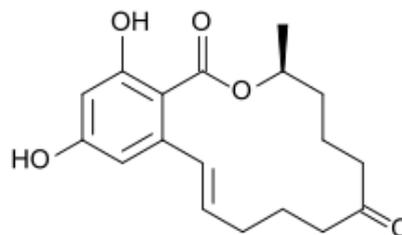


Standard solution

known concentration of Mycotoxin

Order-No: CH-01-L5-100

LOT: xxx xxx xxx xxx



Analyte: Zearalenone (ZON)

Specification:

Substance: Zearalenone

Concentration: 100 µg/mL

Diluted in: Acetonitrile

Volume: 5mL

CAS-No.: 17924-92-4

Volume: dark, freezer

Expiry date: 1 year after delivery

Storage conditions: The calibrant is certified on the basis of gravimetric preparation.

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

Uncertainty < 0,8 µg/mL in accordance with ISO Guide 31, ISO Guide 35 and Eurachem/CITAG Guides.

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 Zearalenone	P = 99.24% ± 0.3%	u(P) = 0.3%	a
Weighing procedure weighted sample: m _{ws} = 5.00 mg	repeatability: 0.03 mg linearity: 0.01 mg	u(m) = 0.03 mg	b	
Dilution procedure Performed by volume V _r = 15 ml	calibration: 10 mL ± 0,01 mL repeatability: 0.01 mL volume expansion solvent	u(cal) = 0.1 mL u(rep) = 0.1 mL u(Vol.exp.) = 0,205 mL u(V) = 0,24 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 $\sqrt{3}$) 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/cm³ 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:

$$c_{\text{toxin}} = \frac{m_{ws} \times P}{V_f} = \frac{1.16 \times 0.9983}{0.016} = 99.83 \text{ mg/L}$$

$$\frac{u_c(c_{\text{toxin}})}{c_{\text{toxin}}} = \sqrt{\left[\frac{u(P)}{P}\right]^2 + \left[\frac{u(m)}{m_{ws}}\right]^2 + \left[\frac{u(V)}{V_f}\right]^2} = \sqrt{\left[\frac{0.4}{99.4}\right]^2 + \left[\frac{0.03}{5.01}\right]^2 + \left[\frac{0.24}{50}\right]^2} = 0.008$$

$$u_c(c_{\text{toxin}}) = c_{\text{toxin}} \times 0.008 = 100.0 \times 0.008 = 0.8 \text{ mg/L}$$

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

$$U(c_{\text{toxin}}) = u_c(c_{\text{toxin}}) \times 2 = 0.8 \times 2 = 1.6 \text{ mg/L} = 1.60 \text{ } \mu\text{g/L}$$

Discussion of traceability: This calibrant is certified on the basis of gravimetric preparation. Thus the certified value (mass concentration of Zearalenone) 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.



H300
P264
P301 + P310

Toxic and flammable.

Contains: Zearalenone, Acetonitrile

Fatal if swallowed

Wash ... thoroughly after handling

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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