0077

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Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Mycotoxins (ug/g ppm) Test=Aflatoxin_G1

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
LC-MS/MS	.		0.1170	-0.1653	0.0091
LC-MS/MS	.		0.1290	0.3306	0.0091
MF-CHEM-13	.		0.1280	0.2893	0.0091
LC-MS/MS	.		0.1040	-0.7025	0.0091
SOP.402	.		0.1210	0.0000	0.0091
No Method Provided	0.1170	-0.1653			0.0091
LC/MS/MS	0.1170	-0.1653			0.0091
Official Methods of Analysis, AOAC Official Method 2007.01, Pesticide Residues i	0.1050	-0.6612			0.0091
LCMS	0.0930	-1.1570			0.0091
PAT-AM-024, PAT-AM-034 (Modified AOAC 2007.01)	0.1740	2.1901			0.0091
	Not Tested				
ACS SOP, LC-MS/MS	0.1283	0.3017			0.0091

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Heavy Metals (ug/kg ppb) Test=Antimony

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
ICP-MS	.		10885.000	0.0000	1571.1144
ICP-MS	.		7732.0000	-1.4483	1571.1144
MF-CHEM 16	.		Not Tested		
ICP-MS	.		Not Tested		
SOP.502	.		13600.000	1.2471	1571.1144
	Not Tested				
ICP-MS	Not Tested				
Official Methods of Analysis, Methods 2011.19 and 993.14, and 2015.01, AOAC INTE	Not Tested				
GFAAS and HVG-1	Not Tested				
PAT-AM-020 (USP-233 and EP-2.4.27 Modified)	Not Tested				
	Not Tested				
	Not Tested				

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Heavy Metals (ug/kg ppb) Test=Copper

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
ICP-MS	.		1504.0000	0.0000	188.0000
ICP-MS	.		1348.0000	-0.5186	188.0000
MF-CHEM 16	.		Not Tested		
ICP-MS	.		Not Tested		
SOP.502	.		1750.0000	0.8178	188.0000
	Not Tested				
ICP-MS	Not Tested				
Official Methods of Analysis, Methods 2011.19 and 993.14, and 2015.01, AOAC INTE	Not Tested				
GFAAS and HVG-1	Not Tested				
PAT-AM-020 (USP-233 and EP-2.4.27 Modified)	1968.0000	1.5426			188.0000
	Not Tested				
	Not Tested				

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Heavy Metals (ug/kg ppb) Test=Total_Arsenic

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
ICP-MS	.		326.0000	0.7597	22.3731
ICP-MS	.		304.0000	0.3710	22.3731
MF-CHEM 16	.		220.0000	-1.1131	22.3731
ICP-MS	.		250.0000	-0.5830	22.3731
SOP.502	.		283.0000	0.0000	22.3731
No Method Provided	408.0000	2.2085			22.3731
ICP-MS	429.6000	2.5901			22.3731
Official Methods of Analysis, Methods 2011.19 and 993.14, and 2015.01, AOAC INTE	845.0000	9.9293			22.3731
GFAAS and HVG-1	Not Tested				
PAT-AM-020 (USP-233 and EP-2.4.27 Modified)	434.0000	2.6678			22.3731
No Method Provided	162.0000	-2.1378			22.3731
	Not Tested				

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Heavy Metals (ug/kg ppb) Test=Total_Mercury

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
ICP-MS	.		132.0000	0.4772	9.5264
ICP-MS	.		153.0000	1.3485	9.5264
MF-CHEM 16	.		< 10.0000		
ICP-MS	.		109.0000	-0.4772	9.5264
SOP.502	.		108.0000	-0.5187	9.5264
No Method Provided	156.0000	1.4730			9.5264
ICP-MS	53.7000	-2.7718			9.5264
Official Methods of Analysis, Methods 2011.19 and 993.14, and 2015.01, AOAC INTE	126.0000	0.2282			9.5264
GFAAS and HVG-1	0.4028	-4.9833			9.5264
PAT-AM-020 (USP-233 and EP-2.4.27 Modified)	126.0000	0.2282			9.5264
No Method Provided	154.0000	1.3900			9.5264
	Not Tested				

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Residual Solvents (ug/g ppm) Test=1,2-Dichloroethane

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
HS-GC/MS	.		1.6700	0.7986	0.1361
HS-GC/MS	.		1.8500	1.4236	0.1361
MF-CHEM 32	.		< 0.5000		
GC-MS	.		1.4000	-0.1389	0.1361
SOP.204	.		1.4400	0.0000	0.1361
GCMS-HS	0.1800				
GCMS HS-FET	0.6500	-2.7431			0.1361
	Not Tested				
GCMS	0.9480	-1.7083			0.1361
PAT-AM-021 (USP <467> Modified)	5.0000				
HS-GC/MS/MS	1.4880	0.1667			0.1361
	Not Tested				

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Residual Solvents (ug/g ppm) Test=Acetonitrile

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
HS-GC/MS	.		196.0000	-0.1000	16.6667
HS-GC/MS	.		200.0000	0.0000	16.6667
MF-CHEM 32	.		< 200.0000		
GC-MS	.		225.0000	0.6250	16.6667
SOP.204	.		181.0000	-0.4750	16.6667
GCMS-HS	173.0000	-0.6750			16.6667
GCMS HS-FET	180.1500	-0.4962			16.6667
Internally Developed Method	22220.000	550.5000			16.6667
GCMS	205.7600	0.1440			16.6667
PAT-AM-021 (USP <467> Modified)	410.0000				
HS-GC/MS/MS	231.6900	0.7923			16.6667
	Not Tested				

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

Group=Residual Solvents (ug/g ppm) Test=Ethanol

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
HS-GC/MS	.		2180.0000	0.0323	191.4492
HS-GC/MS	.		2166.0000	0.0000	191.4492
MF-CHEM 32	.		2160.0000	-0.0139	191.4492
No Method Provided	.		< 167.0000		
SOP.204	.		1880.0000	-0.6602	191.4492
GCMS-HS	1660.0000	-1.1681			191.4492
GCMS HS-FET	1769.7800	-0.9146			191.4492
Internally Developed Method	1810.0000	-0.8218			191.4492
GCMS	767.7510	-3.2277			191.4492
PAT-AM-021 (USP <467> Modified)	5000.0000				
HS-GC/MS/MS	20.0000				
	Not Tested				

Sample Report

Appendix C

Hemp_Oils Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 9/22/2025

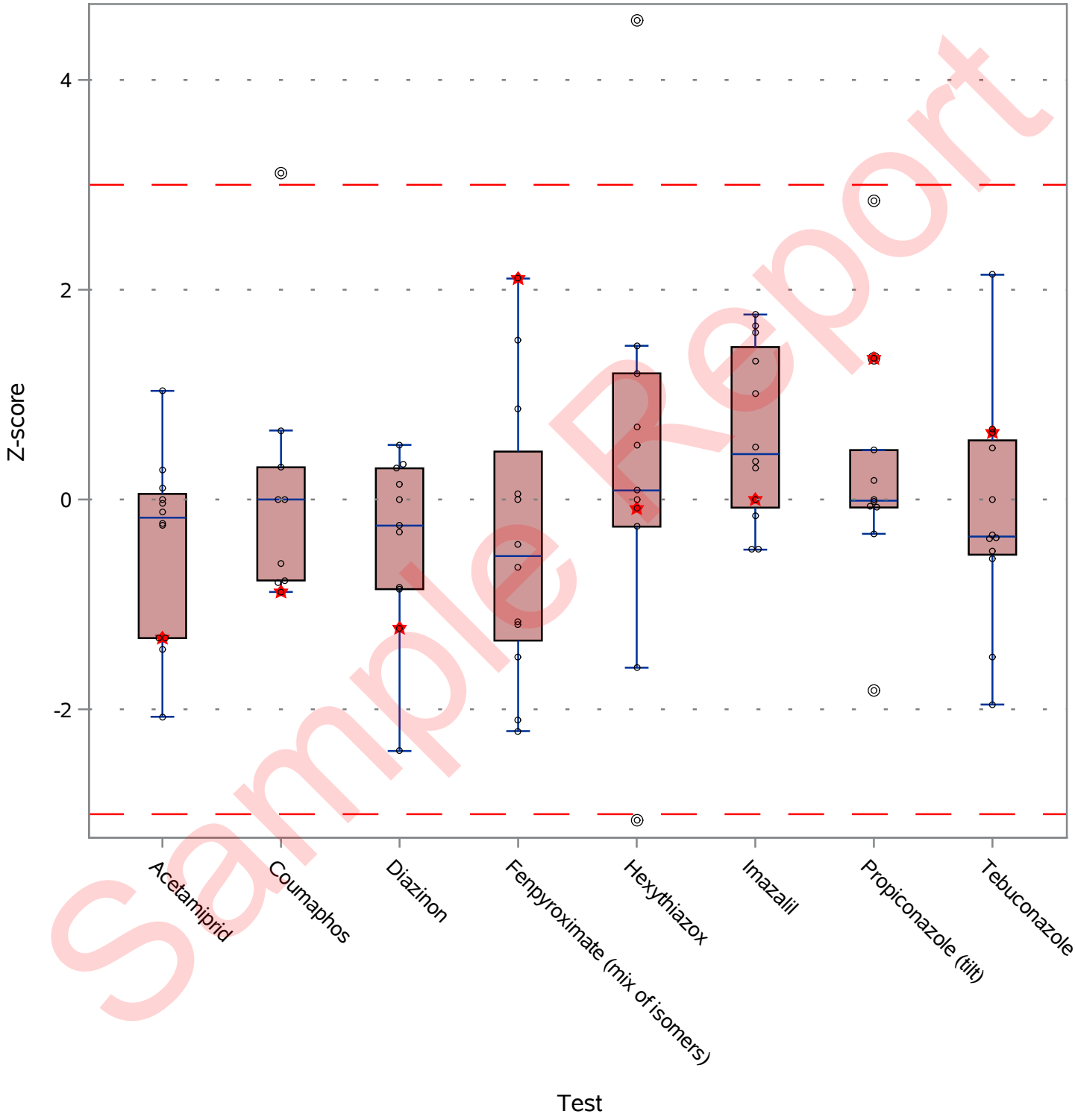
Group=Residual Solvents (ug/g ppm) Test=Methylene_chloride

Method	Participating Laboratories Reported Result	Participating Laboratories z-Score	Reference Laboratories Reported Result	Reference Laboratories z-Score	Standard uncertainty of the assigned value
HS-GC/MS	.		1021.0000	0.3233	84.7644
HS-GC/MS	.		965.0000	0.0313	84.7644
MF-CHEM 32	.		416.0000	-2.8311	84.7644
GC-MS	.		852.0000	-0.5579	84.7644
SOP.204	.		959.0000	0.0000	84.7644
GCMS-HS	950.0000	-0.0469			84.7644
GCMS HS-FET	1023.8400	0.3381			84.7644
	Not Tested				
	Not Tested				
PAT-AM-021 (USP <467> Modified)	649.0000	-1.6163			84.7644
HS-GC/MS/MS	4.0000				
	Not Tested				

Sample Report

Appendix D
Hemp_Oils Z-Score Distributions
Red Sample
Site = 193126

Group=Pesticides (ug/g ppm)

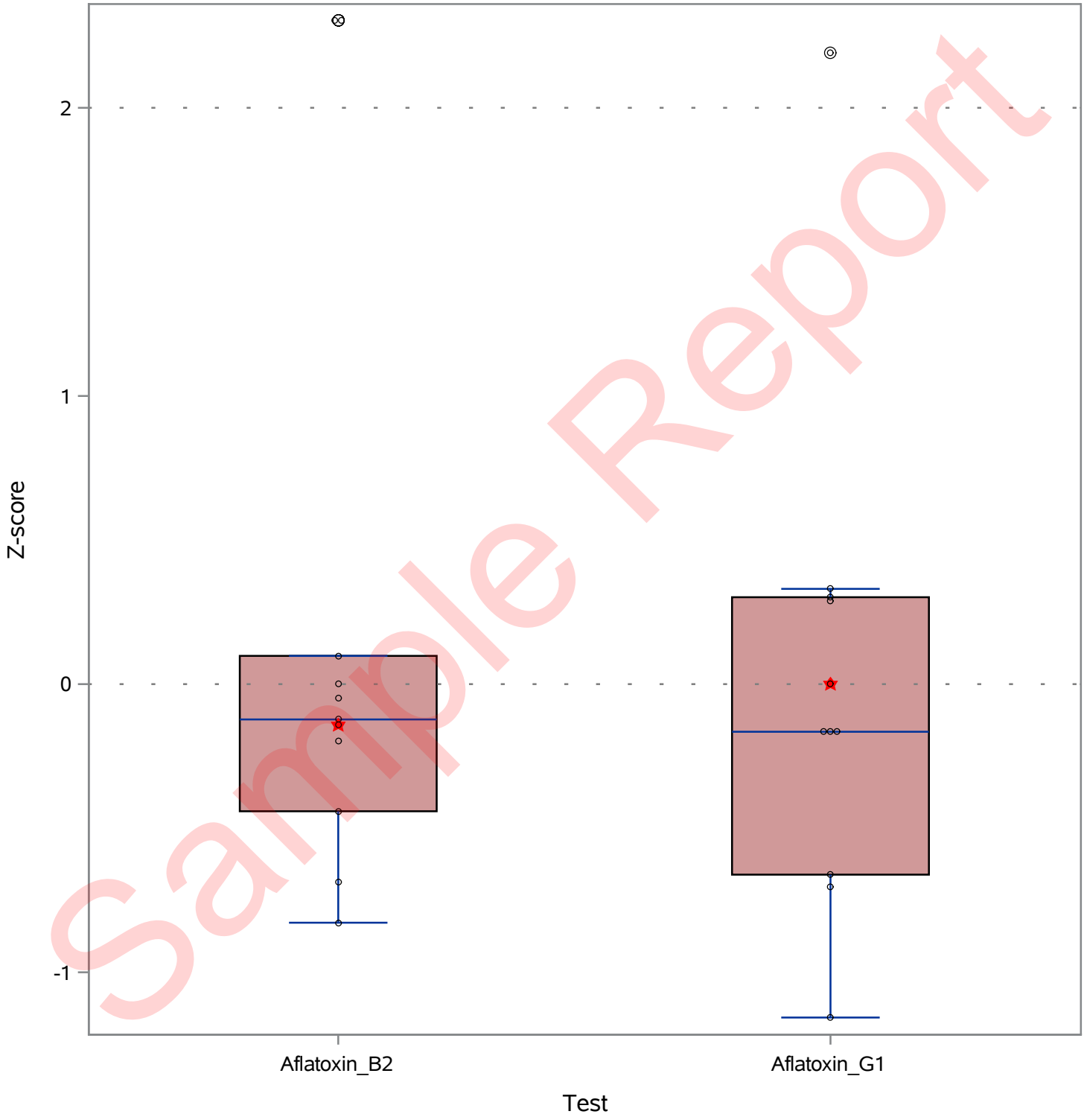


Sample Report

Note: Your Result (Red Star) Compared to All Results

Appendix D
Hemp_Oils Z-Score Distributions
Red Sample
Site = 193126

Group=Mycotoxins (ug/g ppm)

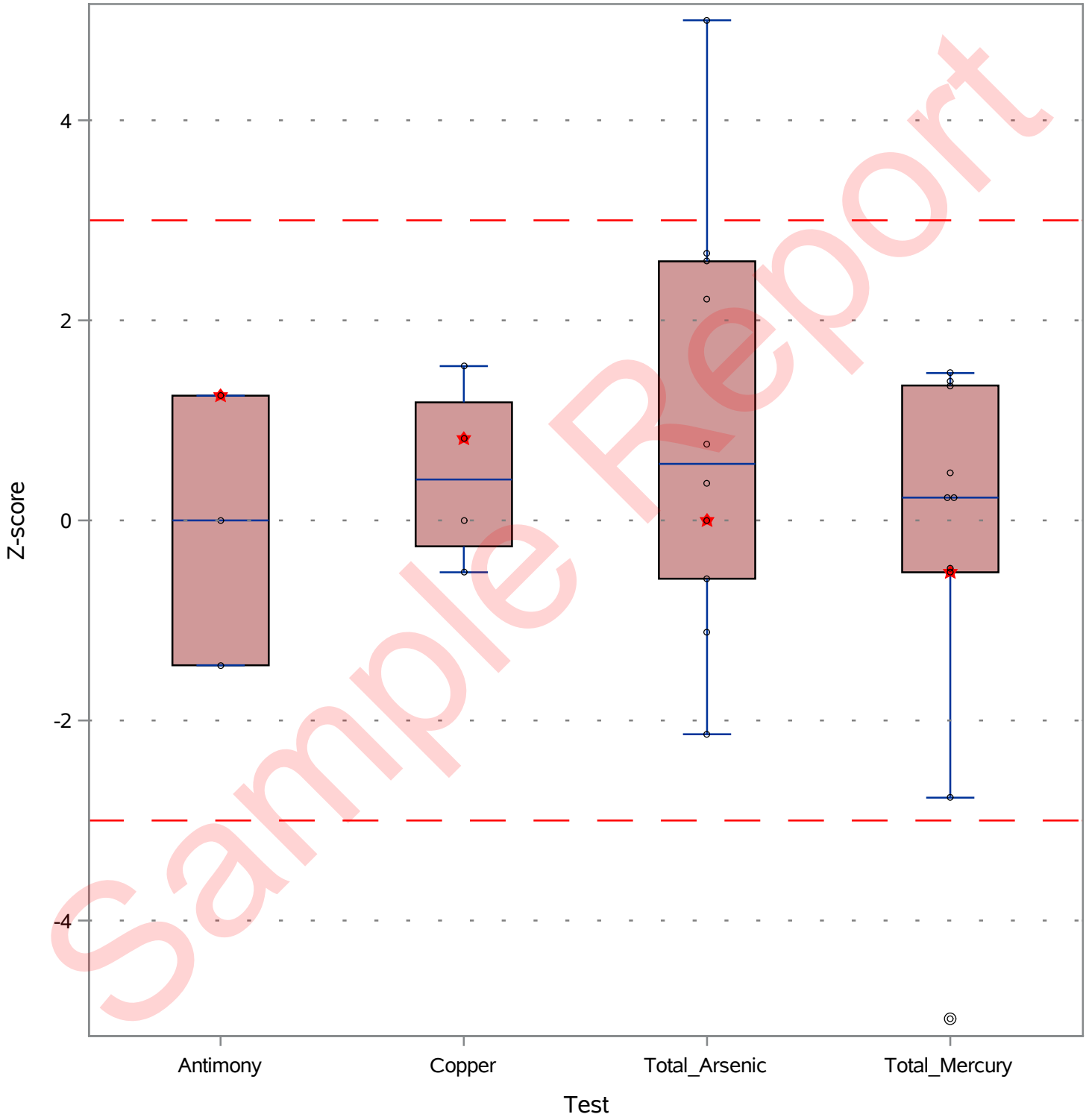


Sample Report

Note: Your Result (Red Star) Compared to All Results

Appendix D
Hemp_Oils Z-Score Distributions
Red Sample
Site = 193126

Group=Heavy Metals (ug/kg ppb)

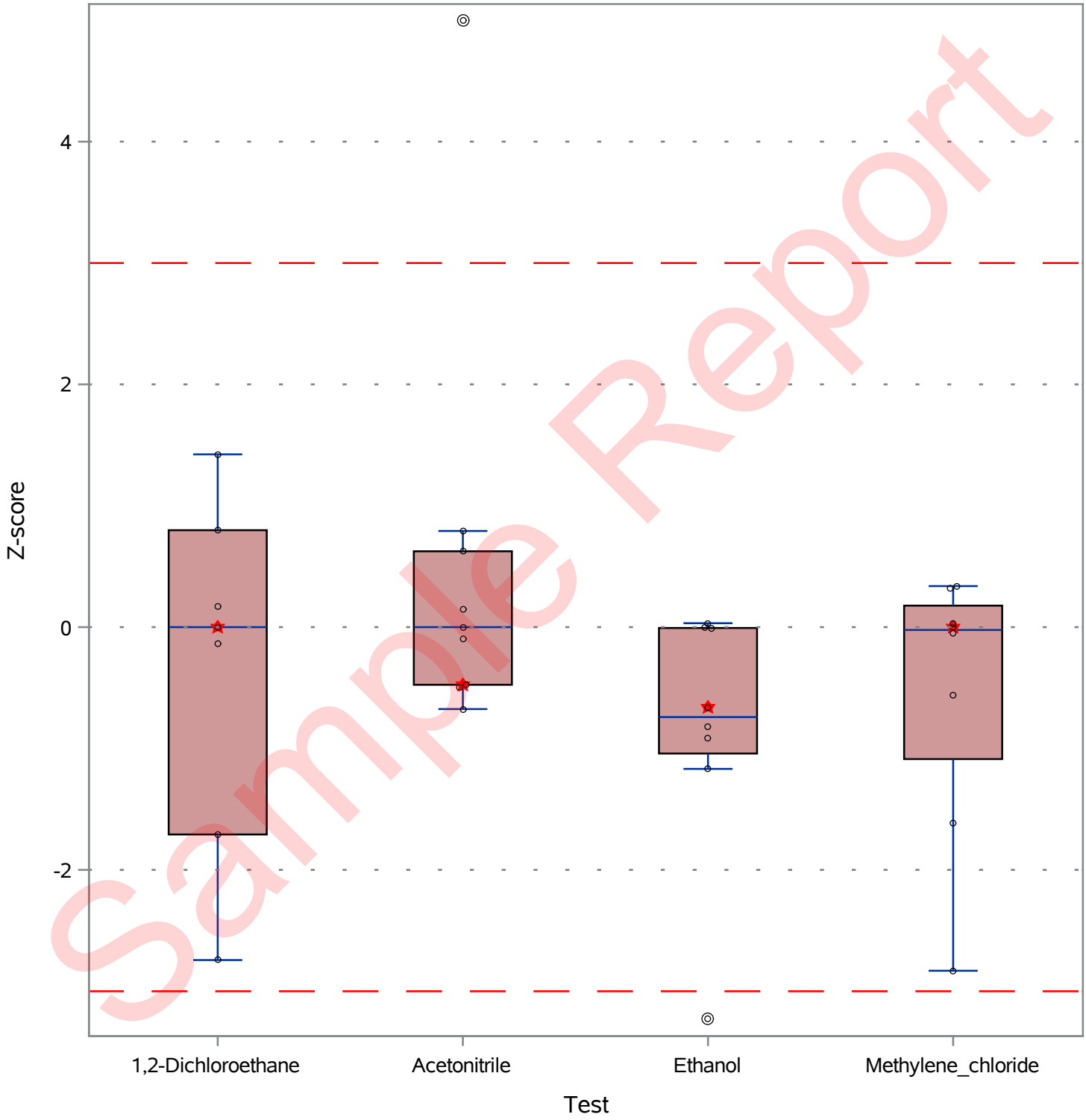


Sample Report

Note: Your Result (Red Star) Compared to All Results

Appendix D
Hemp_Oils Z-Score Distributions
Red Sample
Site = 193126

Group=Residual Solvents (ug/g ppm)

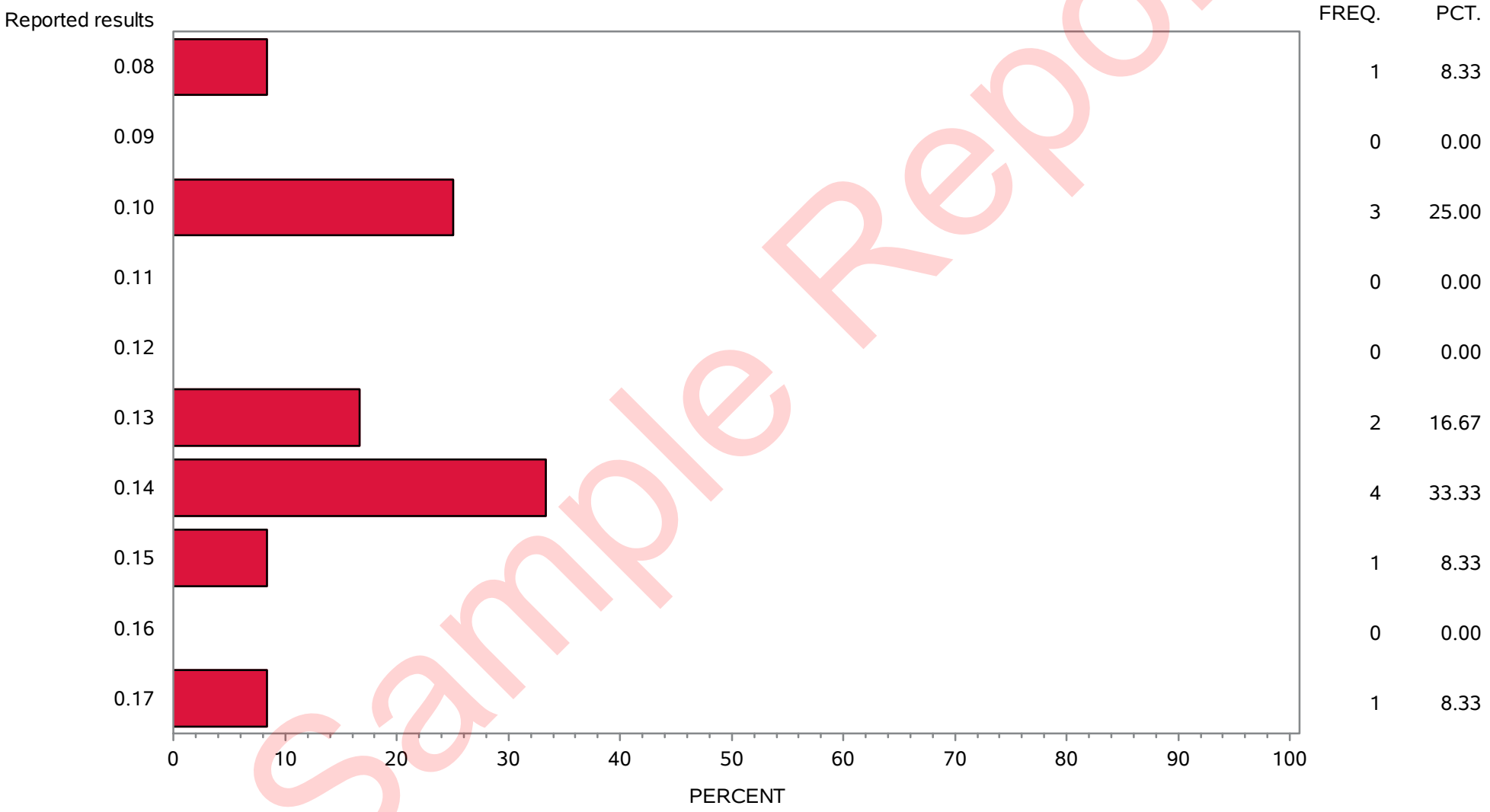


Sample Report

Note: Your Result (Red Star) Compared to All Results

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

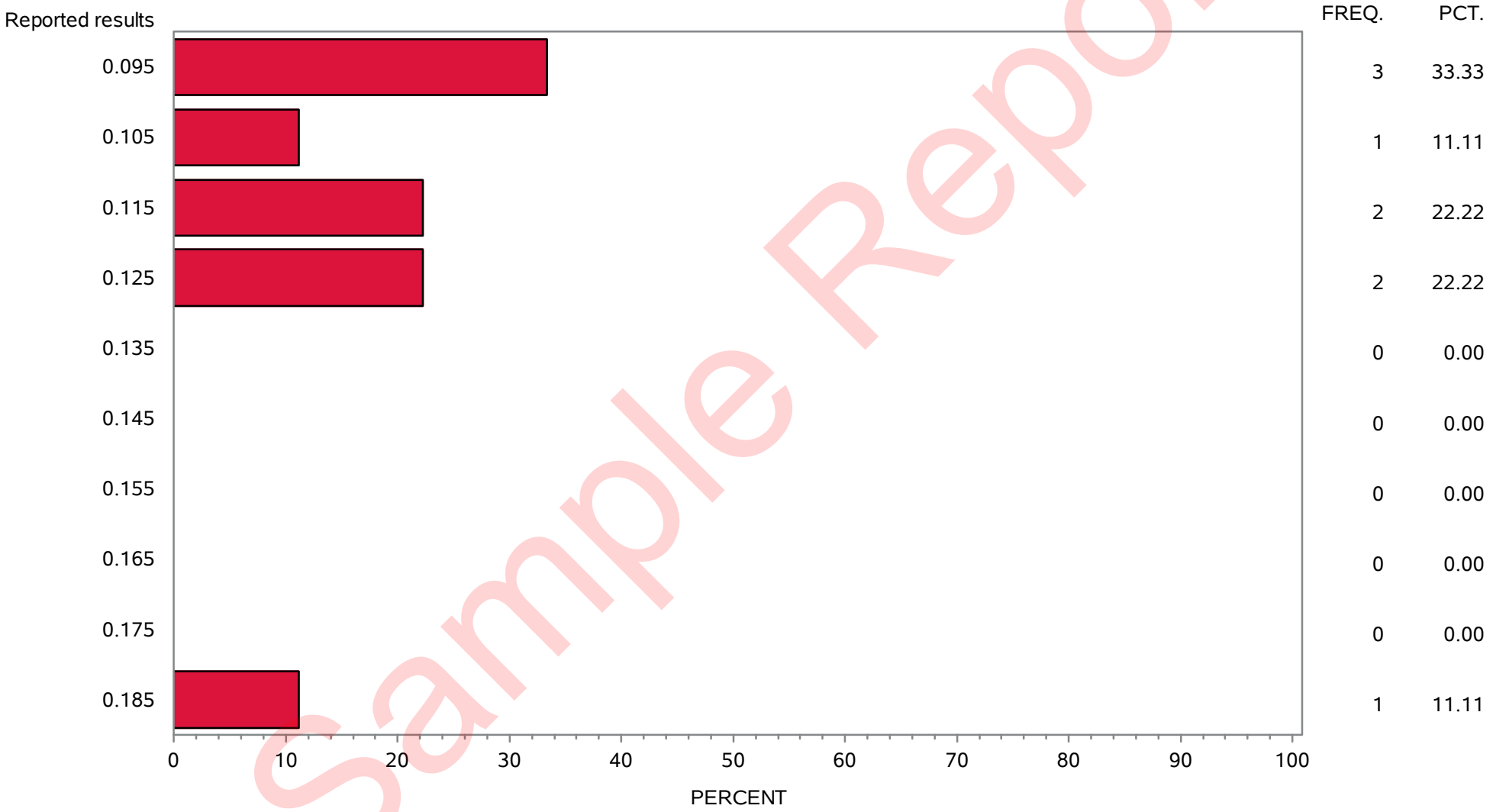
Group=Pesticides (ug/g ppm) Test=Acetamiprid



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

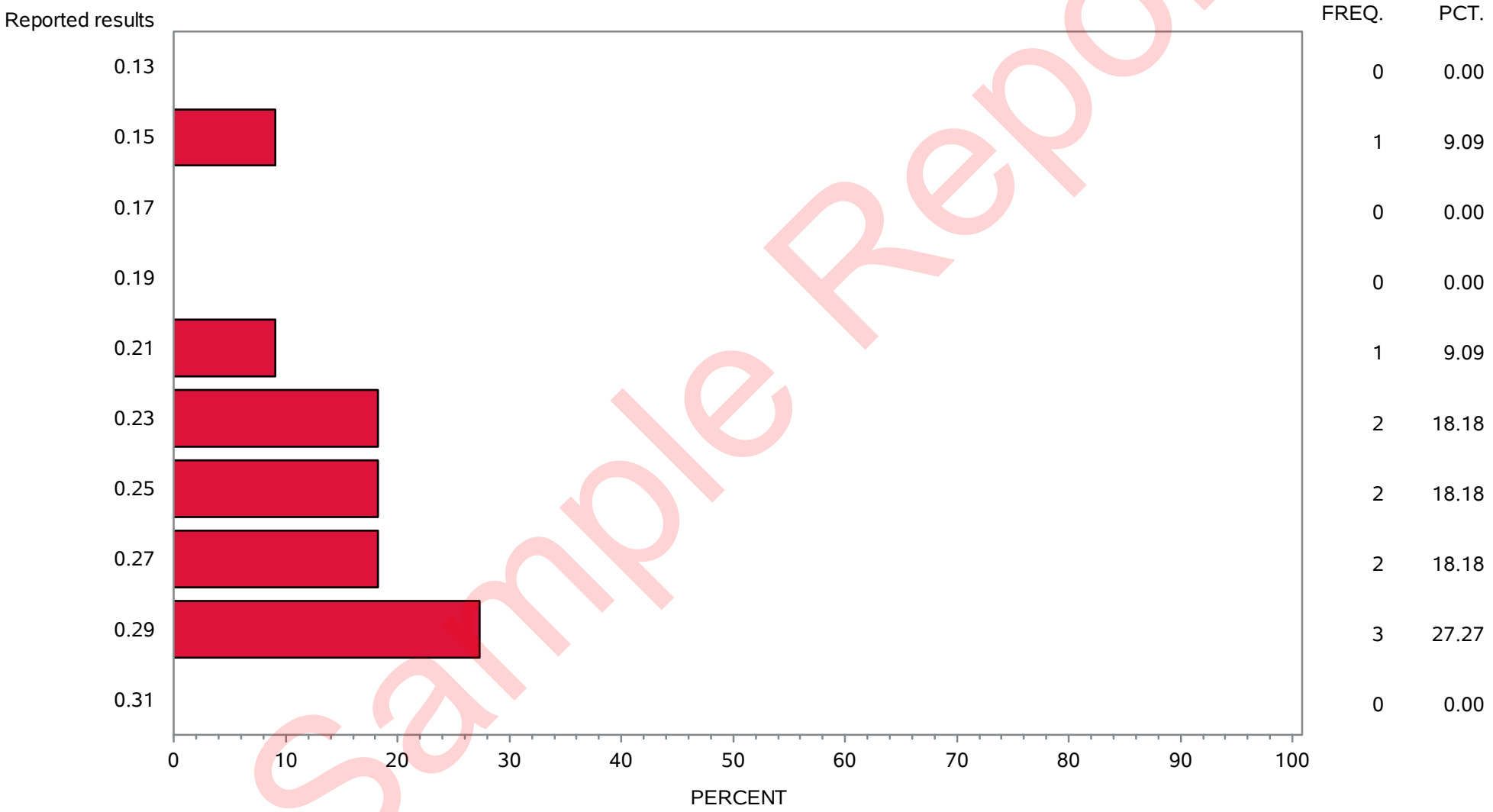
Group=Pesticides (ug/g ppm) Test=Coumaphos



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

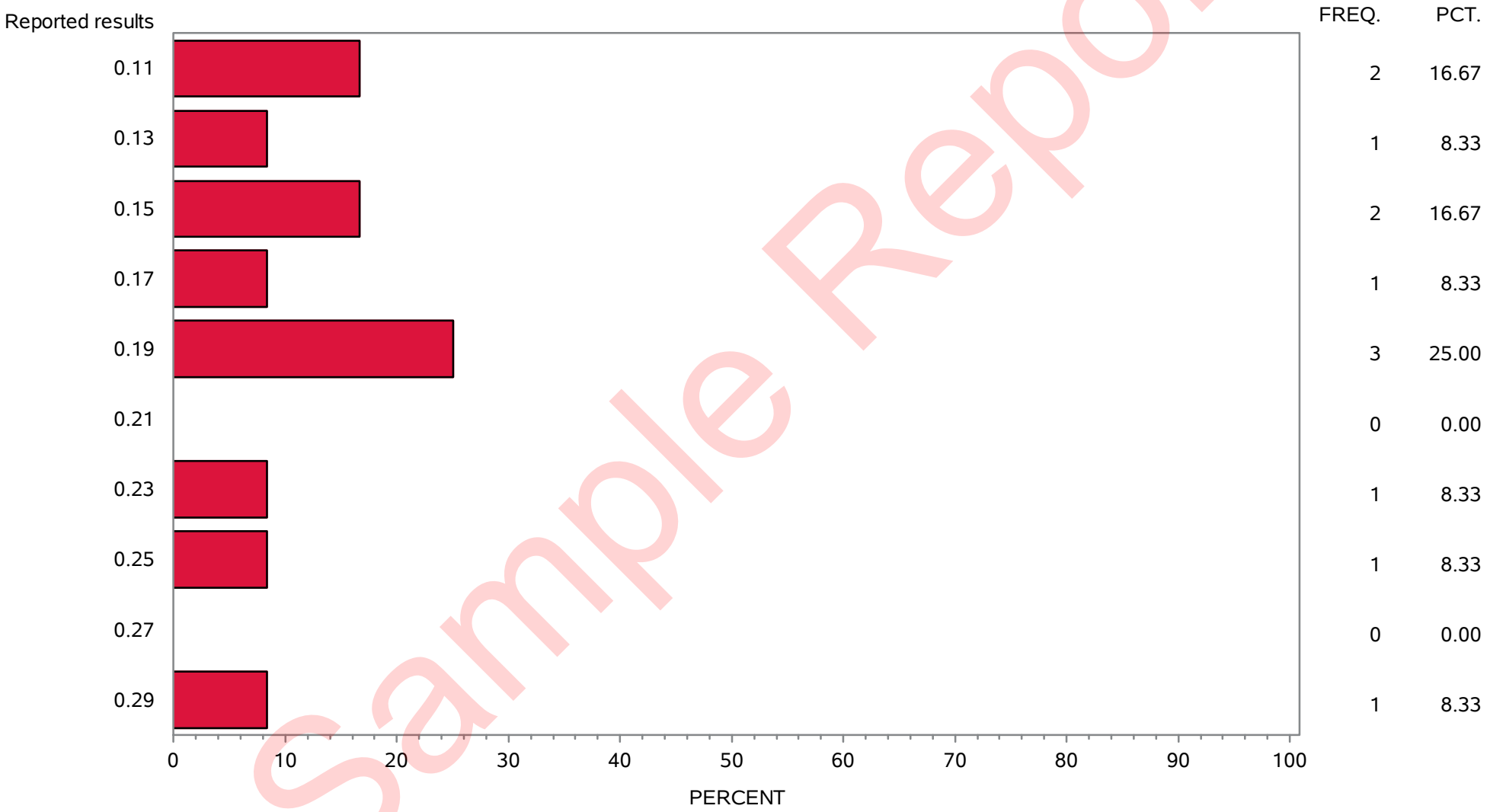
Group=Pesticides (ug/g ppm) Test=Diazinon



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

Group=Pesticides (ug/g ppm) Test=Fenpyroximate (mix of isomers)

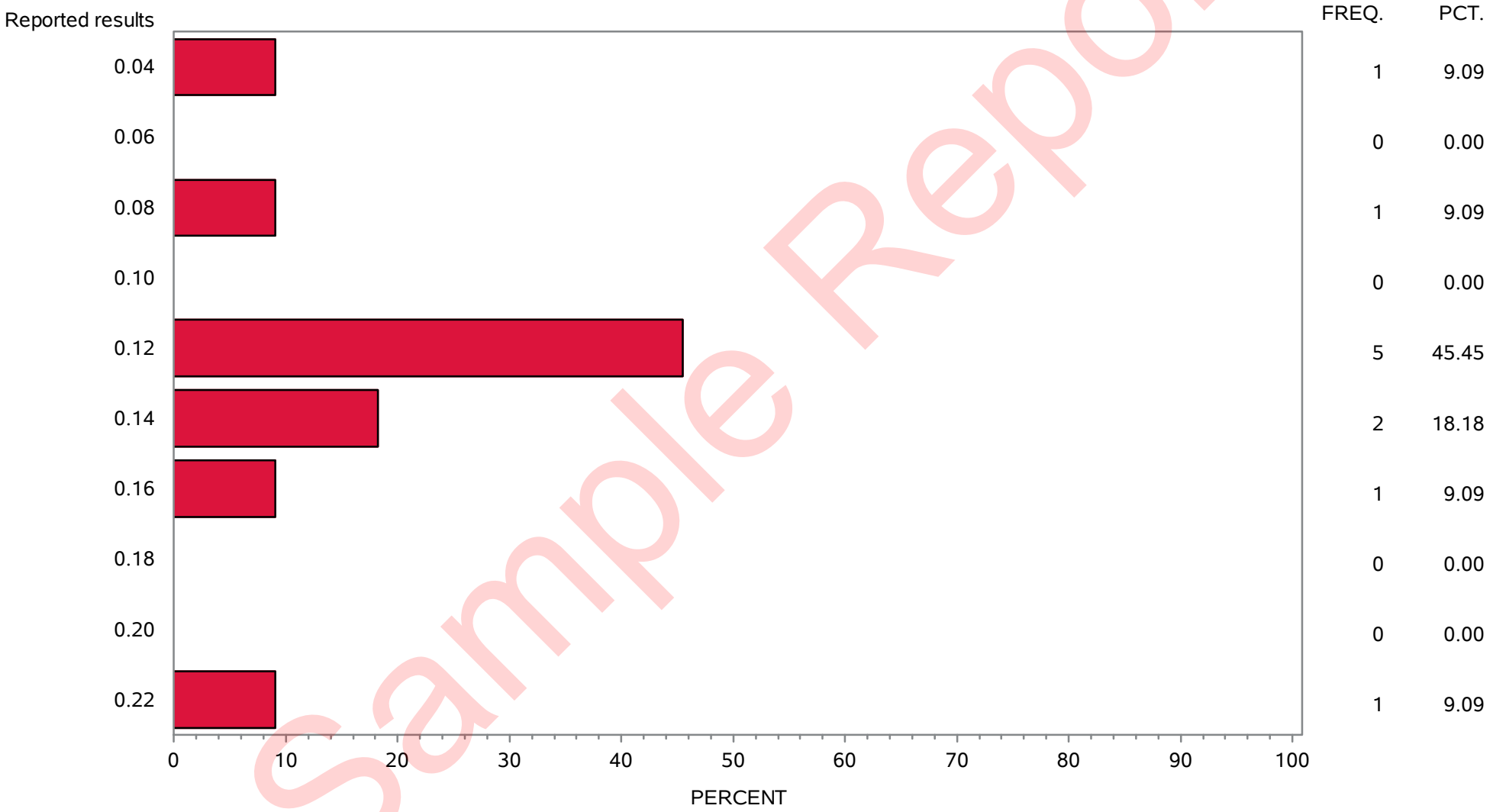


Reported results	FREQ.	PCT.
0.11	2	16.67
0.13	1	8.33
0.15	2	16.67
0.17	1	8.33
0.19	3	25.00
0.21	0	0.00
0.23	1	8.33
0.25	1	8.33
0.27	0	0.00
0.29	1	8.33

Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

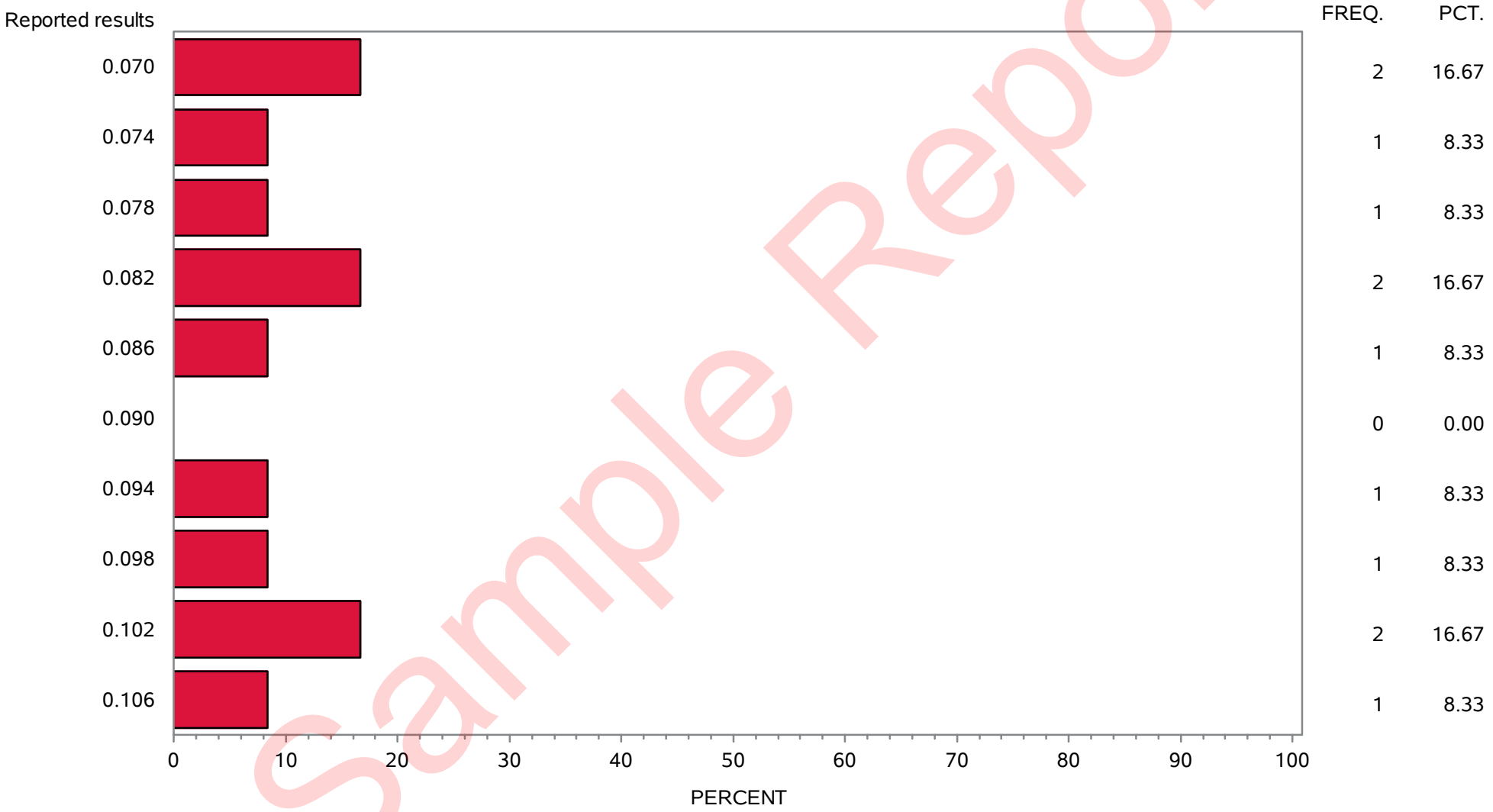
Group=Pesticides (ug/g ppm) Test=Hexythiazox



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

Group=Pesticides (ug/g ppm) Test=Imazalil

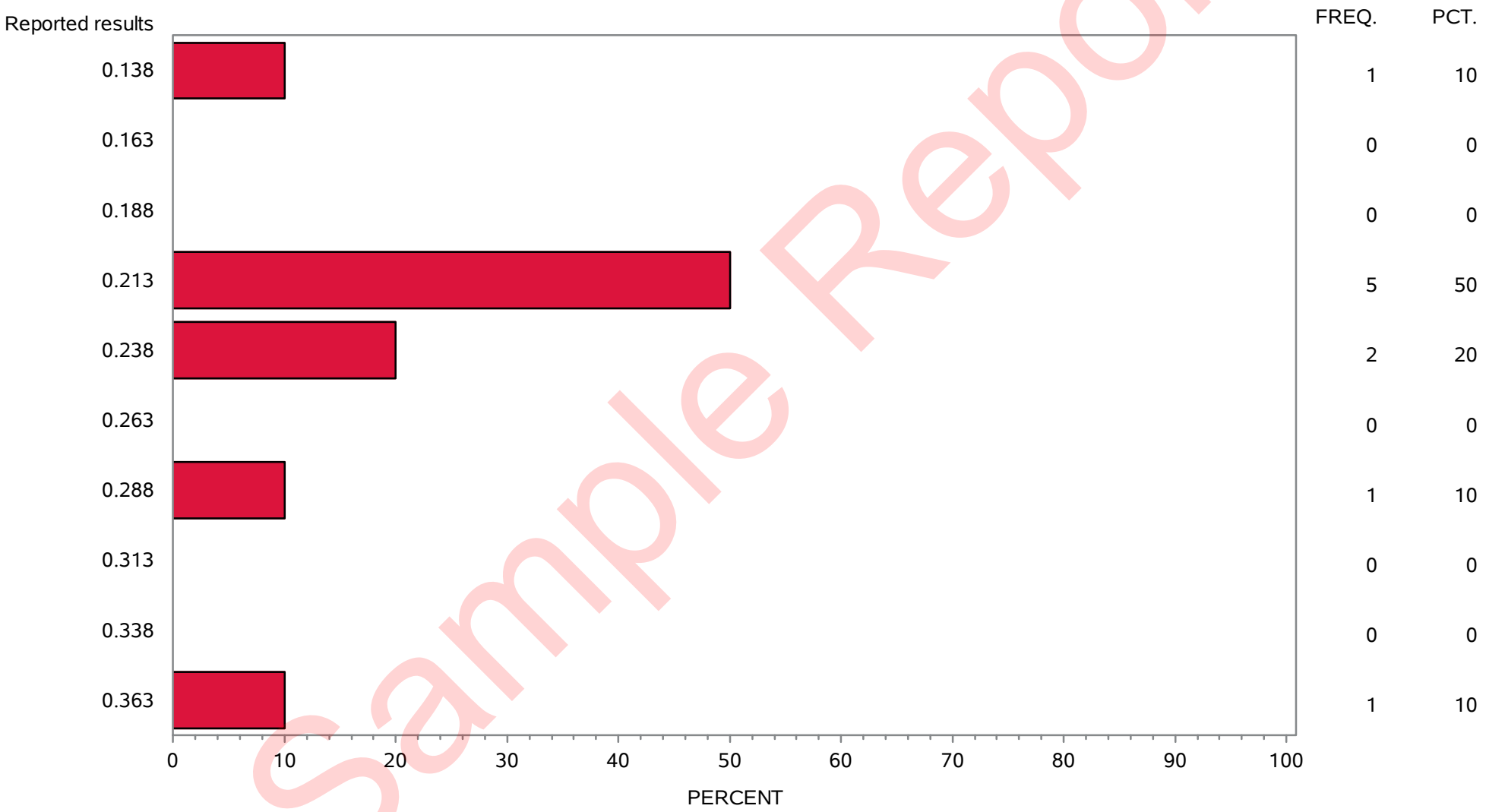


Reported results	FREQ.	PCT.
0.070	2	16.67
0.074	1	8.33
0.078	1	8.33
0.082	2	16.67
0.086	1	8.33
0.090	0	0.00
0.094	1	8.33
0.098	1	8.33
0.102	2	16.67
0.106	1	8.33

Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

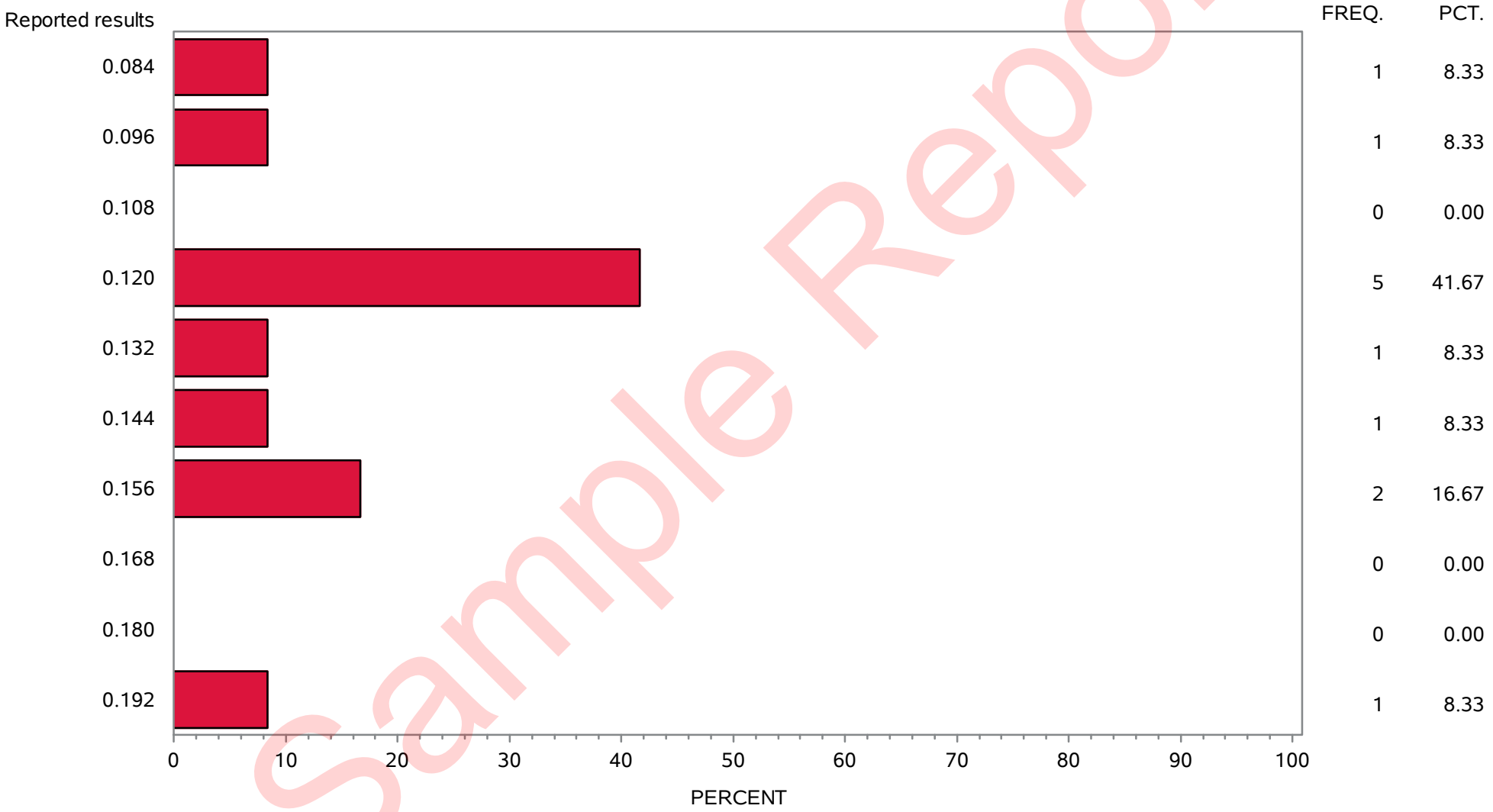
Group=Pesticides (ug/g ppm) Test=Propiconazole (tilt)



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

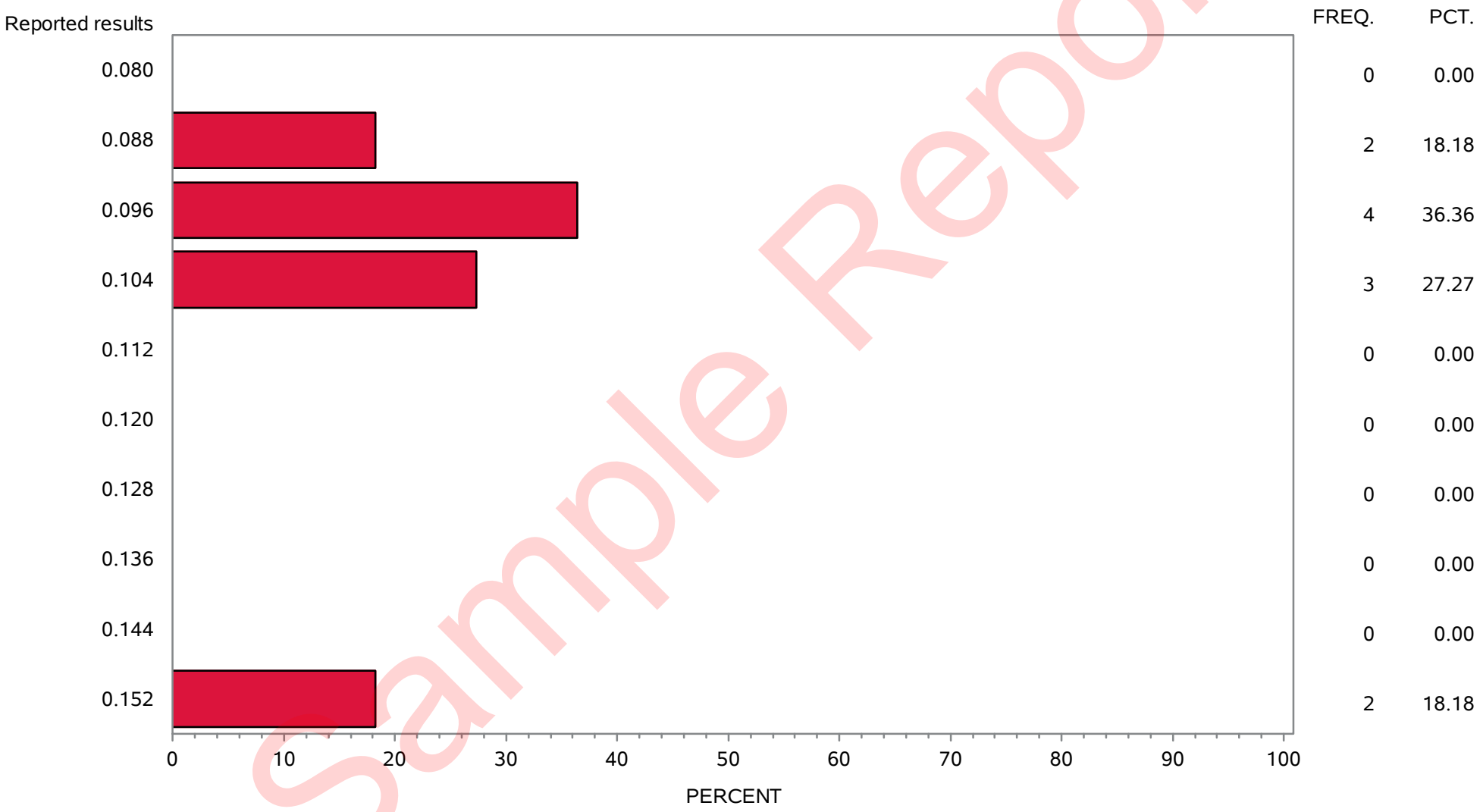
Group=Pesticides (ug/g ppm) Test=Tebuconazole



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

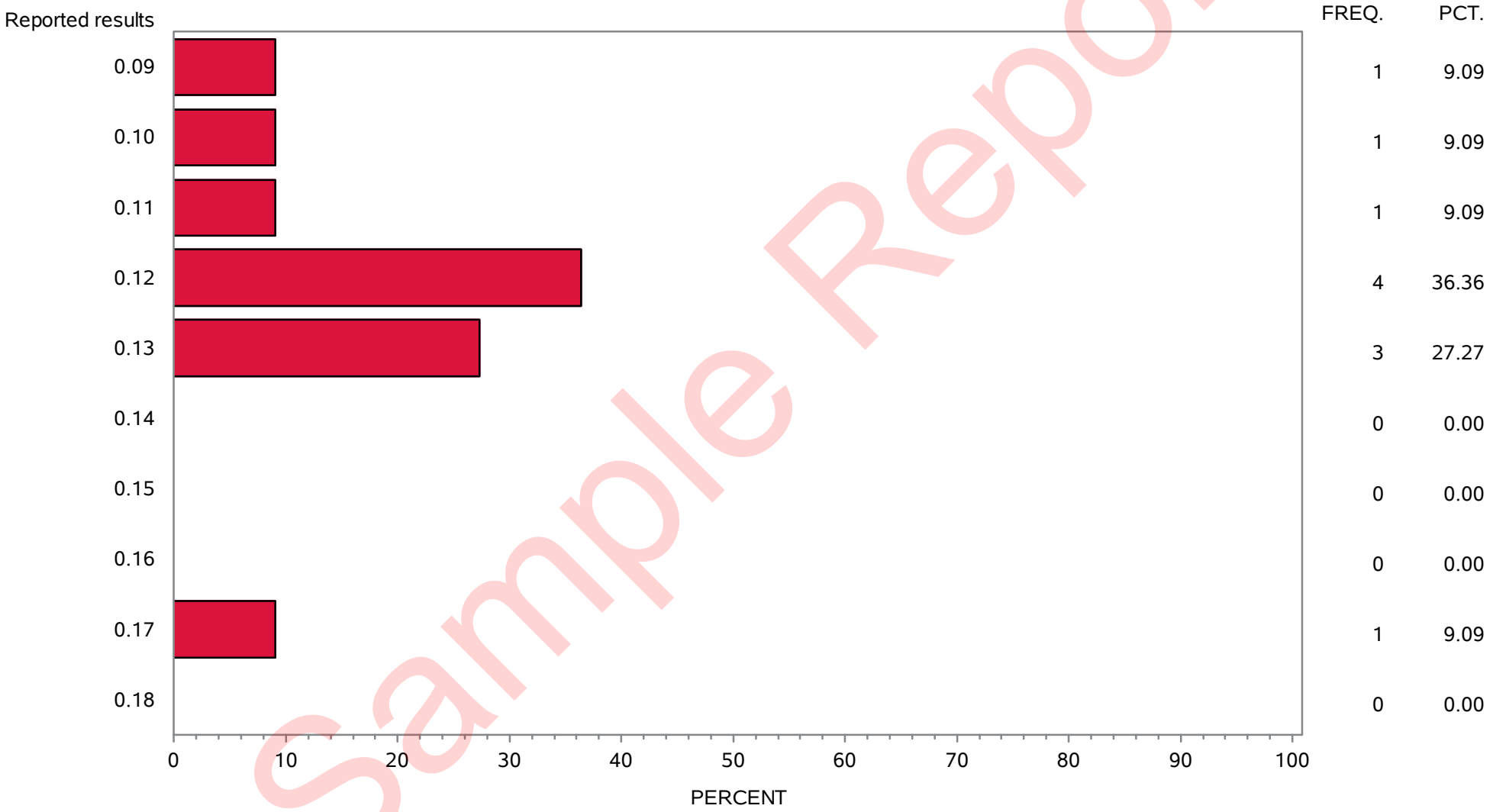
Group=Mycotoxins (ug/g ppm) Test=Aflatoxin_B2



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

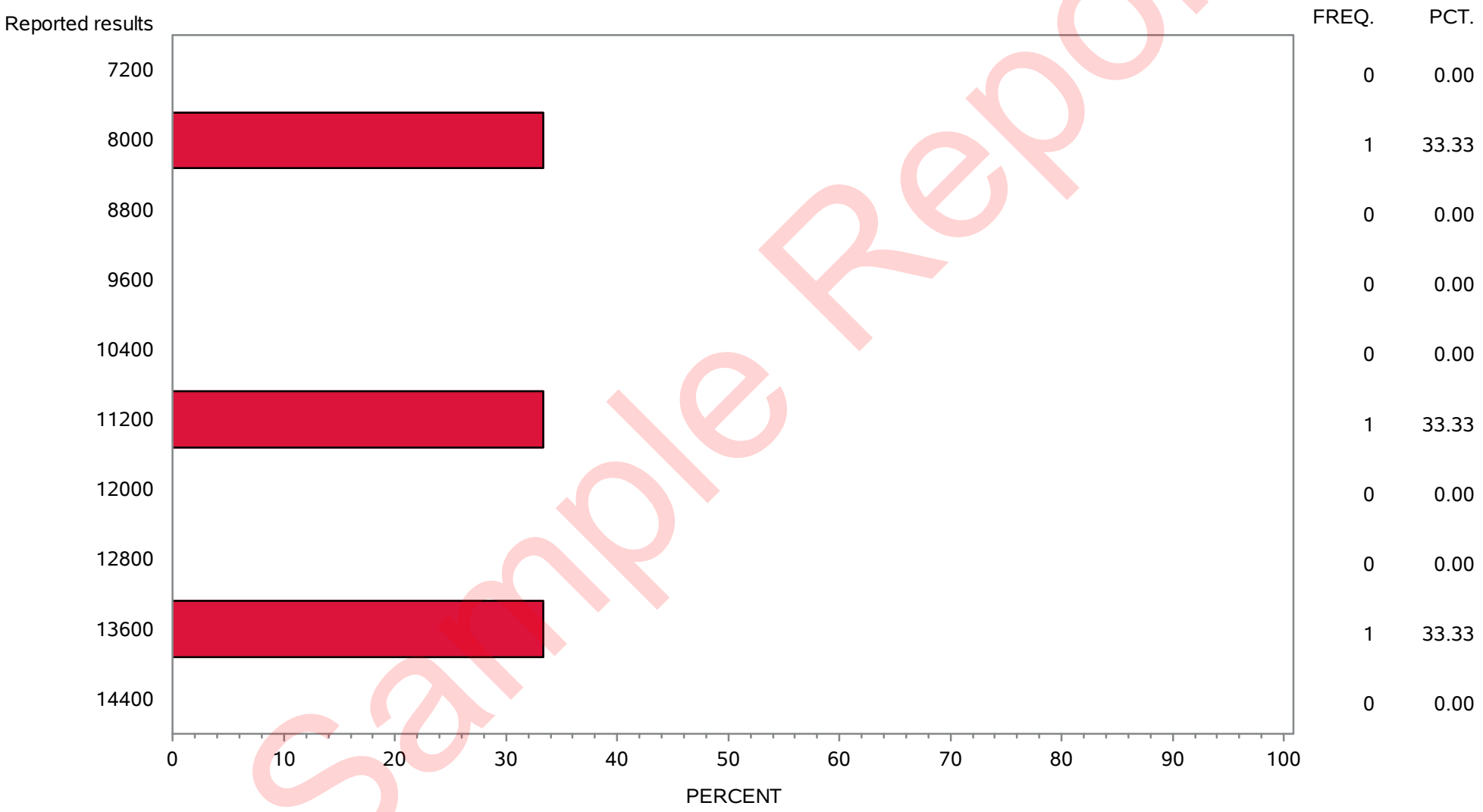
Group=Mycotoxins (ug/g ppm) Test=Aflatoxin_G1



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

Group=Heavy Metals (ug/kg ppb) Test=Antimony

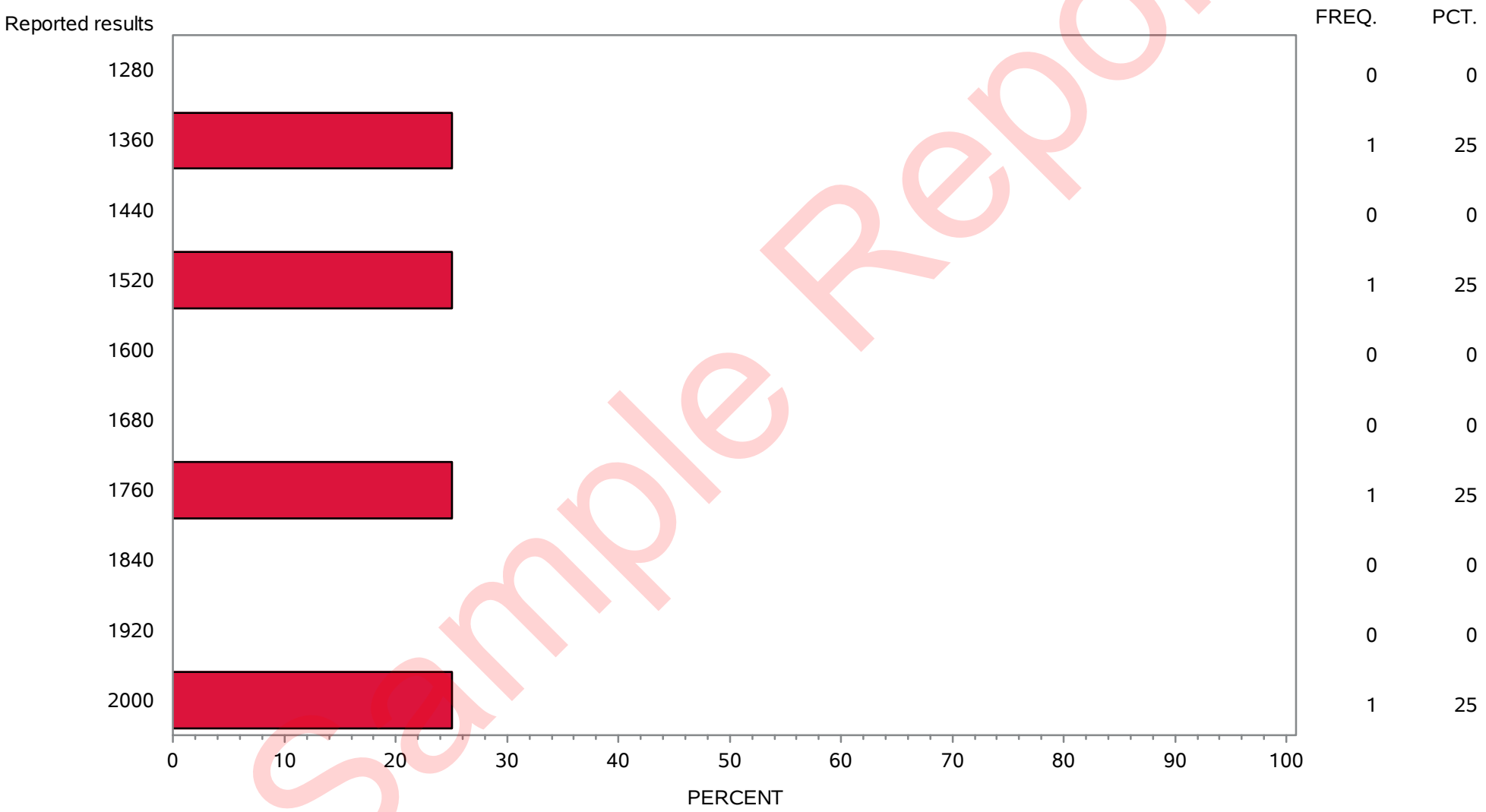


Reported results	FREQ.	PCT.
7200	0	0.00
8000	1	33.33
8800	0	0.00
9600	0	0.00
10400	0	0.00
11200	1	33.33
12000	0	0.00
12800	0	0.00
13600	1	33.33
14400	0	0.00

Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

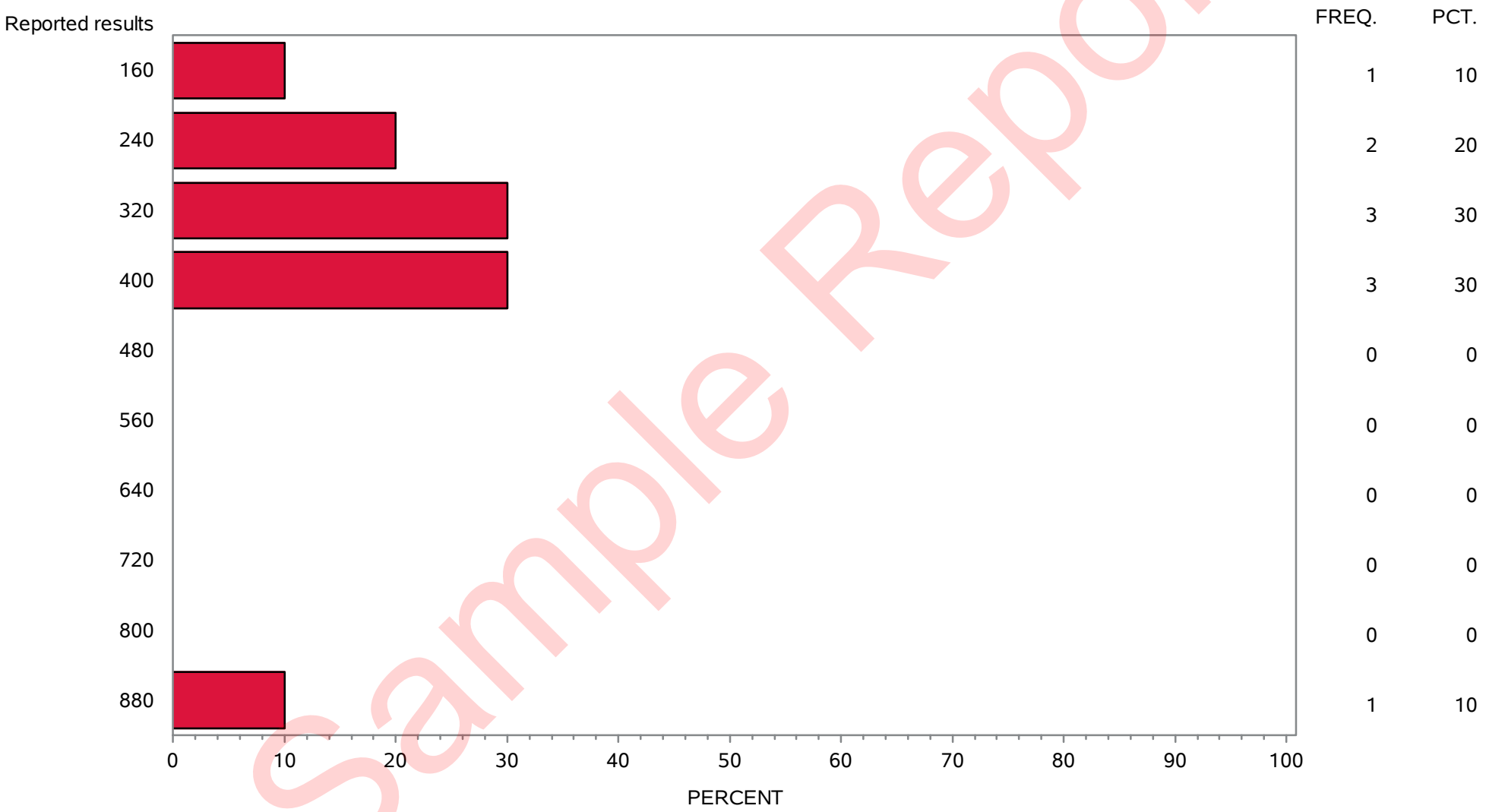
Group=Heavy Metals (ug/kg ppb) Test=Copper



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

Group=Heavy Metals (ug/kg ppb) Test=Total_Arsenic

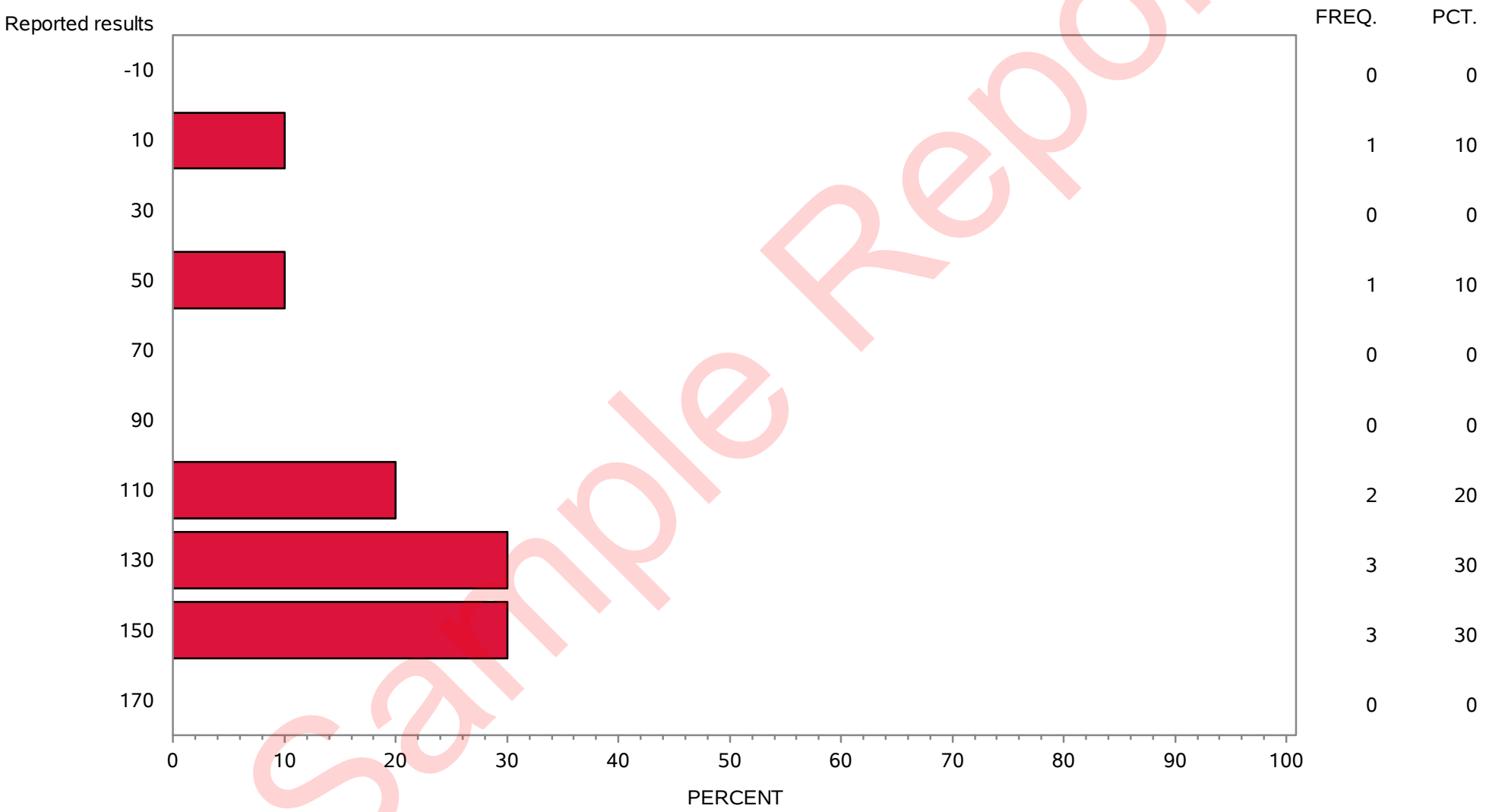


Reported results	FREQ.	PCT.
160	1	10
240	2	20
320	3	30
400	3	30
480	0	0
560	0	0
640	0	0
720	0	0
800	0	0
880	1	10

Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

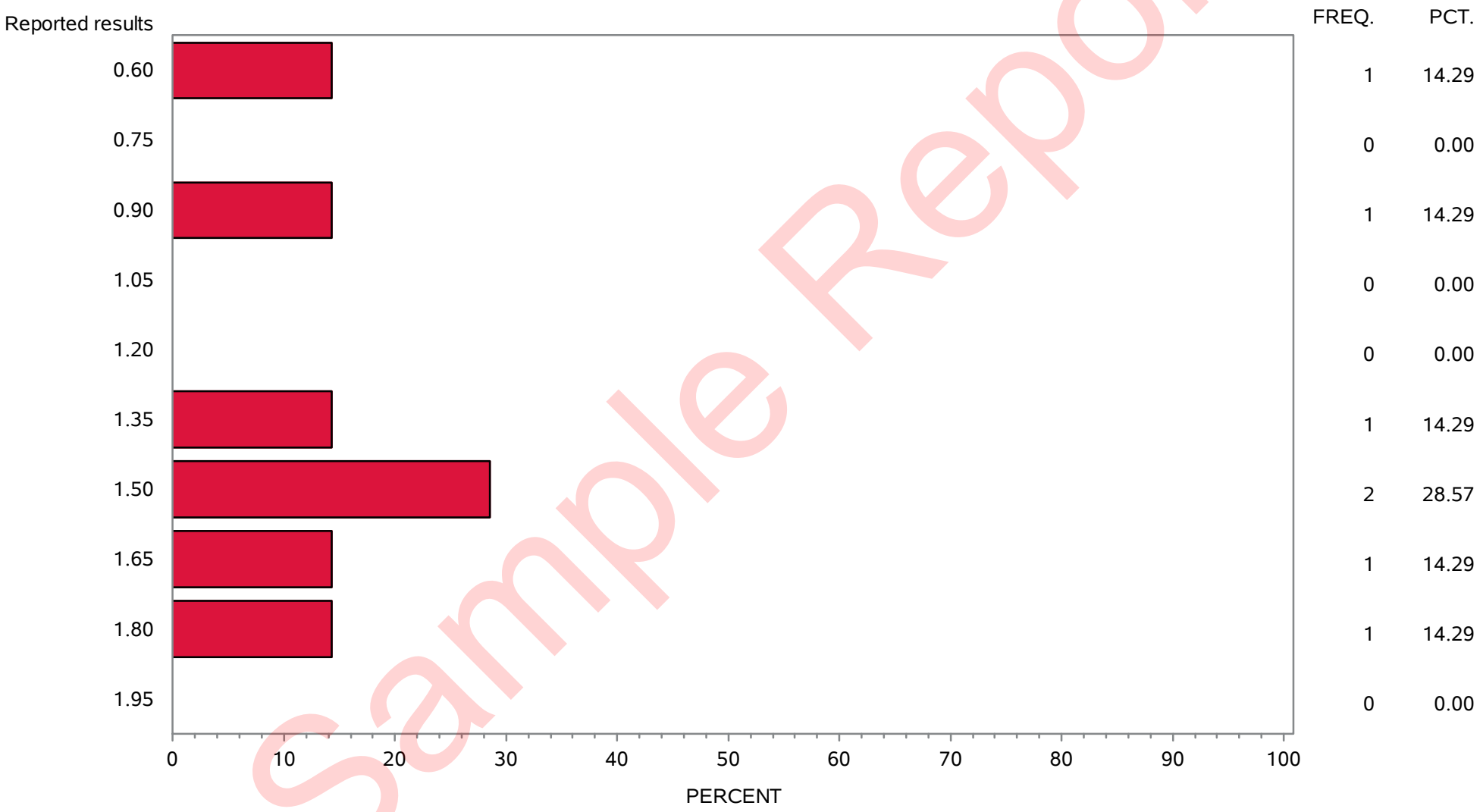
Group=Heavy Metals (ug/kg ppb) Test=Total_Mercury



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

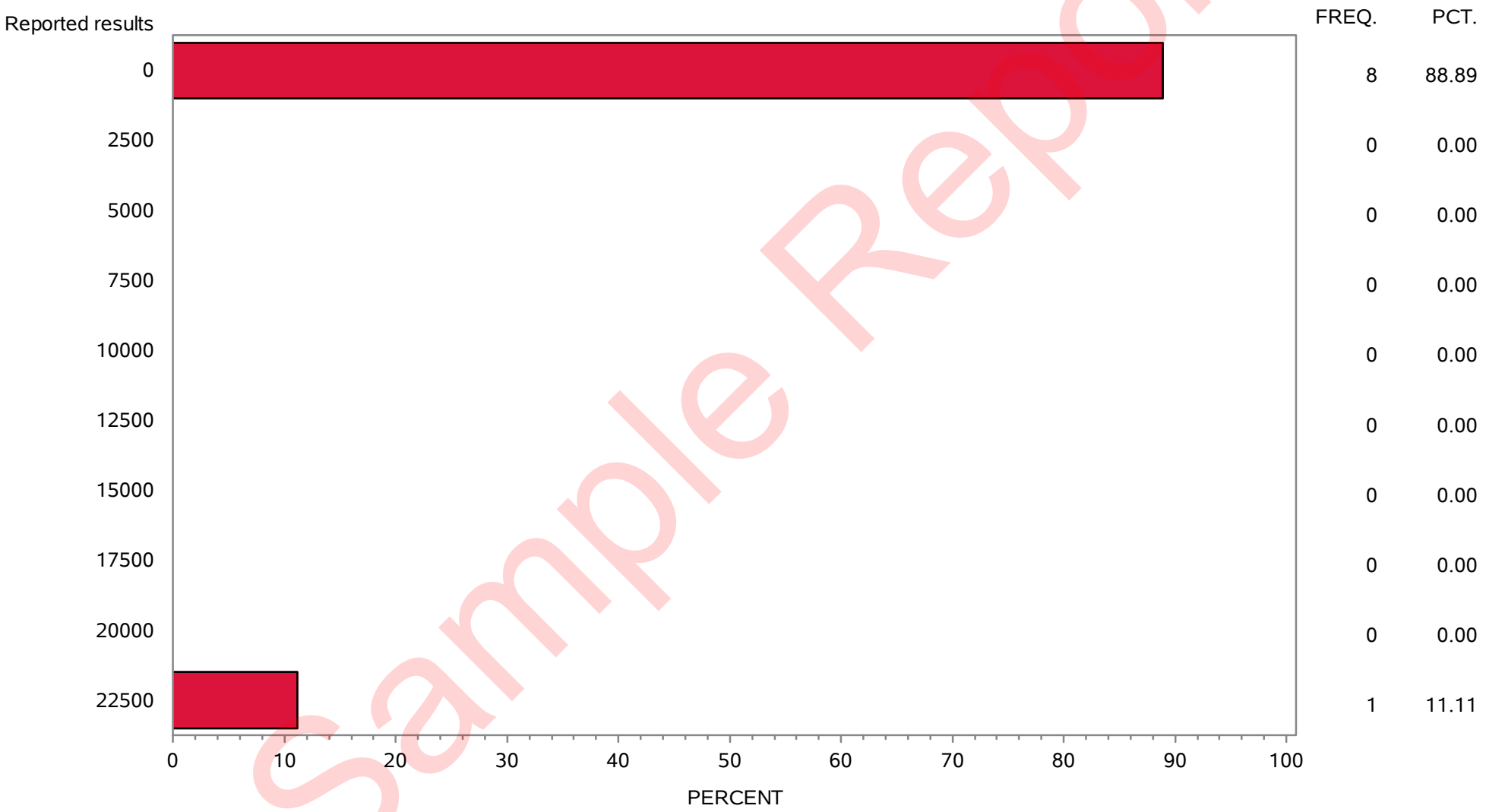
Group=Residual Solvents (ug/g ppm) Test=1,2-Dichloroethane



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

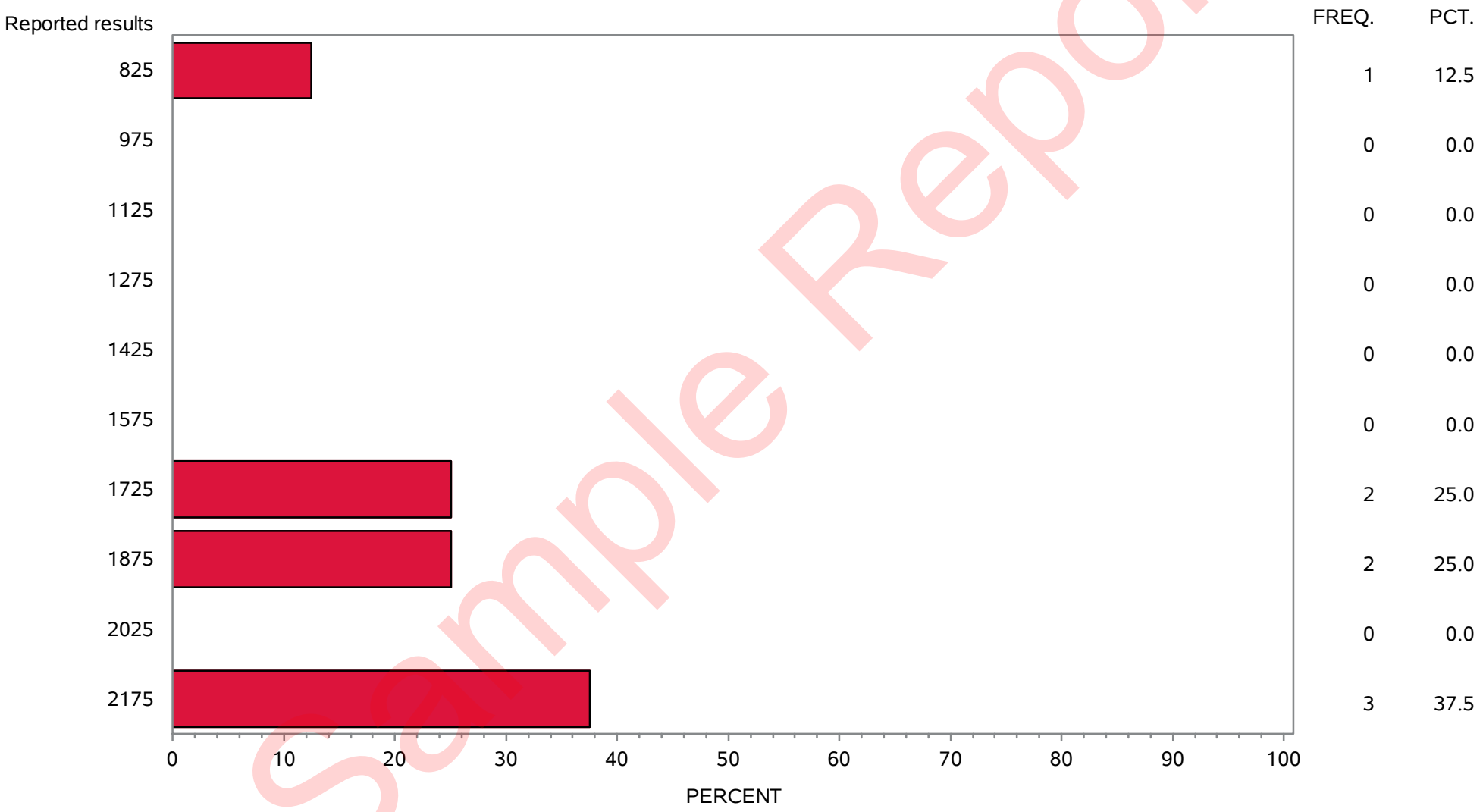
Group=Residual Solvents (ug/g ppm) Test=Acetonitrile



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

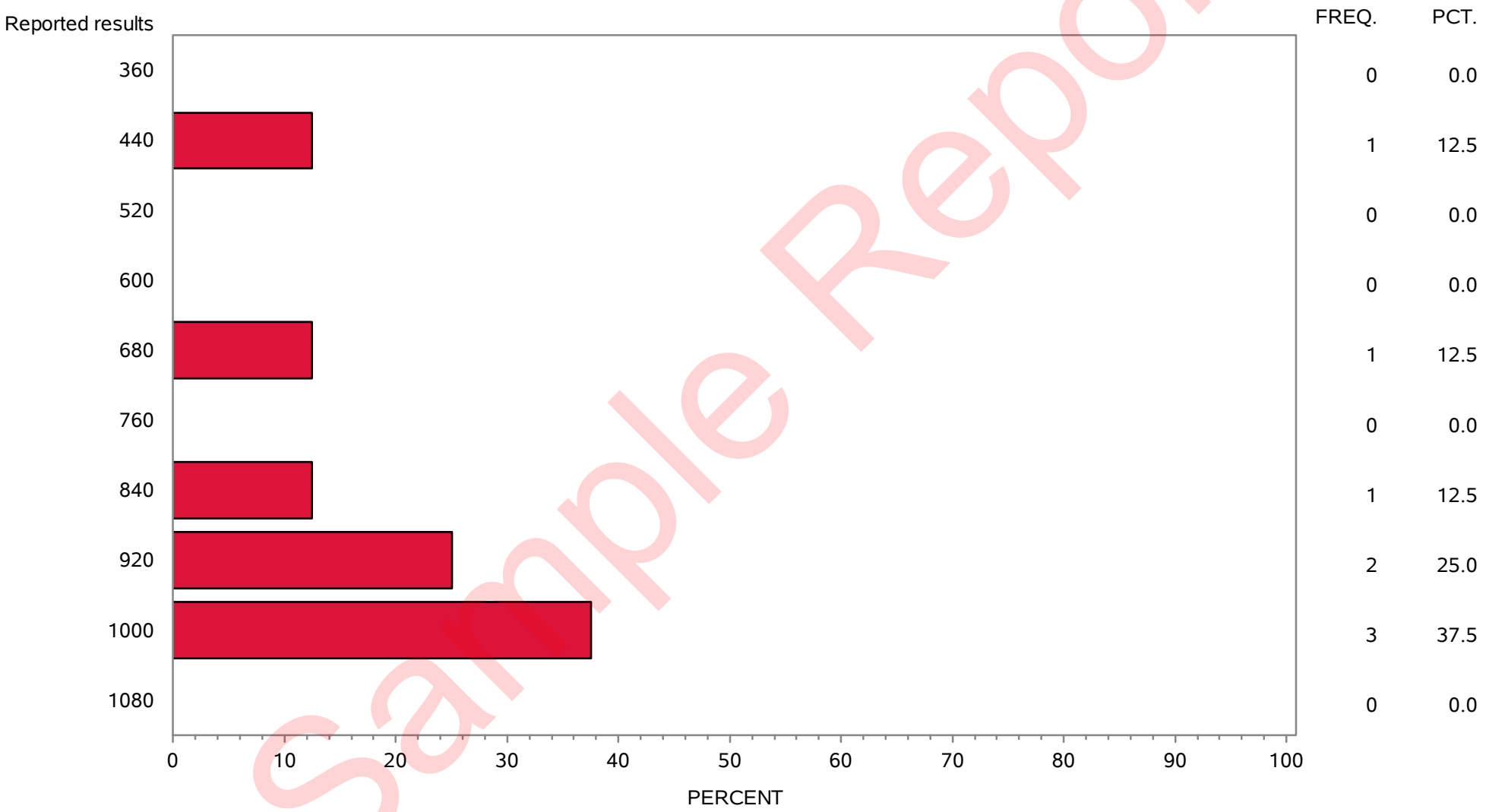
Group=Residual Solvents (ug/g ppm) Test=Ethanol



Sample Report

Appendix D
Hemp_Oils Red Sample
Frequency Chart of Reported Results
Site = 193126

Group=Residual Solvents (ug/g ppm) Test=Methylene_chloride



FREQ.	PCT.
0	0.0
1	12.5
0	0.0
0	0.0
1	12.5
0	0.0
1	12.5
2	25.0
3	37.5
0	0.0

Sample Report

2A - Pesticide/Mycotoxins (Sample 2 – Red)

Sample 2A homogeneity and stability samples were extracted and analyzed for pesticide and mycotoxins using Pesticide Residues and Mycotoxins by LC-MS/MS.

Stability - Undetected/Less than LOQ Mycotoxins

Results	Not Detected		
Mycotoxins	**Aflatoxin B1**	**Aflatoxin G2**	**Ochratoxin A**
Result	ND	ND	ND
LOQ (ug/g)	0.004	0.007	0.006
LOD (ug/g)	0.003	0.006	0.006
Notes	All Homogeneity and Stability results ND		

2B – Residual Solvents (Sample 2 – Red)

Samples were analyzed by HS-GC/MS.

Homogeneity/Stability Testing Results				
Residual Solvents	**1,2-Dichloroethane**	**Acetonitrile**	**Ethanol**	**Methylene Chloride**
Theoretical Concentration (ug/g, ppm)	**1.50**	**240**	**2100**	**1200**
Homogeneity Mean (ppm)	1.70	196	2180	1021
Homogeneity Mean % Recovery	111%	82%	104%	85%
Total Homogeneity CV	3%	8%	7%	3%
Stability Mean (ppm)	1.85	200	2166	965
Stability Mean % Recovery	123%	83%	103%	80%
Total Stability CV	4%	8%	6%	3%
Percent Difference (Stability - Homogeneity / Homogeneity)	11%	2%	-1%	-5%
Conclusion	Pass	Pass	Pass	Pass

Sample Report

2B – Residual Solvents (Sample 2 – Red)

Samples were analyzed by HS-GC/MS.

Homogeneity - Undetected/Less than LOQ Solvents

Unspiked/Undetected/Less than LOQ Solvents	1,1-dichloroethene	Acetone	Benzene	Butane	Chloroform	Ethyl Acetate	Ethyl ether	Ethylene oxide	Heptane
Result (ug/g)	ND	ND	<LOQ	ND	0.23	ND	ND	ND	ND
LOQ (ug/g)	0.114	45.7	0.11	45.70	0.11	45.7	45.7	0.457	45.7
LOD (ug/g)	0.0381	15.2	0.04	15.0	0.04	15.2	15.2	0.152	15.2
Unspiked/Undetected/Less than LOQ Solvents	**n-Hexane**	**Isopropyl Alcohol**	**Methanol**	**Pentane**	**Propane**	**Toluene**	**Trichloro-ethylene**	**Xylenes**	
Result (ug/g)	ND	ND	<LOQ	ND	ND	ND	ND	ND	
LOQ (ug/g)	22.8	45.7	91.4	11.4	22.8	22.8	0.11	22.8	
LOD (ug/g)	7.61	15.2	20.5	3.81	7.61	7.61	0.04	7.61	

Stability - Undetected/Less than LOQ Solvents

Solvent	LOQ (w/w%)	LOD (w/w%)
Benzene	0.11	0.04
Methanol	91.4	20.5
Chloroform	0.11	0.04
1,1-dichloroethene	0.11	0.04
Acetone	45.7	15.2
Butane	45.7	15.0
Ethyl Acetate	45.7	15.2
Ethyl ether	45.7	15.2
Ethylene oxide	0.46	0.15
Heptane	45.7	15.2
n-Hexane	22.8	7.61
Isopropyl Alcohol	45.7	15.2
Pentane	11.4	3.81
Propane	22.8	7.61
Toluene	22.8	7.61
Trichloroethylene	0.11	0.04
Xylenes	22.8	7.61

Sample Report

2C – Heavy Metals (Sample 2 – Red)

Sample 2C homogeneity and stability samples were evaluated for Arsenic, Mercury, Antimony, and Copper by ICP-MS.

Homogeneity/Stability Testing Results				
Metals	**Arsenic**	**Mercury**	**Antimony**	**Copper**
Theoretical Concentration (ug/kg, ppb)	**400**	**240**	**14000**	**2000**
Homogeneity Mean (ppb)	326	132	10885	1504
Homogeneity Mean % Recovery	82%	55%	78%	75%
Total Homogeneity CV	41%	12%	45%	69%
Stability Mean (ppb)	304	153	7732	1348
Stability Mean % Recovery	76%	64%	55%	67%
Total Stability CV	26%	19%	35%	25%
Percent Difference (Stability - Homogeneity / Homogeneity)	-7%	17%	-33%	-27%
Conclusion	Pass	Pass	Pass	Pass

Homogeneity - Undetected/Less than LOQ Metals

Undetected/Less than LOQ Metals	Cadmium	Lead	Chromium	Nickel	Selenium	Iron	Manganese	Zinc
Result (ug/kg)	ND	ND	ND	ND	ND	ND	<LOQ	<LOQ
LOQ (ug/kg)	48.2	48.2	144.5	144.5	192.7	10000	978.6	10000
LOD (ug/kg)	1.0	12.2	51.8	53.2	25.2	1032	31.0	135.8

Stability - Undetected/Less than LOQ Metals

Metals	LOQ (w/w%)	LOD (w/w%)
Manganese	489	15.5
Zinc	5000	1670
Cadmium	24.1	0.5
Lead	24.1	6.1
Chromium	72.2	25.9
Nickel	72.2	26.6
Selenium	96.3	12.6
Iron	5000	1670

Sample Report

Cannabis/Hemp Proficiency Testing (PT) Program

CHDPT (Oil)

Sample 2 - Red

PROFICIENCY TEST INSTRUCTIONS

UPON RECEIPT, inspect the integrity of the package and its contents to ensure that the samples are intact and not leaking or compromised. Each Sample 1 – Red package should contain three sealed ampules wrapped in a bubble bag within a zip top bag containing vermiculite. If problems are observed, contact Cannabis_PT@AOAC.org.

Sample 2 – Red Details

Number of Samples	Three samples per Sample 1 – Red package
Sample IDs	• **2A Pesticides/Mycotoxins**; • **2B Residual Solvents** • **2C Heavy Metals**
Sample Type (Matrix)	Oil
Sample Amount	• Sample 2A: 1.5 g • Sample 2B: 1.5 g • Sample 2C: 1.5 g
Sample Temperature Upon Receipt	**Satisfactory if received at ≤ 15°C**
Sample Storage	**Store samples frozen (< -15°C)**
Applicable Sample Testing Method(s)	Pesticides/mycotoxins, residual solvents, and heavy metals

READ THESE INSTRUCTIONS in their entirety before proceeding with sample preparation and analysis. These instructions contain important information about the enclosed samples and specific requirements for this proficiency test. **Failure to read these instructions may adversely impact your performance on this proficiency test.**

Samples are provided for analytical purposes only. Provided samples are not for human consumption. Refer to the provided SDS(s) for health and safety considerations.

Sample Report

Part 1: AOAC Website

AOAC has sent an email notification to the laboratory's contact on record, which includes a link to the secure AOAC PT Website, along with the laboratory's login and password information. Instructions for Analysis and Instructions for Reporting are included on this site.

Applicable sample details and analysis and reporting instructions also are discussed below.

Part 2: Sample 2 - Red

Sample 2 - Red contains three oil samples for testing in individual 2 mL amber glass ampules.

Table 1. Sample Types

Sample Number	Method
2A	Pesticides/Mycotoxins
2B	Residual Solvents
2C	Heavy Metals

Refer to the provided SDS(s) for health and safety considerations.

Part 3: Analysis

The pesticide/mycotoxins and heavy metals samples (2A and 2C) should be brought to room temperature (20°C to 25°C) for at least 30 minutes before processing, and the samples should be thoroughly homogenized/mixed before aliquoting for analysis.

For the residual solvents sample (2B), gently mix to ensure a representative aliquot is obtained, but minimize time allowed to equilibrate prior to obtaining aliquot (e.g., 10 minutes should be adequate for this sample type).

Sample 2 - Red is divided into three samples suitable for analysis for pesticides and mycotoxins (2A), residual solvents (2B), and heavy metals (2C). Participants may test samples for as many, or as few, of the methods and associated analytes as applicable. Appendix A, B, C, and D provide the reportable list of pesticides, mycotoxins, heavy metals, and residual solvents, respectively.

Proficiency testing samples should be handled and analyzed in the same manner and following the same analytical standard operating procedures (SOPs) as routine samples. The participating laboratory should take appropriate action(s) to ensure a representative sample is tested (e.g., quantitative transfer, thorough mixing, other internal procedure).

Labs have four weeks to analyze samples and report results.

Shipping containers, and artificial ice are used for one-way shipping and do not need to be returned. Any unused sample should be disposed of in accordance with typical laboratory procedures and should not be returned.

Sample Report

Part 3: Reporting

All results must be reported on an **as-received** basis (i.e., percent moisture should not be factored into the calculation).

The table below provides the units for reporting the analytes of interest.

Table 2. Unit Reporting Requirements

Method	Units
Pesticides	ug/g (ppm)
Mycotoxins	ug/g (ppm)
Heavy Metals	ug/kg (ppb)
Residual Solvents	ug/g (ppm)

Values below the laboratory's limit of detection (LOD) or limit of quantitation (LOQ) should be entered as "less than" either the LOD or LOQ. A value of zero should not be reported to indicate that the analyte was not detected.

Reporting of uncertainties associated with the results is not required.

Sample Report

Part 4: Schedule and Other Information

The table below contains the key dates for this PT round.

Table 3. Schedule

Event	Date
Sample Shipment	22 September 2025
Expected Sample Receipt	Next Day (domestic) Within 5 Days of Shipment (international)
Results Due	21 October 2025
Participant Results Released	≤ 30 days after receipt of all participant results

Questions and Comments

If you have questions regarding the round, please contact Cannabis_PT@AOAC.org.

Test Material Provider:

signature science LLC

Sample Report

APPENDIX A

Reportable Pesticides

Compound	CAS Number	Compound	CAS Number
Abamectin (Avermectins: B1a & B1b)	71751-41-2	Flonicamid	158062-67-0
Acephate	30560-19-1	Fludioxonil	131341-86-1
Acequinocyl	57960-19-7	Fluopyram	658066-35-4
Acetamiprid	135410-20-7	Flurprimidol	56425-91-3
Aldicarb	116-06-3	Hexythiazox	78587-05-0
Allethrin	584-79-2	Imazalil	35554-44-0
Ancymidol	12771-68-5	Imidacloprid	138261-41-3
Azadirachtin	108168-76-9	Iprodione	36734-19-7
Azoxystrobin	131860-33-8	Kinoprene	37882-31-8
Benzovindiflupyr	1072957-71-1	Kresoxim-methyl	143390-89-0
Bifenazate	149877-41-8	Malathion	121-75-5
Bifenthrin	82657-04-3	Metalaxyl	57837-19-1
Boscalid	188425-85-6	Methiocarb	2032-65-7
Buprofezin	69327-76-0	Methomyl	16752-77-5
Captan	133-06-2	Methoprene	40596-69-8
Carbaryl	63-25-2	Methyl parathion	298-00-0
Carbofuran	1563-66-2	Mevinphos	7786-34-7
Chlorantraniliprole	500008-45-7	MGK-264	113-48-4
Chlordane	57-74-9	Myclobutanil	88671-89-0
Chlorfenapyr	122453-73-0	Naled (Systhane) (Dibrom)	300-76-5
Chlormequat chloride	999-81-5	Novaluron	116714-46-6
Chlorpyrifos	2921-88-2	Oxamyl	23135-22-0
Clofentezine	74115-24-5	Paclobutrazol	76738-62-0
Clothianidin	21088-92-5	Pentachloronitrobenzene (Quintozene)	82-68-8
Coumaphos	56-72-4	Permethrin (mix of isomers)	52645-53-1
Cyantraniliprole	736994-63-1	Phenothrin (d-phenothrin)	26002-80-2
Cyfluthrin (Baythroid)	68359-37-5	Phosmet (Imidan)	60207-90-1
Cypermethrin	52315-07-8	Phosmet (oxon)	3735-33-9
Cyprodinil	121552-61-2	Piperonyl butoxide	55218
Daminozide	1596-84-5	Pirimicarb	23103-98-2
Deltamethrin	52918-63-5	Prallethrin (mix of isomers)	23031-36-9
Diazinon	333-41-5	Propiconazole (tilt)	60207-90-1
Dichlorvos	62-73-7	Propoxur (Baygon)	114-26-1

Sample Report

Reportable Pesticides

Compound	CAS Number	Compound	CAS Number
Dimethoate	60-51-5	Pyraclostrobin	175013-18-0
Dimethomorph	110488-70-5	Pyrethrin (mix of isomers)	8003-34-7
Dinotefuran	165252-70-0	Pyridaben	96489-71-3
Dodemorph	1593-77-7	Resmethrin	10453-86-8
Endosulfan I (alpha)	959-98-8	Spinetoram	187166-40-1
Endosulfan II (beta)	33213-65-9	Spinosad (mixture of A and D)	168316-95-8
Endosulfan sulfate	1031-07-8	Spirodiclofen	148477-71-8
Ethephon	16672-87-0	Spiromesifen	283594-90-1
Ethoprophos (Prophos)	13194-48-4	Spirotetramat	203313-25-1
Etofenprox	80844-07-1	Spiroxamine	118134-30-8
Etoxazole	153233-91-1	Tebuconazole	107534-96-3
Etridiazole (Terrazole)	2593-15-9	Tebufenozide	112410-23-8
Fenhexamid	126833-17-8	Teflubenzuron	83121-18-0
Fenoxycarb	79127-80-3	Tetrachlorvinphos	961-11-5
Fenpyroximate (mix of isomers)	111812-58-9	Tetramethrin	7696-12-0
Fensulfothion	115-90-2	Thiacloprid	111988-49-9
Fenthion	55-38-9	Thiamethoxam	153719-23-4
Fenvalerete (Sanmarton)	51630-58-1	Thiophanate-methyl	23564-05-8
Fipronil	120068-37-3	Trifloxystrobin	141517-21-7

Sample Report

APPENDIX B

Reportable Mycotoxins

Compound	CAS Number
Ochratoxin A	303-47-9
Aflatoxin B1	1162-65-8
Aflatoxin B2	7220-81-7
Aflatoxin G1	1165-39-5
Aflatoxin G2	7241-98-7

Sample Report

APPENDIX C

Reportable Residual Solvents

Compound	CAS Number	Compound	CAS Number
1,1,1-Trichloroethane	71-55-6	Dimethyl sulfoxide	67-68-5
1,1-Dichloroethene	75-35-4	Ethanol	64-17-5
1,2-Dichloroethane	107-06-2	Ethyl acetate	141-78-6
1,2-Dichloroethene	540-59-0	Ethyl ether	60-29-7
1,2-Dimethoxyethane	110-71-4	Ethyl formate	109-94-4
1,4-Dioxane	123-91-1	Ethylbenzene	100-41-4
1-Butanol	71-36-3	Ethylene glycol	107-21-1
1-Pentanol	71-41-0	Ethylene oxide	75-21-8
1-Propanol	71-23-8	Formamide	75-12-7
2,2-Dimethylbutane	75-83-2	Formic acid	64-18-6
2,3-Dimethylbutane	79-29-8	Heptane	142-82-5
2-Butanol	78-92-2	Hexane	110-54-3
2-Butanone	78-93-3	Isobutane (methyl propane)	75-28-5
2-Ethoxyethanol	110-80-5	Isobutyl acetate	110-19-0
2-Methoxyethanol	109-86-4	Isopropanol (2-propanol)	67-63-0
2-Methyl-1-propanol	78-83-1	Isopropyl acetate	108-21-4
2-Methylbutane	78-78-4	m,p-Xylenes	108-38-3 106-42-3
2-Methylpentane	107-83-5	Methanol	67-56-1
2-Propanol	67-63-0	Methyl acetate	79-20-9
3-Methyl-1-butanol	123-51-3	Methylbutylketone	591-78-6
3-Methylpentane	96-14-0	Methylcyclohexane	108-87-2
Acetic acid	64-19-7	Methylene chloride	75-09-2
Acetone	67-64-1	Methylethylketone	78-93-3
Acetonitrile	75-05-8	Methylisobutylketone	108-10-1
Anisole	100-66-3	N,N-dimethylacetamide	127-19-5
Benzene	71-43-2	N,N-dimethylformamide	68-12-2
Butane (sum of n- and iso-)	106-97-8	n-Butane	106-97-8
Butyl acetate	123-86-4	n-Heptane	142-82-5
Carbon tetrachloride	56-23-5	n-Hexane	10-54-3
Chlorobenzene	108-90-7	Nitrogen	7727-37-9
Chloroform	67-66-3	Nitromethane	75-52-5
Cumene	98-82-8	N-Methylpyrrolidone	872-50-4
Cyclohexane	110-82-7	n-Pentane	109-66-0

Sample Report

Reportable Residual Solvents

Compound	CAS Number	Compound	CAS Number
o-Xylene	95-47-6	Tetrahydrofuran	109-99-9
Pentane	109-66-0	Tetralin	119-64-2
Propane	74-98-6	Toluene	108-88-3
Propyl acetate	109-60-4	Trichloroethylene	79-01-6
Pyridine	110-86-1	Triethylamine	121-44-8
Sulfolane	126-33-0	Xylene	1330-20-7
tert-Butylmethyl ether	1634-04-4		

Sample Report

APPENDIX D

Reportable Heavy Metals

Compound	CAS Number
Arsenic	7440-38-2
Cadmium	7440-43-9
Lead	7439-92-1
Mercury	439-97-6
Antimony	744-36-0
Barium	744-39-3
Chromium	18540-29-9
Copper	44-50-8
Nickel	7440-02-0
Silver	7440-22-4
Selenium	7782-49-2
Zinc	7440-66-6

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Sample Report