

Quality Control Certificate

Product: **Carbon Column**
 Product No.: 20777
 Lot No.: **719223**

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:	0,26	pg/column
		(crit: <	0,7 pg/column)
	dl-PCB-TEQ:	0,0116	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	17,4	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	82	to	106	%	(crit: 70	to	120	%)
	PCB	73	to	94	%	(crit: 70	to	120	%)

This is to certify that the Carbon Column, Lot 719223, passed the required test specifications and is released for sale.

date: 04.12.2023 sign.: M. Bradis

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, 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	0,05
1,2,3,7,8-PeCDF	0,16
2,3,4,7,8-PeCDF	0,12
1,2,3,4,7,8-HxCDF	0,051
1,2,3,6,7,8-HxCDF	0,027
2,3,4,6,7,8-HxCDF	<0,045
1,2,3,7,8,9-HxCDF	0,06
1,2,3,4,6,7,8-HpCDF	<0,063
1,2,3,4,7,8,9-HpCDF	0,061
1,2,3,4,6,7,8,9-OCDF	0,08
2,3,7,8-TCDD	0,07
1,2,3,7,8-PeCDD	0,09
1,2,3,4,7,8-HxCDD	0,09
1,2,3,6,7,8-HxCDD	0,11
1,2,3,7,8,9-HxCDD	0,113
1,2,3,4,6,7,8-HpCDD	<0,09
1,2,3,4,6,7,8,9-OCDD	0,27

Table 2: PCB blank

	[pg/column]
PCB-#28	2,9
PCB-#52	3,67
PCB-#101	3,89
PCB-#153	3,09
PCB-#138	2,74
PCB-#180	1,113
PCB-#81	0,05
PCB-#77	0,173
PCB-#126	0,1007
PCB-#169	0,04
PCB-#123	0,84
PCB-#118	1,54
PCB-#114	1,177
PCB-#105	1
PCB-#167	0,875
PCB-#156	1,023
PCB-#157	0,74
PCB-#189	1,213

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,26
upper bound	0,26

PCB-TEQ	[pg/column]
lower bound	0,0116
upper bound	0,0116
Sum DIN	17,4

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	90	9
	1,2,3,7,8-PeCDF	83	8
	2,3,4,7,8-PeCDF	89	12
	1,2,3,4,7,8-HxCDF	93	19
	1,2,3,6,7,8-HxCDF	100	18
	2,3,4,6,7,8-HxCDF	92	18
	1,2,3,7,8,9-HxCDF	92	13
	1,2,3,4,6,7,8-HpCDF	100	7
	1,2,3,4,7,8,9-HpCDF	106	8
	1,2,3,4,6,7,8,9-OCDF	88	12
	2,3,7,8-TCDD	87	7
	1,2,3,7,8-PeCDD	88	9
	1,2,3,4,7,8-HxCDD	96	19
	1,2,3,6,7,8-HxCDD	82	16
	1,2,3,7,8,9-HxCDD	93	15
	1,2,3,4,6,7,8-HpCDD	96	5
	1,2,3,4,6,7,8,9-OCDD	85	10

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	90	8
	PCB-#52	84	10
	PCB-#101	90	4
	PCB-#153	94	8
	PCB-#138	94	6
	PCB-#180	90	10
	PCB-#81	79	8
	PCB-#77	80	9
	PCB-#126	84	12
	PCB-#169	81	12
	PCB-#123	83	7
	PCB-#118	79	6
	PCB-#114	86	4
	PCB-#105	83	6
	PCB-#167	80	9
	PCB-#156	73	8
	PCB-#157	83	13
	PCB-#189	79	9