REFERENCE MATERIAL CERTIFICATE

FUMONISIN B1

1. General information

This document is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31 [1] and Eurachem / CITAC Guides [2,3].

2. Description of the Reference Material (RM)

Name:	Fumonisin B1
CAS number:	116355-83-0
Catalog number:	DRE-C13955900-10MG
Lot #:	S20041F
Certificate version:	1
Expiry date:	20.01.2025
Physical description of RM:	lyophilised Fumonisin B1
Packaging and amount of RM:	Amber glass ampoules fitted with teflon faced butyl septa and PP screw caps, quantities of 10 mg of RM
Name and address of the manufacturer:	Romer Labs Division Holding GmbH Technopark 5, 3430 Tulln, Austria www.romerlabs.com
Name and address of the supplier:	LGC Standards GmbH Mercatorstraße 51, 46485 Wesel, Germany Tel +49(0)2 81 98 87 0, Fax +49(0)2 81/98 87 199 www.lgcstandards.com

2.1 Intended use of the RM

- for laboratory use only
- calibration of analytical instruments

2.2 Instruction for the correct use of the RM

The ampoules should be stored at 2-8°C or below in a dark place. Before usage of the RM, the ampoules should be allowed to warm to room temperature. The recommended minimum sub-sample amount for all kinds of application is 1 mg. The expiry date of this RM is based on the current knowledge and holds only for proper storage conditions in the originally closed flasks/packages. Solutions prepared for calibration purposes should be protected from exposure to light. Discard solutions after use in accordance with appropriate safety regulations for chemical substances.

2.3 Hazardous situation

The normal laboratory safety precautions should be observed when working with this RM. Further details for the handling of this RM are available as safety data sheet (SDS).

3. Certified values and their uncertainties

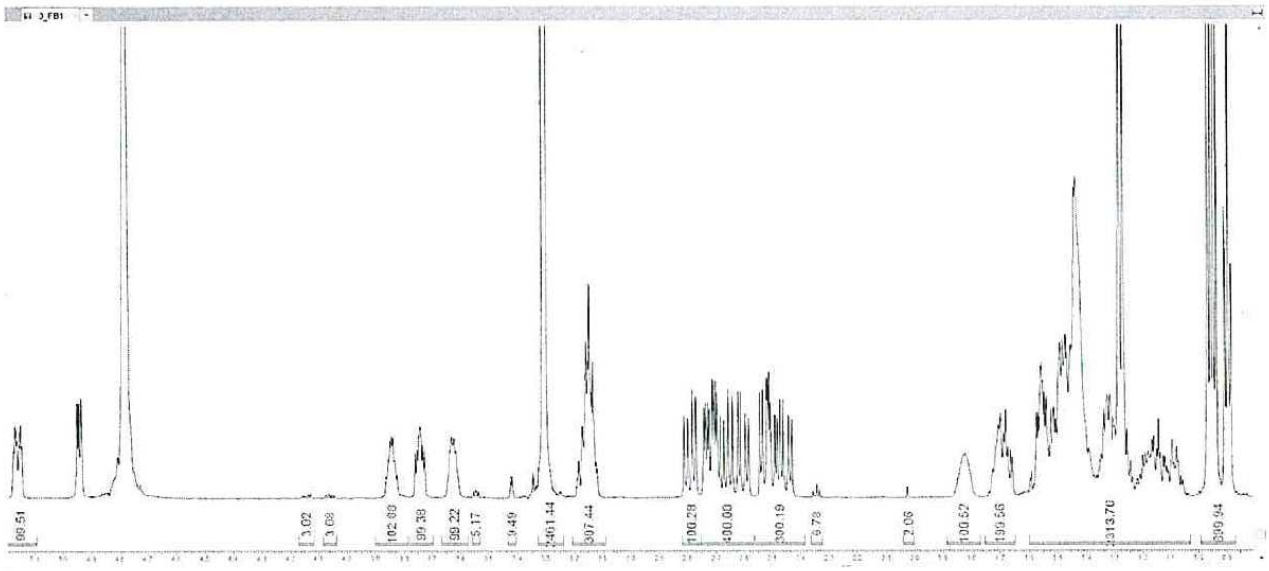
Fumonisin B1		
Compound	**Purity**	
	Certified value [a]	Uncertainty [b]
Fumonisin B1	98.0 %	± 2.0 %

[a] *The certified value is based upon the results from several analytical techniques*
[b] *Expanded uncertainty U (k = 2) of the value u_c according to GUM [4]*

4. Traceability of the certified value

The identity and purity was confirmed by quantitative NMR. All weighting and dilution steps for preparation were done using calibrated equipment (microbalances, pipettes). The gravimetric preparation furthermore was performed in a standardized and certified class A flask with stated uncertainty as well as using traceable thermometers for temperature controlled preparation. The whole preparation process is therefore traceable to SI units and metrological traceability is given.

5. 1HNMR-spectrum of Fumonisin B1 to prove the purity:



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5.1. HPLC-FLD with OPA derivatization:

The purity check using isocratic LC-FLD of the fumonisin B1 sample showed one main peak after blank subtraction.

column	Phenomenex Luna C18(2), 250 x 3 mm, 5µ	
injection volume	10 µL sample + 50 µL OPA-reagent (40 mg o-phthalic dialdehyde / 5 mL 0.1M $Na_2B_4O_7$ + 50 µL 3-mercaptopropionic acid)	
solvent A	water / acetonitrile / acetic acid 59/40/1	
solvent B	acetonitrile / acetic acid 99/1	
sample dilution	1:10 with water / acetonitrile = 60:40	
flow rate	0.5 mL / min, oven at 25°C	
gradient	time in minutes (min)	% solvent B
	0	5 %
	1 – 8	5 – 45 %
	8 – 17	45 – 55 %
	17 – 20	55 – 100 %
	20 – 24	100 %
	24 – 25	100 – 5 %
FLD settings	λ_{EX} = 335 nm, λ_{EM} = 440 nm, response time: 0.5 sec	

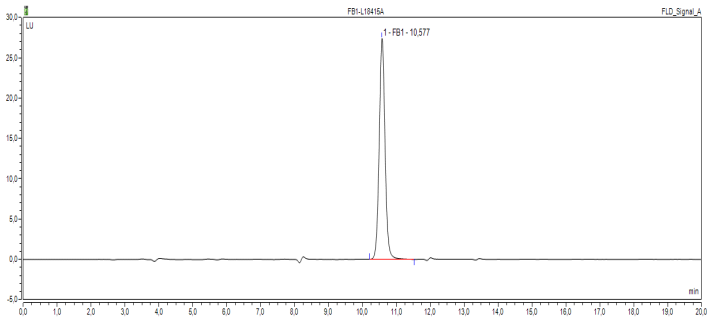

Figure 1: HPLC-FLD chromatogram of FB1 calibrant

	Time [min]	area	height
Fumonisin B1	10.577	5.482	27.462

[a] Mean of 6 replicate measurements against reference batch, confidence interval with P = 95 %

6. Further information

The purchaser must determine the suitability of this product for its particular use. LGC Standards GmbH makes no warranty of any kind, express or implied, other than its products meet all quality control standards set by LGC Standards GmbH. We do not guarantee that the product can be used for a special application.

approved for release by: *Laurence Treccani-Chinelli, Global Supply Chain Manager - LGC Standards* *date:* 20.01.2020

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References:

[1] ISO Guide 31:2015 - 1-18, *"Reference materials – contents of certificates, labels and accompanying documentation"*
[2] Eurachem / CITAC Guide, 1-37, (2003), *"Traceability in Chemical Measurement"*
[3] Eurachem / CITAC Guide CG4, 1-133, (QUAM:2012.P1), *"Quantifying Uncertainty in Analytical Measurement", 3rd Ed.*
[4] International Organization for Standardization (ISO), (1995), *"Guide to the Expression of Uncertainty in Measurement"*, 1st Ed. Geneva, Switzerland