

# CERTIFICATE OF ANALYSIS

ERM<sup>®</sup> - AC058

AFLATOXIN B2 IN ACETONITRILE		
	Mass fraction	
	Certified value <sup>1)</sup> [µg/g]	Uncertainty <sup>2)</sup> [µg/g]
Aflatoxin B2	3.80	0.08
<p>1) This value was derived from the gravimetric preparation of the material corrected for the purity of the aflatoxin B2 used. The value is traceable to the International System of Units (SI).</p> <p>2) Estimated expanded uncertainty U with a coverage factor k = 2, corresponding to a level of confidence of about 95 %, as defined in the Guide to the Expression of Uncertainty in Measurement (GUM), ISO, 1995. Uncertainty contributions arising from characterisation as well as stability assessments were taken into consideration.</p>		

This certificate is valid for one year after purchase.

Sales date:

The minimum amount of sample to be used is 100 µL.

## NOTE

European Reference Material ERM<sup>®</sup>-AC058 was produced and certified under the responsibility of the IRMM according to the principles laid down in the technical guidelines of the European Reference Materials<sup>®</sup> co-operation agreement between BAM-IRMM-LGC. Information on these guidelines is available on the internet (<http://www.erm-crm.org>).

Accepted as an ERM<sup>®</sup>, Geel, August 2007

Signed: \_\_\_\_\_



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Indicative Values		
	Mass concentration at 20 °C	
	Indicative value <sup>1)</sup> [µg/mL]	Uncertainty <sup>2)</sup> [µg/mL]
Aflatoxin B2	2.98	0.06
<p>1) This concentration value and its uncertainty were calculated from the certified value using a density of 0.783 kg/dm<sup>3</sup> at 20 °C. The value for concentration is traceable to the SI.</p> <p>2) The uncertainty is an estimated expanded uncertainty U with a coverage factor k = 2, corresponding to a level of confidence of about 95 %, as defined in the Guide to the Expression of Uncertainty in Measurement (GUM), ISO, 1995. Uncertainty contributions arising from characterisation as well as from stability assessments were taken into consideration.</p>		

## DESCRIPTION OF THE SAMPLE

The material is provided in amber glass ampoules filled with 4 mL. The material was prepared from pure acetonitrile and crystalline aflatoxin B2.

## ANALYTICAL METHODS USED FOR CERTIFICATION

Identity of the material was confirmed by <sup>1</sup>H-NMR, LC-MS/MS and elemental analysis. Purity of the aflatoxin B2 used was determined by LC-MS/MS, LC-UV, TLC and DSC in different laboratories.

The certified value was derived from the gravimetric preparation of the material corrected for the purity of the aflatoxin B2 used.

## PARTICIPANTS

European Commission, Joint Research Centre, Institute for Reference Materials and Measurement, Reference Materials Unit, Geel (BE); accredited by Belac 268-TEST  
 Central Science Laboratory, York (GB); accredited by UKAS 1642  
 LGC Ltd., Teddington (GB); accredited by UKAS 0003

## SAFETY INFORMATION

In this formulation the main hazard derives from the solvent, acetonitrile; for this the following R and S-clauses apply:

R11 Highly Flammable  
 R20/21/22 Harmful by inhalation, in contact with skin and if swallowed  
 R36 Irritating to the eyes  
 S16 Keep away from sources of ignition - No smoking  
 S36/37 Wear suitable protective clothing and gloves

## INSTRUCTIONS FOR USE

The main purpose of this material is for instrument calibration (e. g. external calibration, standard addition). This material can also be used to assess own calibrants.

For assessing own calibrants, measured values of the CRMs are compared with certified values following a procedure described by T.P.J. Linsinger (<http://www.erm-crm.org>). The procedure in brief:

Calculate the absolute difference between mean measured value and the certified value ( $\Delta_m$ ).

Combine measurement uncertainty ( $u_m$ ) with the uncertainty of the certified value ( $u_{CRM}$ ):

$$u_{\Delta} = \sqrt{u_m^2 + u_{CRM}^2}$$

Calculate the expanded uncertainty ( $U_{\Delta}$ ) from the combined uncertainty ( $u_{\Delta}$ ) using a coverage factor of two ( $k = 2$ ), corresponding to a confidence interval of approximately 95 %.

If  $\Delta_m \leq U_{\Delta}$  then there is no significant difference between the measurement result and the certified value, at a confidence level of about 95 %.

## **STORAGE**

The material should be stored at or below 4 °C but not below - 30 °C.

However, the European Commission cannot be held responsible for changes that happen during storage of the material at the customer's premises, especially of opened samples.

## **LEGAL NOTICE**

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## **NOTE**

A detailed technical report is available on [www.erm-crm.org](http://www.erm-crm.org). A paper copy can be obtained from IRMM on request.