

TRILOGY REFERENCE MATERIAL CERTIFICATE OF ANALYSIS



Certification Date: April , 2016
Expiration date: March , 2021
Product Name: Zearalenone Reference Material
Product Number(s): TR-Z100, TR-Z500, TR-Z1000 **Batch number:** Z-W-3306
Product Size(s): 100 grams, 500 grams, or 1000 grams
Product description: Corn naturally contaminated with mycotoxins. This finely ground product is packaged in appropriately sized zippered sealed foil pouches.

Certified Values

<u>Compound</u>	<u>Limit of Quantification</u>	<u>Mean ppb</u>	<u>Mean SI Units</u>
Zearalenone	50 ppb	1085.5	(ug/kg)
Total Zearalenone		1085.5 ppb	(ug/kg)
Std dev		96.2 ppb	(ug/kg)
%CV or %RSD		8.9 %	

Standard Deviation Ranges

<u>1 sd range</u>	<u>2 sd range</u>	<u>3 sd range</u>
989.3 ppb to 1181.6 ppb	893.2 ppb to 1277.8 ppb	797.0 ppb to 1373.9 ppb

Uncertainty k = 2 : 320.3 ppb **Uncertainty range** 765.1 ppb to 1405.8 ppb

Method Reference – MacDonald Journal of AOAC International Vol 88, No6 2005 with modifications

General Information

This material represents a food/feed agricultural product commonly contaminated with mycotoxins. It has been ground to a fine consistency (30 mesh; 0.595 mm) and thoroughly homogenized to insure uniform distribution of the analyte(s). Samples are analyzed numerous times over the course of several analytical runs utilizing the reference method listed above. The results are averaged and standard deviation ranges as well as measurement of uncertainty are calculated. All of these are represented above. This data represents the best estimate of the true value as obtained in one laboratory utilizing one method.

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Uncertainty Calculations ⁽¹⁾

Expanded measurement of uncertainty (k=2) = 29.5 % or 320.3 ppb (ppb or ug/kg)

Range of product incorporating uncertainty ranges = 765.1 ppb to 1405.8 ppb (ppm or ug/kg)

Method Used for Certification:

To obtain the results above, 30 different extracts were prepared on a minimum of 6 different analyses dates. MacDonald Et Al Method uses 80/20 Methanol/Water extracted for 1 hour on an eberbach shaker. Samples were analyzed by the method reference above. This result represents the results you would find from one laboratory performing one specific method repeatedly over the course of several weeks. The standard deviation ranges notes above represent results you would anticipate with 68% (1 sd range) , 95% (2 sd range) and 99% (3 sd range) confidence with the method specifics listed above. Additionally, uncertainty has been calculated and the range is also reported above. These ranges will allow you, the end user to determine which range best suits your individual requirements. Results of this sample may vary with methodology and extraction procedures utilized in your laboratory. These results relate only to the sample material listed above. The certified value is the best estimate of the true value based on these multiple analyses.

Minimum Sample Size

Results shown above represent 5.0 gram extractions. Increasing the sample size extracted may provide results with tighter ranges. Less than 5 gram sample extractions are not recommended.

Intended Use

This material is intended for laboratory use only. Some of the intended uses include but are not limited to: Quality control sample, training tools, method comparisons, Method validations, intra laboratory comparisons, and inter laboratory comparisons. This product is for laboratory use only and is not intended for animal or human consumption.

Storage

Material should be stored below 8° C in the original foil zippered pouch. After opening, insure bag is completely sealed prior to returning to storage. Trilogy Analytical Is not responsible for changes in the product during improper storage of material at a customer's premises.

Instructions for Use

Allow material to come to room temperature before using to prevent moisture condensation in packet. Recommended minimum subsample is 5 grams. Samples should be sealed promptly and returned to storage conditions after use. The expiration date of this material represents the best current knowledge and is applied to product that has been stored and handled correctly.

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Hazardous situations/Health and Safety

Observe all standard laboratory safety procedures when handling this material. Use appropriate personal protective equipment including gloves, safety glasses and protective clothing.

Level of Homogeneity

Mycotoxins are known to exhibit extreme inhomogeneity. These samples have been ground to a fine particle size (30 mesh; 0.595 mm), to provide the best sample homogeneity available. A minimum sub-sample of 5 grams must be extracted to insure a sample representative of the larger sample received. If smaller samples are taken, results may fall out of range due to sample variability. Likewise, extraction of larger sample sizes may improve the variability of results.

Uncertainty

The uncertainty of the sample is stated above. Uncertainty is calculated according to the procedures in the Guide to Expression of Uncertainty in Measurement (1). All calculations of expanded uncertainty ($k = 2$) are based on the criteria outlined in the ISO guide to the expression of uncertainty in measurement (GUM). Expanded combined uncertainty, which is calculated and presented for all Reference Material, represents an estimated standard deviation equal to the root sum squared of all total inherent variance of pertinent components expanded by a factor of 2 ($k = 2$). The expanding factor "k" allocates a coverage at which a 95% confidence level ($k = 2$) can be obtained. Within the Certificate of Analysis for each reference material an expanded range for the product in accordance with the uncertainty is included. For additional information pertaining to individual uncertainty components affecting final result of Trilogy Certified Reference Material please contact Trilogy Analytical Laboratory.

Approved for Release and Distribution by

Date: April 28, 2016



Julie Brunkhorst
Vice President of the Technical Division

References

- (1) JCGM 100:2008, Evaluation of measurement data, Guide to expression of uncertainty in measurement**
- (2) ISO/IEC Guide 98-1:2009 Uncertainty of measurement, Part 1: Introduction to the expression of uncertainty in measurement.**
- (3) ISO guide 31, (2015). Reference Materials – Contents of Certificates and Labels**
- (4) ISO Guide 35, (2006) General and statistical Principles**
- (5) ISO Guide 34, (2009) General requirements for the competence of reference material producer**

Legal Notices:

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