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Quality Control Material

Certificate of Analysis

Product Details

Product Code:	Multitoxin Quality Control Material in Corn TMQC-MT100			
Batch Code	Certification Date	Expiration Date	Quantity	Storage
MT-C-70008(MM9Y)	September 2024	September 2029	100g	≤ 8°C

Compound	Limit of Quantification	Mean (ppb)	Mean (SI Units)
Aflatoxin B1	1 ppb	20.9	(µg/kg)
Aflatoxin B2	1 ppb	1.6	(µg/kg)
Aflatoxin G1	1 ppb	ND	(µg/kg)
Aflatoxin G2	1 ppb	ND	(µg/kg)

Total Aflatoxins	22.5	(µg/kg)
Std dev	2.4	(µg/kg)
%CV or %RSD	10.7%	

Standard Deviation Ranges		
1sd Range	2sd Range	3sd Range
20.1 ppb to 24.9 ppb	17.7 ppb to 27.3 ppb	15.3 ppb to 29.7 ppb

Uncertainty k=2	5.9 ppb
Uncertainty Range	16.6 ppb to 28.4 ppb

Method reference – Internal SOP-14-168

Compound	Limit of Quantification	Mean (ppm)	Mean (SI Units)
Deoxynivalenol	0.1 ppm	1.9	(mg/kg)

Total Deoxynivalenol	1.9	(mg/kg)
Std dev	0.2	(mg/kg)
%CV or %RSD	9.5%	

Standard Deviation Ranges		
1sd Range	2sd Range	3sd Range
1.7ppm to 2.1 ppm	1.5 ppm to 2.3 ppm	1.3 ppm to 2.5 ppm

Uncertainty k=2	0.4 ppm
Uncertainty Range	1.4 ppm to 2.3 ppm

Method reference – Internal SOP-14-168

Compound	Limit of Quantification	Mean (ppm)	Mean (SI Units)
Fumonisin B1	0.1 ppm	1.1	(mg/kg)
Fumonisin B2	0.1 ppm	0.4	(mg/kg)
Fumonisin B3	0.1 ppm	0.2	(mg/kg)

Total Fumonisins	1.7	(mg/kg)
Std dev	0.2	(mg/kg)
%CV or %RSD	12.5%	

Standard Deviation Ranges		
1sd Range	2sd Range	3sd Range
1.5 ppm to 1.9 ppm	1.3 ppm to 2.1 ppm	1.1 ppm to 2.3 ppm

Uncertainty k=2	0.5 ppm
Uncertainty Range	1.2 ppm to 2.2 ppm

Method reference – Internal SOP-14-168

Compound	Limit of Quantification	Mean (ppb)	Mean (SI Units)
HT-2 Toxin	5 ppb	20.5	(µg/kg)

Total HT-2 Toxin	20.5	(µg/kg)
Std dev	1.8	(µg/kg)
%CV or %RSD	8.7%	

Standard Deviation Ranges		
1sd Range	2sd Range	3sd Range
18.7 ppb to 22.3 ppb	16.9ppb to 24.1 ppb	15.1 ppb to 25.9 ppb

Uncertainty k=2	6.5 ppb
Uncertainty Range	14.0 ppb to 27.0 ppb

Method reference – Internal SOP-14-168

Compound	Limit of Quantification	Mean (ppb)	Mean (SI Units)
T-2 Toxin	5 ppb	79.9	(µg/kg)

Total T-2 Toxin	79.9	(µg/kg)
Std dev	11.1	(µg/kg)
%CV or %RSD	13.9%	

Standard Deviation Ranges		
1sd Range	2sd Range	3sd Range
68.8 ppb to 91.0 ppb	57.7 ppb to 102.1 ppb	46.6 ppb to 113.2 ppb

Uncertainty k=2	27.9 ppb
Uncertainty Range	52.0 ppb to 107.8 ppb

Method reference – Internal SOP-14-168

Compound	Total (ppb)	Mean (SI Units)
Total HT-2 and T-2 Toxin	100.4	(µg/kg)

Compound	Limit of Quantification	Mean (ppb)	Mean (SI Units)
Ochratoxin A	1 ppb	11.2	(µg/kg)

Total Ochratoxin A	11.2	(µg/kg)
Std dev	1.7	(µg/kg)
%CV or %RSD	15.2%	

Standard Deviation Ranges		
1sd Range	2sd Range	3sd Range
9.5 ppb to 12.9 ppb	7.8 ppb to 14.6 ppb	6.1 ppb to 16.3 ppb

Uncertainty k=2	5.3 ppb
Uncertainty Range	5.9 ppb to 16.5 ppb

Method reference – Internal SOP-14-168

Compound	Limit of Quantification	Mean (ppb)	Mean (SI Units)
Zearalenone	12.5 ppb	185.8	(µg/kg)

Total Zearalenone	185.8	(µg/kg)
Std dev	15.9	(µg/kg)
%CV or %RSD	8.6%	

Standard Deviation Ranges		
1sd Range	2sd Range	3sd Range
169.9 ppb to 201.7 ppb	154.0 ppb to 217.6 ppb	138.1 ppb to 233.5 ppb

Uncertainty k=2	54.6 ppb
Uncertainty Range	131.2 ppb to 240.4 ppb

Method reference – Internal SOP-14-168

General information

This material represents a food/feed agricultural product commonly contaminated with mycotoxins. It has been ground to a fine consistency (30 mesh) and thoroughly homogenized to ensure uniform distribution of the analyte(s). Samples are analyzed numerous times over the course of several analytical runs utilizing the reference methods 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 by one laboratory utilizing one method.

Method Used for Certification

To obtain the results above, 30 different extracts were prepared on a minimum of 5 different analyses dates. Multi-mycotoxin LC-MS/MS Aflatoxins, Deoxynivalenol, HT-2 Toxin, T-2 Toxin and Zearalenone samples were extracted with 84/16 acetonitrile/water for 1 hour on an Eberbach shaker and multi-mycotoxin LC-MS/MS Fumonisins and Ochratoxin A samples were extracted with 3/1 methanol/water for 1 hour on an Eberbach shaker. Samples were analyzed by the method references above. This result represents the results you would find from one laboratory performing one specific method repeatedly over the course of several days. The standard deviation ranges noted 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 value is the best estimate of the true value based on these multiple analyses.

Minimum sample size

Results shown above represent 12.5 gram extractions. Increasing the sample size extracted may provide results with decreased ranges. Less than 5.0 gram sample extractions are not recommended.

Intended use

This material is intended for laboratory use only and is not intended for animal or human consumption. Quality Control Materials can be used for laboratory quality control, training tools, method comparisons, method validations, intra laboratory comparisons, inter laboratory comparisons, method bias indicators, verification of laboratory performance, and method troubleshooting by HPLC, GC, GCMS, LCMSMS.

Storage

Material should be stored at or below 8° C in the original foil zippered pouch. After opening, ensure bag is completely sealed prior to returning to storage. Trilogy Analytical Laboratory is not responsible for changes in the product due to improper storage of material.

Instructions for use

Allow material to come to room temperature before use to prevent moisture condensation in packet. Recommended minimum subsample is 5.0 grams. Samples should be sealed promptly and returned to recommended storage conditions after use. The expiration date of this material represents the most accurate expiration based on current knowledge and applies only to product that has been stored and handled correctly.

Safety precautions

Good laboratory practices should be observed while handling all Trilogy Quality Control Materials. Follow the recommended precautionary measures (OSHSA 29 CFR 1910.1450) for handling chemicals and powders. Avoid contact with eyes, skin, and clothing. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. This product is for laboratory use only and is not intended for animal or human consumption. For specific product Safety Data Sheets, contact Trilogy Analytical Laboratory.

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 5.0 grams must be extracted to ensure 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

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 Quality Control Materials, 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 Quality Control Material an expanded range for the product in accordance with the uncertainty is included. For additional information pertaining to individual uncertainty components affecting the final result of Trilogy Quality Control Material, please contact Trilogy Analytical Laboratory.

Further information

Trilogy Quality Control Materials are for laboratory use only. Trilogy does not make any warranties, expressed or implied, in connection to these materials, other than that the product meets the quality control specifications at Trilogy Analytical Laboratory. Each purchaser should determine the best methods and suitability for this product to meet their specific needs. Trilogy does warranty that this product meets the control standards set by Trilogy Analytical Laboratory. This product is a Quality Control Material, not a Certified Reference Material under the Trilogy ISO 17034:2016 Scope of Accreditation.



Jordon Bierbaum
Vice President of Operations

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Version 1