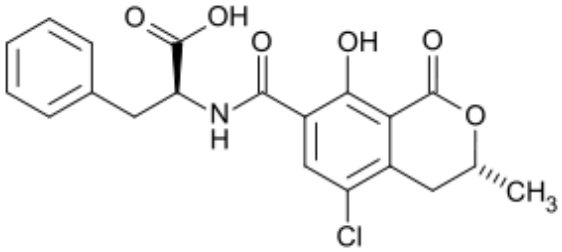
aokin OTA

Standard solution

known concentration of Mycotoxin

Order-No: CH-04-L1-10

Lot: xxx xxx xxx xxx



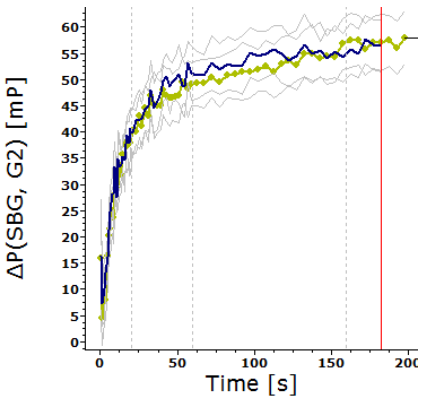
Analyte: Ochratoxin A (OTA)

Specification:

Substance:	Ochratoxin A
Empirical Formula:	$C_{20}H_{18}ClNO_6$
Concentration:	10 µg/mL
Diluted in:	Acetonitrile
Molecular Weight:	403.813
CAS-No.:	Ochratoxin A: 303-47-9, Acetonitrile: 75-05-8
Volume:	1 mL
Expiry date:	1 year after delivery
Storage conditions:	dark, freezer
Certification:	The calibrant is certified on the basis of gravimetric preparation.

Values are based on weight amount, purity and dilution steps, and confirmed by Kinetic Fluorescence Polarization and UV spectroscopy.

Uncertainty < 0,4 µg/mL in accordance with ISO Guide 31, ISO Guide 35 and Eurachem/CITAG Guides.



green: ***aokin*** OTA-Standard
blue: external reference standard

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Calculation of uncertainty:

(After the concentration of the gravimetric prepared solution was confirmed by kinetic fluorescent polarization, the uncertainty of the calibrant solution was calculated on the basis of preparation)

Uncertainty components	Description	Standard uncertainty (u)	
Purity (P) of solid Ochratoxin	P = 98.19% ± 0.5%	u(P) = 0.3%	a
Weighing procedure weighted sample: m_{ws} = 1.5 mg	repeatability: 0.03 mg linearity: 0.01 mg	u(m) = 0.03 mg	b
Dilution procedure Performed by volume V_f= 147 ml	calibration: 10 mL ± 0,025 mL repeatability: 0.015 mL volume expansion solvent	u(cal) = 0.01 mL u(rep) = 0.015 mL u(Vol.exp.) = 0,029 mL u(V) = 0,03 mL	c d e f

[a] Maximum tolerance of purity (rectangular distribution) was divided by $\sqrt{3}$
[b] Estimation of this u-value is based upon the values for repeatability and linearity described in the user manual of the microbalance
[c] A triangular distribution (division by $\sqrt{6}$) was chosen for the calculation of u(cal)
[d] Based on a series of ten weigh experiments; the value was used directly as a standard deviation
[e] Based on the density of 0.7857 g/cm^3 at temperature T = 20°C and a maximum temperature variation of ± 3°C, of volume expansion, relative volume expansion coefficient of acetonitrile is 1370 * 10^{-6}/°C, volume expansion term (rectangular distribution) was divided by $\sqrt{3}$
[f] The three contributions are combined to give the

$$u\,(V) = \sqrt{u(cal)^2 + u(rep)^2 + u(Vol.exp.)^2}$$

Calculation of the combined uncertainty u_c and the expanded standard uncertainty U:

$$c_{toxin} = \frac{m_{WS} \times P}{V_f} = \frac{1.5\ mg \times 0.9819}{147\ ml} = 0.01\ mg/ml = 10\ \mu g/ml$$

$$\frac{u_c\,(c_{toxin})}{c_{toxin}} = \sqrt{\left[\frac{u\,(P)}{P}\right]^2 + \left[\frac{u\,(m)}{m_{ws}}\right]^2 + \left[\frac{u\,(V)}{V_f}\right]^2} = \sqrt{\left[\frac{0.4}{98.19}\right]^2 + \left[\frac{0.03}{1.5}\right]^2 + \left[\frac{0.03}{147}\right]^2} = 0.02$$

$$u_c\,(c_{toxin}) = c_{toxin} \times 0.02 = 0{,}01 mg/ml \times 0.02 = 0.0002\ mg/ml = 0{,}2\ \mu g/ml$$

Calculation of expanded standard uncertainty U using a coverage factor k = 2

$$U(c_{toxin}) = u_c\,(c_{toxin}) \times 2 = 0.2\ \mu g/ml \times 2 = 0.40\ \mu g/ml$$

Discussion of traceability:

This calibrant is certified on the basis of gravimetric preparation. Thus the certified values (mass concentrations of Ochratoxin) is based on the weighed amount of the starting material and are therefore traceable to the stated purity of the solid mycotoxin. High purity material represents a practical realization of concentration units, through conversion of mass to molar quantity.

Danger

H225-H302-H312-H319-H332

P210-P280-P305 + P351 + P338

Danger

Contains: Ochratoxin, Acetonitrile

Volume: 1 mL

Highly flammable liquid and vapour. Harmful if swallowed. Harmful in contact with skin. Causes serious eye irritation. Harmful if inhaled.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Normal laboratory safety should be observed.

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