

CERTIFICATE

Matrix certified reference material of agricultural soil containing selected pesticides

METRANAL[®] CRM AN-ZP03

This Certificate is designed in accordance with ISO Guide 31

Description:

The certified reference material of agricultural soil AN-ZP03 was prepared by spiking selected relevant organic compounds into the original natural matrix. Selected pesticides are certified.

Packing:

50 g of powder of the respective soil with a particle size of less than 100 µm in amber glass bottle. The sample is stabilized by radiation 25kGy.

Intended use:

This certified reference materials is intended primarily for use in realizing metrological traceability, validation of analytical methods and the transfer of property values to other materials of similar composition.

Recommended analytical methods for method dependent measurements:

Gas and liquid chromatography

Specification:

The date of production: January 2021

Shelf life: 3 years from the date of production

Metrological traceability:

Metrological traceability is realized by using certified calibration standards solutions for the calibration of measurement methods used (direct traceability to SI unit) and/or by simultaneous analysis of a matrix CRM (RM) of similar composition.

Homogeneity and stability:

Homogeneity and short term stability has been demonstrated according to the ISO GUIDE 35. This CRM will be monitored for over the period of its validity.

Storing and instruction for use:

This CRM has to be stored in original bottle at -18°C (optimal is in a freezer). The materials should be analysed in the "as received" state and their dry weight should be determined on non-analysed aliquots oven-dried at 105°C till the constant weight. The material in the bottle must be rehomogenized before each use by mechanical shaking of the content for 1-2 minutes. The bottle should be opened a minimum of 2 minutes after rehomogenization in order to prevent an escape of fine powder particles from the bottle into the environment and their sedimentation.

Certified and indicative values and their uncertainties:

The certified and indicative values of selected pesticides are summarized in Table 1 and 2. The overall means evaluated have been given a status of certified and indicative values using the following criteria: data should be available from at least 5 and 3 accepted laboratory means should be available for calculation of the overall mean for certified and indicative value, respectively. At combined uncertainties presented, the contribution of uncertainty of characterization of a particular property value is dominant.

Table 1: Certified and indicative values of selected pesticides.

analytes	AN-ZP03	
	concentration [$\mu\text{g}/\text{kg}$]	uncertainty [$\mu\text{g}/\text{kg}$]
Atrazine	450	25
Azoxystrobin	281	18
Carbendazim	285	32
Diiflufenican	(595)	(82)
Dimethenamid	(332)	(45)
Epoxyconazole	191	15
Fenpropidin	(105)	(11)
Chlorotoluron	(80.4)	(9.7)
Chlorpyrifos	353	22
Linuron	447	32
Metamitron	566	30
Metazachlor	(775)	(88)
Methoxyfenozide	(779)	(103)
Metconazole	270	14
Pendimethalin	186	12
Pethoxamid	(294)	(53)
Prochloraz	195	14
Spiroxamine	490	46
Tebuconazole	814	66
Terbuthylazine	444	33

All values corrected to a dry mass at 105°C

Uncertainty – expanded combined uncertainty ($k=2$)

() indicative value

Table 2: Indicative values of selected organochlorine pesticides

analyt	concentration [µg/kg]	uncertainty [µg/kg]
Gamma-BCH	604	95
Delta-BCH	640	74
2,4-DDT	286	33
4,4-DDT	512	75
Endrin	423	36
4,4-DDD	418	60

All values corrected to a dry mass at 105°C

Uncertainty – expanded combined uncertainty (k=2)

This CRM will be monitored for over the period of its validity. If substantive changes of reference values occur, Analytika®, spol. s r.o. will notify the purchaser.

Participated laboratories in material characterization and interlaboratory comparison:

Analytika, spol. s r.o.

Agroscope; Environmental Analytics; Zurich

ALS Czech Republic s.r.o.

ARISTOTLE UNIVERSITY OF THESSALONIKI; Department of Chemistry, Environmental Pollution Control Laboratory (EPCL)

ARPAV; Servizio Laboratori Veneto EST; Venezia Mestre

Benaki Phytopathological Institute; Department of Pesticides Control and Phytopharmacy, Laboratory of Chemical Control of Pesticides,

Eurofins Environment Testing Finland Oy; LAHTI

Institut National de la Recherche Agronomique; Laboratoire d'analyse des sols; Arras

Institute of Environmental Assessment and Water Research; Barcelona

LABAQUA, S.A.U; POL. IND. LAS ATALAYAS; ALICANTE

MetropoliLab Oy; Helsinki

RECETOX, Masaryk University; Brno

UKZUZ Brno; NRL; Department of Residual Analyses

University of Bern, Institute of Geography

University of Bordeaux; Oceanic and Continental Environments and Paleoenvironments (LPTC)

Wageningen Food Safety Research (WFSR)

Note:

Detailed information about the production, homogeneity testing and characterization of this CRM are described in the Certification report, which is available on request.

Producer:

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Quality management systems of company ANALYTIKA®, spol. s r.o.:

ČSN EN ISO 9001:2016
 ČSN EN ISO/IEC 17025:2018
 ČSN EN ISO 17034:2017

Manager of Department of RM:


Ing. Daniela Weissarová

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