

CERTIFICATE

Matrix certified reference material of sewage sludge

METRANAL® CRM AN-OK02

This Certificate is designed in accordance with ISO Guide 31

Name:

Sewage sludge with certified values of polychlorodibenzo-p-dioxins, polychlorodibenzo furans and toxic polychloro biphenyls.

It is simplified version of former CRM CZ 70006. The certified values for the most stable analytes were confirmed experimentally in three experienced laboratories.

The total I-TEQ value is approximately 150 ng/kg.

Packing:

60 g of powder of the respective sewage sludge with a particle size of less than 100 µm in amber glass bottle. The sample is stabilized by radiation of 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:

HRGC/HRMS

Specification:

The date of production: March 2020

Shelf life: 5 years from the date of production

Metrological traceability:

BCR 614 (S₀-S₅), BCR 365 and ERM AC 820-822 were used for calibration by most of participating laboratories. Each laboratory analysed simultaneously with the samples also the matrix reference material BCR – 677.

Homogeneity and stability:

Homogeneity and short term stability has been demonstrated according to the ISO GUIDE 35.

Sample preparation:

The most frequently used methods are following: EPA 1613, 1668, 8280A, 8290 or equivalent.

Storing and instruction for use:

This CRM has to be stored in original bottle. Storing between 2-30°C is recommended. The material should be analysed in the "as received" state and their dry mass should be determined on non-analysed aliquots oven-dried at 105°C till the constant mass. 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. Due to material toxicity, handling with it should be allowed only to staff trained for working with toxic materials.

Certified values and their uncertainties:

The certified selected PCDD, PCDF and PCB are summarized in Table 1. The certified values of analytes were derived from results of an interlaboratory comparison in which 11 selected laboratories took part. At combined uncertainties presented, the contribution of uncertainty of characterization of a particular property value is dominant.

Table 1: Certified values of selected PCDD, PCDF and PCB and their associated uncertainties.

Analyte	Mass fraction	
	Certified value (ng/kg)	Uncertainty (ng/kg)
2,3,7,8 TeCDD (D48)	4.5	0.3
1,2,3,7,8 PeCDD (D54)	2.1	0.3
1,2,3,4,7,8 HxCDD (D66)	2.6	0.5
1,2,3,6,7,8 HxCDD (D67)	5.0	0.9
1,2,3,7,8,9 HxCDD (D70)	3.7	1.0
1,2,3,4,6,7,8 HpCDD (D73)	65	12
OCDD (D75)	519	74
2,3,7,8 TeCDF (F83)	110	17
1,2,3,7,8 PeCDF (F94)	157	21
2,3,4,7,8 PeCDF (F114)	87	11
1,2,3,4,7,8 HxCDF (F118)	376	63
1,2,3,6,7,8 HxCDF (F121)	102	13
1,2,3,7,8,9 HxCDF (F124)	11.0	2.4
2,3,4,6,7,8 HxCDF (F130)	19.8	2.8
1,2,3,4,6,7,8 HpCDF (F131)	256	41
1,2,3,4,7,8,9 HpCDF (F134)	110	17
OCDF (F135)	1590	290
PCB 77	2380	370
PCB 81	108	16
PCB 126	169	35
PCB 169	25	4
PCB 105	3430	500
PCB 114	169	39
PCB 118	15800	2300
PCB 123	121	30
PCB 156	9140	1300
PCB 157	802	130
PCB 167	4130	670
PCB 189	1860	260

All values corrected to a dry mass at 105°C

Uncertainty – expanded combined uncertainty (k=2)

Verze certifikátu / Version of the certificate: 02

2/3

Verze formuláře / Version of the form: 03

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
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