

# Quality Control Certificate

**Product:** Carbon Column

**Product No.:** 15242

**Lot No.:** 713850

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

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**Description:** The carbon column is part of a 3-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:	0,009	pg/column
	(crit: <	0,05 pg/column
Sum Indikator PCB:	6,7	pg/column
	(crit: <	100 pg/column

**Results Recoveries:**

PCDD/F	84	to	104	%	(crit: 70 to 120 )
PCB	81	to	106	%	(crit: 70 to 120 )

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This is to certify that carbon column, Lot 713850, passed the required test specifications and is released for sale.

date: 19.11.2020 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)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,04
1,2,3,7,8-PeCDF	0,06
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,052
1,2,3,6,7,8-HxCDF	0,056
2,3,4,6,7,8-HxCDF	<0,045
1,2,3,7,8,9-HxCDF	0,08
1,2,3,4,6,7,8-HpCDF	<0,063
1,2,3,4,7,8,9-HpCDF	0,049
OCDF	0,24
2,3,7,8-TCDD	0,04
1,2,3,7,8-PeCDD	0,08
1,2,3,4,7,8-HxCDD	0,044
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,065
1,2,3,4,6,7,8-HpCDD	0,11
OCDD	0,62

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

Table 2: PCB blank (n=9)

Congeneres:	[pg/column]:
PCB 28	1,9
PCB 52	2,18
PCB 77	<0,045
PCB 81	<0,027
PCB 101	0,59
PCB 123	0,1952
PCB 118	0,18
PCB 114	0,1187
PCB 105	0,09
PCB 126	0,0687
PCB 153	0,73
PCB 138	0,61
PCB 167	0,269
PCB 156	0,23
PCB 157	0,15
PCB 169	0,057
PCB 180	0,46
PCB 189	0,177

TEQ (WHO 2005)	
lower bound	0,0086
upper bound	0,0086

Sum DIN PCB	6,7
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**Results:**

13C-Recoveries

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

Congeneres:	13C rec [%]
2,3,7,8-TCDF	96
1,2,3,7,8-PeCDF	100
2,3,4,7,8-PeCDF	92
1,2,3,4,7,8-HxCDF	99
1,2,3,6,7,8-HxCDF	94
2,3,4,6,7,8-HxCDF	94
1,2,3,7,8,9-HxCDF	103
1,2,3,4,6,7,8-HpCDF	93
1,2,3,4,7,8,9-HpCDF	94
OCDF	86
2,3,7,8-TCDD	91
1,2,3,7,8-PeCDD	98
1,2,3,4,7,8-HxCDD	104
1,2,3,6,7,8-HxCDD	92
1,2,3,7,8,9-HxCDD	97
1,2,3,4,6,7,8-HpCDD	95
OCDD	84

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

Congeneres:	13C rec [%]
PCB 28	102
PCB 52	95
PCB 77	96
PCB 81	94
PCB 101	105
PCB 123	100
PCB 118	96
PCB 114	104
PCB 105	103
PCB 126	94
PCB 153	99
PCB 138	102
PCB 167	97
PCB 156	87
PCB 157	81
PCB 169	91
PCB 180	106
PCB 189	97

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