

# Quality Control Certificate

**Product:** Carbon Column

**Product No.:** 15242

**Lot No.:** 716785

**Storage Recommendations:** Store the column at room temperature below 25°C

**Description:** The Carbon Column is part of a 3-column setup for the sample cleanup of environmental-, food- / feed- and similar matrices. It is designed for the analysis of polychlorinated dibenzo-p-dioxins (PCDD), polychlorinated dibenzofurans (PCDF) and polychlorinated biphenyl (PCB) congeners with the DEXTech systems from LCTech GmbH

## Quality Control Release Inspection and Test Specification

**Test Procedure:** A solvent blank, spiked with quantification standard has been cleaned on a DEXTech Plus system, spiked with recovery standard, evaporated via D-EVA and has been quantified with a HRGC/HRMS DFS from Thermo Fisher Scientific at a resolution of R > 10000.

**Results Blank Value:**

PCDD/F-TEQ:	0,36	pg/column
	(crit: <	0,7 pg/column)
dl-PCB-TEQ:	0,042	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	13,19	pg/column
	(crit: <	100 pg/column)

**Results Recoveries:**

PCDD/F	80	to	112	%	(crit: 70 to 120 )
PCB	84	to	98	%	(crit: 70 to 120 )

This is to certify that the 15242, Lot 716785, passed the required test specifications and is released for sale.

date: 13.06.2022 sign.: \_\_\_\_\_

*T. Kehmeier*

The company LCTech GmbH is certified according to ISO 9001:2015



**Hazards:** NOT FOR HUMAN OR DRUG USE!

The carbon column is designed and prepared for usage with the alumina/florisil column and universal/standard & smart column from LCTech and for laboratory use only. This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion, all procedures should be carried out with suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed according to national and regional regulations.

**Quality Control:** All ingredients are traceable to certified lots of our supplier. In addition, any ingredient with a new lot will be checked on contamination and efficiency before releasing for production. Monitoring the ongoing production, several columns are chosen at random day for analysis to check on contamination and efficiency.

**Quality Management:** This product was produced using a Quality Management System registered to the ISO 9001:2015 (DEKRA)

**Documentation / Data Attached:** Table 1 & 2: Blank values of PCDD/F and PCB  
Table 3 & 4: 13C-Recoveries of PCDD/F and PCB

**Analytcs:** All the columns (n>5) have to perform a clean-up of a solvent blank (10 mL n-hexane), spiked with a 13C - labelled quantifier-standard solution with a single column method onto a DEXTech Plus system. The fractions 1 (PCB) and 2 (PCDD/F) are spiked with 13C - labelled recovery- standard solutions and evaporated with the D-EVA vacuum centrifuge. The extracts are measured with a HRMS-DFS from Thermo Fisher Scientific with a resolution of R > 10000. The HRGCs are equipped with 60 m DB5 MS columns. For PCDD/F 5µL are injected via PTV, for PCB 2µL via SSL.

**Remarks:** n/a

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**Results:**

Lockmass check:

No significant disturbances, or indicators for contaminations are detected.

Blanks:

Table 1: PCDD/F blank (n=6)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,17
1,2,3,7,8-PeCDF	0,14
2,3,4,7,8-PeCDF	0,11
1,2,3,4,7,8-HxCDF	0,138
1,2,3,6,7,8-HxCDF	0,124
2,3,4,6,7,8-HxCDF	0,18
1,2,3,7,8,9-HxCDF	0,3
1,2,3,4,6,7,8-HpCDF	0,42
1,2,3,4,7,8,9-HpCDF	0,231
OCDF	0,2
2,3,7,8-TCDD	<0,036
1,2,3,7,8-PeCDD	0,12
1,2,3,4,7,8-HxCDD	0,19
1,2,3,6,7,8-HxCDD	0,38
1,2,3,7,8,9-HxCDD	0,26
1,2,3,4,6,7,8-HpCDD	0,57
OCDD	1,03

TEQ (WHO 2005)	
lower bound	0,36
upper bound	0,36

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
PCB 28	1,48
PCB 52	2,35
PCB 77	0,31
PCB 81	0,308
PCB 101	1,91
PCB 123	0,9572
PCB 118	1,21
PCB 114	0,5652
PCB 105	2,12
PCB 126	0,2937
PCB 153	2,7
PCB 138	2,48
PCB 167	0,913
PCB 156	0,71
PCB 157	0,725
PCB 169	0,416
PCB 180	1,36
PCB 189	1,883

TEQ (WHO 2005)	
lower bound	0,0422
upper bound	0,0422

Sum DIN PCB	13,19
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**Results:**

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=6)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	95
1,2,3,7,8-PeCDF	91
2,3,4,7,8-PeCDF	91
1,2,3,4,7,8-HxCDF	91
1,2,3,6,7,8-HxCDF	95
2,3,4,6,7,8-HxCDF	90
1,2,3,7,8,9-HxCDF	98
1,2,3,4,6,7,8-HpCDF	112
1,2,3,4,7,8,9-HpCDF	105
OCDF	107
2,3,7,8-TCDD	88
1,2,3,7,8-PeCDD	97
1,2,3,4,7,8-HxCDD	98
1,2,3,6,7,8-HxCDD	80
1,2,3,7,8,9-HxCDD	89
1,2,3,4,6,7,8-HpCDD	98
OCDD	99

Table 4: PCB 13C-recoveries (n=6)

Congeneres:	13C rec [%]
PCB 28	96
PCB 52	92
PCB 77	94
PCB 81	87
PCB 101	98
PCB 123	93
PCB 118	91
PCB 114	93
PCB 105	94
PCB 126	86
PCB 153	88
PCB 138	93
PCB 167	88
PCB 156	87
PCB 157	88
PCB 169	86
PCB 180	91
PCB 189	84

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