Gravimetric Certificate

Dr. Ehrenstorfer

Reference Materials for Residue Analysis

Product Identification

18000017 Pesticide-Mix 17

Please note: The expiry date is valid under recommended storage conditions only.

Expiry Date 16.12.2019
Lot Number 122762CY
Store at 20°C in the dark

Gravimetric Data

	Product Name	CAS	Final Conc. (mg/l)	Lot. No.	Purity (%) Conc. (mg/l)	Weight/Volume	RT (min.)
1	Aldrin	309-00-2	10.000	40109	99.000	2.015 mg	35.92
2	4,4'-DDD	72-54-8	10.000	120073	99.000	2.015 mg	40.75
3	4,4'-DDE	72-55-9	10.000	30425	98.500	2.030 mg	39.70
4	2,4'-DDT	789-02-6	10.000	50825	98.000	2.045 mg	41.25
5	4,4'-DDT	50-29-3	10.000	40604	98.500	2.030 mg	42.44
6	Dieldrin	60-57-1	10.000	40925	99.000	2.025 mg	39.61
7	alpha-Endosulfan	959-98-8	10.000	40930	99.000	2.020 mg	38.74
8	beta-Endosulfan	33213-65-9	10.000	41020	99.000	2.020 mg	41.07
9	Endrin	72-20-8	10.000	30715	99.500	2.010 mg	40.46
10	alpha-HCH	319-84-6	10.000	40320	99.000	2.025 mg	30.23
11	beta-HCH	319-85-7	10.000	61010CY	10.000	200.000 ml	31.24
12	gamma-HCH	58-89-9	10.000	40506	99.000	2.025 mg	31.58
13	Heptachlor	76-44-8	10.000	41121	99.000	2.025 mg	34.57
14	Heptachlor-endo-epoxide (trans-, isomer A)	28044-83-9	10.000	50709	99.700	2.005 mg	37.55
15	Hexachlorobenzene	118-74-1	10.000	117781	98.300	2.035 mg	30.64
16	Methoxychlor	72-43-5	10.000	100865	99.000	2.025 mg	44.44
17	Pentachlorobenzene	608-93-5	10.000	60518	99.200	2.015 mg	26.29
18	Quintozene	82-68-8	10.000	102419	99.500	2.015 mg	31.84
19	1,2,4,5-Tetrachlorobenzene	95-94-3	10.000	30926	99.500	2.005 mg	21.43
20	1,2,4-Trichlorobenzene	120-82-1	10.000	40310	99.500	2.005 mg	17.06

Solvent Information

Solvent	Lot No.	Exact Quantity (ml)
Cyclohexane	D5M005155N42	200.00

Analytical Data

Detection: GC/ECD
Column: DB-5, 30 m, ID 0.25 mm
Inj.-Vol.:
Flow: 1.0 ml/min

Method Details:
Injector: 280° C
Start Temperature: 60° C for 5 min
End Temperature: 280° C for 6 min
Gradient: 5° C/min

Identity check RT

Comment Endrin forms Endrin-aldehyde and Endrin-keton in GC.
Inj. Vol.: 2 µl

The uncertainty/tolerance of this standard is +/- 5.0 %, calculated in accordance with the EURACHEM/CITAC Guide - Quantifying Uncertainty in Analytical Measurement - Second Edition. The uncertainty given is the expanded combined uncertainty and represents an estimated standard deviation equal to the positive square root of the total variance of the uncertainty of components. The expanded uncertainty is U which is Uc(y)*K, where K is the coverage factor at the 95% confidence level (K=2). The expanded uncertainty is based on the combination of uncertainties associated with each individual operation involved in the preparation of this product.

Certified on 16.12.2016
by M. Beck

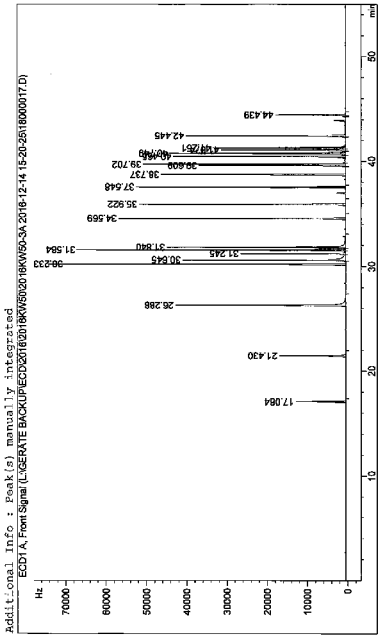
The Laboratory LGC Labor GmbH is accreditated by DAkkS as indicated by the Accreditation Number D-RM-19883-01 & D-PL-19883-01 has shown competence based on ISO Guide 34:2009 with relevant parts of DIN EN ISO/IEC 17025:2005 for production of certified reference materials in form of organic pure substances and in form of single and multi-component solutions organic pure substances.

LGC Labor GmbH · Bgm.-Schlosser-Str. 6 A · 86199 Augsburg · Germany
Phone +49 821 906080 · Fax +49 821 9060888 · augsburg.inquiry@lgcgroup.com
The warranty for this product is limited to the purchasing price of this product.

Data File L:\GERÄTE BACKUP\ECD\2016\20-6KW50-3A 2016-12-14 15-20-25\18000017.D
Sample Name: 122762CY

Acq. Operator	: ECD
Acq. Instrument	: GC-ECD-1
Injection Date	: 14.12.2016 20:09:35
Acq. Method	: C:\Chem32\1\DATA\2016KW50\2016KW50-3A 2016-12-14 15-20-25\PES_2.M
Last Changed	: 07.11.2016 07:52:33 by ECD
Analysis Method	: L:\Geräte Backup\ECD\2016\2016KW50\2016KW50-3A 2016-12-14 15-20-25 \PES_2.M (Sequence Method)
Last changed	: 15.12.2016 12:10:37 by SYSTEM (modified after loading)
Method Info	: pes2
Sample Info	: Pesticide-Mix 17
Additional Info	: Peak(s) manually integrated

Seq. Line : 9
Location : 14
Vial : 1
Inj Volume : 2 µl



Area Percent Report

Sorted By : Signal
Calib. Data Modified : 15.12.2016 11:50:08
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: ECD1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Area %	Name
1	17.084	BB S	0.0531	4.14891e4	1.32605	1
2	21.430	BB S	0.0578	6.19999e4	1.98161	2
3	26.288	BB S	0.0652	1.77837e5	5.68392	3
4	30.233	BV S	0.0549	2.45036e5	7.83152	4

Data File L:\GERÄTE BACKUP\ECD\2016\2016KW50\2016KW50-3A 2016-12-14 15-20-25\18000017.D
Sample Name: 122762CY

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Area %	Name
5	30.645	VV S	0.0633	1.70479e5	5.44875	5
6	31.245	VV S	0.0590	9.20164e4	2.94098	6
7	31.584	VV S	0.0539	2.27439e5	7.26928	7
8	31.820	VB S	0.0632	1.81267e5	5.79356	8
9	34.569	BB S	0.0596	2.10177e5	6.71753	9
10	35.922	BB S	0.0599	1.99905e5	6.16554	10
11	37.548	VB S	0.0605	1.97793e5	6.32176	11
12	38.737	VV S	0.0610	1.76292e5	5.63457	12
13	39.609	VV S	0.0596	1.35845e5	4.34182	13
14	39.702	VV S	0.0651	1.95824e5	6.25882	14
15	40.465	VV S	0.0606	1.62899e5	5.20648	15
16	40.749	VV S	0.0596	1.70203e5	5.43994	16
17	41.074	VV S	0.0593	1.14509e5	3.65987	17
18	41.251	VV S	0.0661	1.34176e5	4.28847	18
19	42.445	VV S	0.0605	1.73092e5	5.53227	19
20	44.439	VB S	0.0613	6.74951e4	2.15724	20

Totals : 3.12877e6

1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

*** End of Report ***

1. Application:

This standard solution is desinged for calibration or recalibration of chromatographic systems for the determination of the specified chemical compounds concerning identity and quantification. The product can also be used as reference material for interlabortory studies to validate analytical procedures.

2. Raw material:

All raw materials used to prepare this standard solution are of the highest purity. After our production process each material is checked by several of the following methods, if applicable: UV-, IR-Spectroscopy, Elemental analysis, chromotographical properties (GC/FID, GC/ECD, GC/MSD, HPLC/DAD, HPLC/MSD, TLC) and physical properties (phase, colour, odor, melting point) and Karl-Fischer for detection of traces of water.

3. Manufacturing

Prior to the production for each standard solution we calculate the necessary weight of the neat material, compensate the difference of the purity of the compound to 100%. We use an electronic scale capable of weighing to 0,000001 g with a built in automatic calibration function, which is executed minimum once a week. Once a month the balance is calibrated with weights complying with the OIML-IR-20 design requirements and traceable to the national prototype of the Physikalisch-Technische Bundesanstalt, Braunschweig, the German office of weights and measurements. Every year the balance is calibrated by the manufacturer service technician. This company is also certified by the DQS following ISO9001. All steps are documented conform to ISO 9001 requirements. The single components are weighed and filled into volumetric flask (class A glassware) with the exact quantiy of solvent as indicated on the certifcate. Solvents are stored and handled in special rooms, which have the constant ambient temperature required from the manufacturer of the volumetric equipment. The tolerance of the weighing procedure and the dilution error adds to a maximum of +/- 1.0 %.

4. Packaging and Storeage:

The final formulation was packaged in amber glass ampoules and then sealed to prevent photodegradation and evaporation. Every reference material is stored under controlled condition. One sample of each lot is kept according GLP rules to allow a recheck of the specific lot even years after the last item was sold.

5. Stability:

In regular intervals each lot is checked for stability. We guarantee the stability of the solution until the date of expiry given on the Gravimetric Certificate. In case, that the tests show a degradation within the shelf life period, the customer will be notified. We recommend to store the ampules in the dark at 20°C +/- 4°C

6. Gravimetric Certificate:

The documentation gives all the data of the production process with all the information necessary for traceability of each lot. Following GLP rules you are obliged to note the used product, lot number of the product, purity, exact weight/quantity of the product, name of the solvent, lot number of the solvent, exact quantitiy of the solvent, date of production, date of expiry and signature of the person in charge. Copies have to be authorized by stamp, signature of the person in charge according to your quality management handbook and date of authorization.

7. Analytical Quality Control

The summary of the quality control procedure is documented in the separate Certificate of Analysis. Our company holds the Quality System Certificate DQS-Reg.No.:002874 QM08 for the standard from the ISO 9001 / EN 29000 series and the scope as specified. The audit performed by the DQS has verified, that our quality system fulfills the requirements of DIN ISO 9001. The company is accreditated by DAkkS as indicated by the Accreditation Number D-RM-19883-01 and D-PL-19883-01 has shown competence based on ISO Guide 34_2009 with relevant parts of DIN EN ISO/IEC 17025:2005 for production of certified reference materials in form of organicpure substances and in form of single and multi-component solutions organic pure substances.

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