

# Quality Control Certificate

**Product:** Carbon Column Pos.3

**Product No.:** 13810

**Lot No.:** 713510

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

**Description:** The carbon column is part of a 4-column setup used for the sample preparation of environmental-, food- / feed- and similar matrices with DEXTech systems from LCTech for the analysis of polychlorinated dibenzo-p-dioxins (PCDD), polychlorinated dibenzofurans (PCDF) and polychlorinated biphenyl (PCB) congeners.

## Quality Control Release Inspection and Test Specification

**Test Procedure:** A solvent blank, spiked with quantification standard has been cleaned-up on a DEXTech Plus system, spiked with recovery standard, evaporated via DEva and has been quantified with a HRGC/HRMS with a resolution of R > 10000.

**Results Blank Value:**

PCDD/F-TEQ:	0,19	pg/column
	(crit: <	0,7 pg/column
dl-PCB-TEQ:	0,003	pg/column
	(crit: <	0,05 pg/column
Sum Indikator PCB:	13,82	pg/column
	(crit: <	100 pg/column

**Results Recoveries:**

PCDD/F	86	to	108	%	(crit: 70	to	120)
PCB	79	to	115	%	(crit: 70	to	120)

This is to certify that carbon column pos.3, Lot 713510, passed the required test specifications and is released for sale.

date: 29.10.2020 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=9)

Table 2: PCB blank (n=9)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,07
1,2,3,7,8-PeCDF	0,05
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,031
1,2,3,6,7,8-HxCDF	<0,018
2,3,4,6,7,8-HxCDF	<0,045
1,2,3,7,8,9-HxCDF	<0,045
1,2,3,4,6,7,8-HpCDF	<0,063
1,2,3,4,7,8,9-HpCDF	<0,018
OCDF	0,94
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,15
1,2,3,4,7,8-HxCDD	0,037
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,029
1,2,3,4,6,7,8-HpCDD	0,13
OCDD	0,5

Congeneres:	[pg/column]:
PCB 28	3,79
PCB 52	3,77
PCB 77	0,05
PCB 81	0,05
PCB 101	1,83
PCB 123	0,3662
PCB 118	0,94
PCB 114	0,0648
PCB 105	0,25
PCB 126	0,0263
PCB 153	1,8
PCB 138	1,3
PCB 167	0,712
PCB 156	0,66
PCB 157	0,949
PCB 169	<0,027
PCB 180	0,62
PCB 189	0,82

TEQ (WHO 2005)	
lower bound	0,19
upper bound	0,2

TEQ (WHO 2005)	
lower bound	0,0034
upper bound	0,0034

Sum DIN PCB	13,82
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**Results:**

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=9)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	89
1,2,3,7,8-PeCDF	95
2,3,4,7,8-PeCDF	90
1,2,3,4,7,8-HxCDF	98
1,2,3,6,7,8-HxCDF	95
2,3,4,6,7,8-HxCDF	92
1,2,3,7,8,9-HxCDF	100
1,2,3,4,6,7,8-HpCDF	86
1,2,3,4,7,8,9-HpCDF	102
OCDF	92
2,3,7,8-TCDD	93
1,2,3,7,8-PeCDD	95
1,2,3,4,7,8-HxCDD	108
1,2,3,6,7,8-HxCDD	99
1,2,3,7,8,9-HxCDD	97
1,2,3,4,6,7,8-HpCDD	89
OCDD	90

Table 4: PCB 13C-recoveries (n=9)

Congeneres:	13C rec [%]
PCB 28	100
PCB 52	92
PCB 77	85
PCB 81	80
PCB 101	106
PCB 123	87
PCB 118	79
PCB 114	92
PCB 105	79
PCB 126	91
PCB 153	103
PCB 138	114
PCB 167	92
PCB 156	84
PCB 157	79
PCB 169	98
PCB 180	115
PCB 189	80

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