

Quality Control Certificate

Product: **Carbon Column Pos.3**
 Product No.: 13810
 Lot No.: **717709**

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 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:	0,33	pg/column
		(crit: <	0,7 pg/column)
	dl-PCB-TEQ:	0,0388	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	14,6	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	77	to	103	%	(crit: 70	to	120	%)
	PCB	70	to	98	%	(crit: 70	to	120	%)

This is to certify that the Carbon Column Pos.3, Lot 717709, passed the required test specifications and is released for sale.

date: 08.09.2023 sign.: *M. Brack's*

The company LCTech GmbH is certified according to ISO 9001



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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 & 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 & 2: blankvalues of PCDD/F and PCB table 3 & 4: 13C-Recoveries of PCDD/F and PCB</p>
Analytics	<p>This is to certify that the Carbon Column pos.3, Lot , passed the required test specifications and is released for sale.</p>
Remarks	<p>n/a</p>



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Results:

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

Blanks: n= 6

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	0,06
1,2,3,7,8-PeCDF	0,09
2,3,4,7,8-PeCDF	0,17
1,2,3,4,7,8-HxCDF	0,117
1,2,3,6,7,8-HxCDF	0,117
2,3,4,6,7,8-HxCDF	0,09
1,2,3,7,8,9-HxCDF	0,15
1,2,3,4,6,7,8-HpCDF	0,14
1,2,3,4,7,8,9-HpCDF	0,143
1,2,3,4,6,7,8,9-OCDF	0,21
2,3,7,8-TCDD	0,04
1,2,3,7,8-PeCDD	0,13
1,2,3,4,7,8-HxCDD	0,111
1,2,3,6,7,8-HxCDD	0,2
1,2,3,7,8,9-HxCDD	0,169
1,2,3,4,6,7,8-HpCDD	0,29
1,2,3,4,6,7,8,9-OCDD	1,01

Table 2: PCB blank

	[pg/column]
PCB-#28	3,66
PCB-#52	4,4
PCB-#101	2,28
PCB-#153	2,39
PCB-#138	1,31
PCB-#180	0,552
PCB-#81	0,37
PCB-#77	0,42
PCB-#126	0,2533
PCB-#169	0,436
PCB-#123	0,73
PCB-#118	1,07
PCB-#114	0,423
PCB-#105	0,92
PCB-#167	0,36
PCB-#156	0,965
PCB-#157	0,55
PCB-#189	0,99

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,33
upper bound	0,33

PCB-TEQ	[pg/column]
lower bound	0,0388
upper bound	0,0388
Sum DIN	14,6

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	81	5
	1,2,3,7,8-PeCDF	78	6
	2,3,4,7,8-PeCDF	78	7
	1,2,3,4,7,8-HxCDF	95	5
	1,2,3,6,7,8-HxCDF	103	6
	2,3,4,6,7,8-HxCDF	94	10
	1,2,3,7,8,9-HxCDF	91	10
	1,2,3,4,6,7,8-HpCDF	95	10
	1,2,3,4,7,8,9-HpCDF	85	11
	1,2,3,4,6,7,8,9-OCDF	84	2
	2,3,7,8-TCDD	79	5
	1,2,3,7,8-PeCDD	77	9
	1,2,3,4,7,8-HxCDD	100	5
	1,2,3,6,7,8-HxCDD	87	6
	1,2,3,7,8,9-HxCDD	98	10
	1,2,3,4,6,7,8-HpCDD	87	10
	1,2,3,4,6,7,8,9-OCDD	79	1

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	91	4
	PCB-#52	89	5
	PCB-#101	98	2
	PCB-#153	94	2
	PCB-#138	93	2
	PCB-#180	97	1
	PCB-#81	75	2
	PCB-#77	73	3
	PCB-#126	72	3
	PCB-#169	70	3
	PCB-#123	72	12
	PCB-#118	74	6
	PCB-#114	87	2
	PCB-#105	71	7
	PCB-#167	71	3
	PCB-#156	71	6
	PCB-#157	73	12
	PCB-#189	72	6