

## Quality Control Certificate

Product: **Carbon Column**  
 Product No.: 15242  
 Lot No.: **719566**

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

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 on a DEXTech Plus system, spiked with recovery standard, evaporated with the 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:	0,21	pg/column
		(crit: <	0,7 pg/column)
	dl-PCB-TEQ:	0,01	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	29,1	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	76	to	101	%	(crit: 70	to	120	%)
	PCB	71	to	118	%	(crit: 70	to	120	%)

This is to certify that the Carbon Column, Lot 719566, passed the required test specifications and is released for sale.

date: 05.02.2024 sign.: T. Keshmeir

The company LCTech GmbH is certified according to ISO 9001



## QC-Certificate - 15242 - 719566

Hazards:	<p>NOT FOR HUMAN OR DRUG USE!</p> <p>The Carbon Column is designed and prepared for usage with the Alumina/Florisil Column and Universal/standard &amp; 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.</p>
Quality Control:	<p>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.</p>
Quality Management:	<p>This product was produced using a Quality Management System registered to the ISO 9001:2015 (DEKRA)</p>
Documentation / Data Attached:	<p>table 1 &amp; 2: blankvalues of PCDD/F and PCB table 3 &amp; 4: 13C-Recoveries of PCDD/F and PCB</p>
Analytics	<p>This is to certify that the Carbon Column, Lot , passed the required test specifications and is released for sale.</p>
Remarks	<p>n/a</p>



QC-Certificate - 15242 - 719566

Results:

Lockmass check: No significant disturbances, or indicators for contaminations are detected.

Blanks: n= 7

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	<0,036
1,2,3,7,8-PeCDF	0,1
2,3,4,7,8-PeCDF	0,12
1,2,3,4,7,8-HxCDF	0,096
1,2,3,6,7,8-HxCDF	0,066
2,3,4,6,7,8-HxCDF	0,07
1,2,3,7,8,9-HxCDF	0,11
1,2,3,4,6,7,8-HpCDF	0,1
1,2,3,4,7,8,9-HpCDF	0,086
1,2,3,4,6,7,8,9-OCDF	0,1
2,3,7,8-TCDD	<0,036
1,2,3,7,8-PeCDD	0,07
1,2,3,4,7,8-HxCDD	0,057
1,2,3,6,7,8-HxCDD	0,13
1,2,3,7,8,9-HxCDD	0,086
1,2,3,4,6,7,8-HpCDD	0,12
1,2,3,4,6,7,8,9-OCDD	0,26

Table 2: PCB blank

	[pg/column]
PCB-#28	7,35
PCB-#52	11,77
PCB-#101	3,5
PCB-#153	2,62
PCB-#138	2,18
PCB-#180	1,66
PCB-#81	0,05
PCB-#77	0,07
PCB-#126	0,0824
PCB-#169	0,05
PCB-#123	0,35
PCB-#118	1,02
PCB-#114	0,214
PCB-#105	0,56
PCB-#167	0,792
PCB-#156	0,837
PCB-#157	0,78
PCB-#189	2,094

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,21
upper bound	0,21

PCB-TEQ	[pg/column]
lower bound	0,01
upper bound	0,01
Sum DIN	29,1

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	87	11
	1,2,3,7,8-PeCDF	81	12
	2,3,4,7,8-PeCDF	83	15
	1,2,3,4,7,8-HxCDF	87	7
	1,2,3,6,7,8-HxCDF	97	9
	2,3,4,6,7,8-HxCDF	90	10
	1,2,3,7,8,9-HxCDF	95	10
	1,2,3,4,6,7,8-HpCDF	94	3
	1,2,3,4,7,8,9-HpCDF	86	4
	1,2,3,4,6,7,8,9-OCDF	101	7
	2,3,7,8-TCDD	81	16
	1,2,3,7,8-PeCDD	82	10
	1,2,3,4,7,8-HxCDD	94	8
	1,2,3,6,7,8-HxCDD	76	5
	1,2,3,7,8,9-HxCDD	92	6
	1,2,3,4,6,7,8-HpCDD	88	5
	1,2,3,4,6,7,8,9-OCDD	89	5

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	84	6
	PCB-#52	118	7
	PCB-#101	95	5
	PCB-#153	93	4
	PCB-#138	92	3
	PCB-#180	80	7
	PCB-#81	78	6
	PCB-#77	78	8
	PCB-#126	75	9
	PCB-#169	73	13
	PCB-#123	75	64
	PCB-#118	73	67
	PCB-#114	75	64
	PCB-#105	72	68
	PCB-#167	100	39
	PCB-#156	71	69
	PCB-#157	71	69
	PCB-#189	91	46